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Revision of Xiphydriinae (Hymenoptera: Xiphydriidae) of Australia

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Abstract We re-diagnose *Rhysacephala* Benson, 1954, a genus of xiphydriid woodwasps confined to eastern mainland Australia, Tasmania and Lord Howe Island. *Rhysacephala leai* (Forsius, 1927), including the first description of the female, *Rhysacephala obtusiventris* (Rohwer, 1918), and *Rhysacephala wilsoni* Benson, 1954 are redescribed. Six new species from eastern Australia are described: *Rhysacephala amplipretarsus* Jennings, Parslow & Macdonald, **sp. nov.**, *Rhysacephala fulva* Jennings, Parslow & Macdonald, **sp. nov.**, *Rhysacephala impensa* Jennings, Parslow & Macdonald, **sp. nov.**, *Rhysacephala monteithi* Jennings, Parslow & Macdonald, **sp. nov.**, *Rhysacephala phalaros* Jennings, Parslow & Macdonald, **sp. nov.** and *Rhysacephala tenebrilata* Jennings, Parslow & Macdonald, **sp. nov.** A monotypic genus, *Austroxiphyda* Jennings, Macdonald, Schiff & Parslow, **gen. nov.**, is established and includes *Austroxiphyda lasallei* Jennings, Macdonald, Schiff & Parslow, **sp. nov.** Keys to identify the 12 Australian species of Xiphydriinae are provided.

Key words *Austrocyrta*, new genus, new species, systematics, taxonomy, woodwasp.

INTRODUCTION

The woodwasp family Xiphydriidae (Xiphydrioidea) is rarely collected and comprises a total of seven described species from two subfamilies, Derecyrtinae and Xiphydriinae (Smith 1978; Jennings & Austin 2009; Jennings *et al*. 2009a,b).

Derecyrtinae are recognised by having a long pronotum, shallowly excavated in front when viewed from above, with the excavation shorter than the medial length of the pronotum, and the dorsal area of the mesoscutellum margined by a carina and with a tubercle posteriorly (Fig. 1c,f, and see also figs 11,13 in Jennings *et al*. 2009b). The subfamily is confined to South America except for *Austrocyrta* Riek, 1955 from Australia (Riek 1955; Smith 1978; Jennings *et al*. 2009b). *Austrocyrta* includes two species, *Austrocyrta australiensis* Riek, 1955 and *Austrocyrta fasciculata* Jennings & Austin, 2009 (in Jennings *et al*. 2009b).

Xiphydriinae on the other hand are found worldwide, except for sub-Saharan Africa (Smith 2008). They have the pronotum deeply excavated in front, with the excavation much longer than the medial length of the pronotum, and the mesoscutellum rounded at its apex, lacking a dorsal area defined by a carina and lacking a prominent tubercle near its apex (Smith 2008).

The Australian fauna comprises five species of *Rhysacephala* (Riek 1955; Smith 1978; Smith 2008; Jennings *et al*. 2009a,b; Jennings 2010): *Rhysacephala leai* (Forsius, 1927), *Rhysacephala obtusiventris* (Rohwer, 1918) and *Rhysacephala wilsoni* Benson, 1954, all from mainland Australia; *Rhysacephala warraensis* Jennings & Austin, 2009 (in Jennings *et al*. 2009b) from Tasmania; and *Rhysacephala masneri* Jennings & Austin, 2009 from Lord Howe Island. One species from New Caledonia previously included in *Rhysacephala*, *Calexiphyda novacaledonicus* (Jennings & Austin, 2007, in Jennings *et al*. 2007), has been transferred to the New Caledonian genus *Calexiphyda* Smith, 2008 (Jennings *et al*. 2007; Smith 2008; Smith & Villemant 2017).

In his assessment of characters, Smith (2008) indicated that *Rhysacephala* have seven maxillary palpomeres, although this character is shared by *Calexiphyda*, *Lissoxiphyda* Smith, 2008 (Aru Islands, Indonesia and Papua New Guinea) and also *Moaxiphia* Maa, 1949 (New Zealand). Smith also indicated that *Rhysacephala* have a densely punctate, dull head and a small (narrow) occipital carina and are very small wasps with the full complement of veins and cells in the wings.

Where known, larvae of xiphydriids are wood borers in weakened or dying limbs of woody plants (Smith 1976, 1988). In the Northern Hemisphere, the larvae develop in the wood of angiosperms, usually in small branches of deciduous trees from the families Aceraceae, Betulaceae, Salicaceae and Ulmaceae

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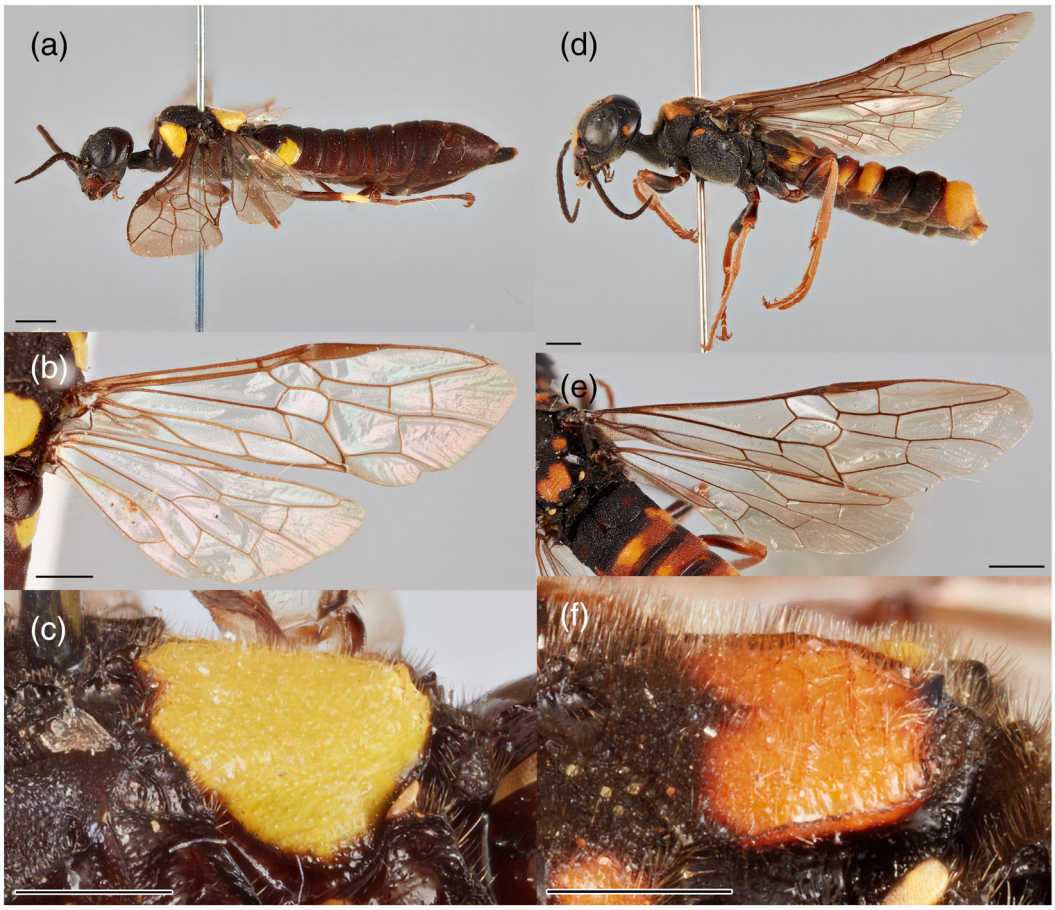

Fig. 1. (a–c) *Austrocyrta australiensis* Riek, female. (a) Lateral habitus and (b) fore and hindwing. Scale bar = 1.0 mm. (c) Dorsal mesoscutellum with dorsal area defined by a carina and with tubercle posteriorly. Scale bar = 0.5 mm. (d–f) *Austrocyrta fasciculata* Jennings & Austin, male. (d) Lateral habitus and (e) fore and hindwing. Scale bar = 1.0 mm. (f) Dorsal mesoscutellum with dorsal area defined by a carina and with tubercle posteriorly. Scale bar = 0.5 mm.

(e.g. Smith 1978; Gauld & Bolton 1996; Smith & Schiff 2001; Smith 2008). Adult female xiphydriids possess mycangia filled with fungal spores, and the developing larvae depend on symbiotic fungi that grow in the larval tunnels (e.g. Thompson & Skinner 1961; Gauld & Bolton 1996; Kajimura 2000).

Very little is known about the biology of the Australian xiphydriid fauna, with just a single confirmed host record. *R. warraensis* has been reared from *Anodopetalum biglandulosum* (Cunoniaceae) (Jennings *et al*. 2009a). Basset (1991) noted that *Rhysacephala* was found in the canopy of *Argyrodendron actinophyllum* Edlin (Malvaceae) forest near Brisbane, Australia, but there are no rearing records to indicate that this tree is actually a host of xiphydriids.

This paper contains descriptions of six new species of *Rhysacephala*, together with redescriptions of *R. leai* and *R. wilsoni*. We also describe a new genus and species of xiphydriid wasp from Australia.

MATERIALS AND METHODS

Images were taken using a Visionary Digital BK+ imaging system with a Canon EOS 7D 18 MP camera or using a Leica M205 C microscope. Images were produced using Zerene Stacker, Zerene Systems LLC, PMax software. They were cropped and resized in Adobe Photoshop CS6 (Adobe Systems Inc., San Jose, CA, USA). Terms for surface sculpturing follow Harris (1979), and morphological terminology follows Huber and Sharkey (1993) and Smith (2008). Body length refers to the anatomical line that is median and extends between the anteriormost point of the head and the posteriormost point of the metasoma (excluding ovipositor and third valvula). Abdominal tergites are referred to as T1, T2 and so forth.

Descriptions are based on the holotype with paratype variation(s), if any, in brackets. In the case of previously described species, where we have additional material, we provide a range for anatomical measurements.

Abbreviations for institutions that are the repository of specimens are as follows:

ANIC – Australian National Insect Collection, Canberra, ACT
ASCT – NSW Insect & Mite Collection, Orange, NSW
MVMA – Museum of Victoria, Melbourne, VIC
NHMUK – Natural History Museum, London, UK
QM – Queensland Museum, Brisbane, QLD

SAMA – South Australian Museum, Adelaide, SA
VAIC – Victorian Agricultural Insect Collection, Bundoora, VIC

TAXONOMY

Key to Australian Xiphydriidae

The two described species of *Austrocyrta* have been included here to enable workers to recognise this part of the Australian xiphdriid fauna.

1 Mesoscutellum with a dorsal area defined by a carina and with a tubercle posteriorly (Fig. 1c,f and fig. 13 in Jennings *et al*. 2009b); pronotal collar not deeply excavated in front (see figs 1,2 in Jennings *et al*. 2009b) [Derecyrtinae] ..... *Austrocyrta* 2
- Mesoscutellum without dorsal area defined by a carina and without tubercle posteriorly; pronotal collar deeply excavated in front (see Fig. 15d)..... [Xiphydriinae] 3

2 Forewing vein 2r-rs present (Fig. 1b); abdomen 2.0× length thorax [2.2–2.3× in female], tergites not convex at centre; abdomen dark brown, with yellow patch laterally on segments 2 and 9 [female lacks patch on segment 9] (Fig. 1a); antenna with 19 flagellomeres [23 in female]; distance between antennal sockets 2.0× distance between an antennal socket and front of clypeus.....*Austrocyrta australiensis*
- Forewing vein 2r-rs present (Fig. 1e); abdomen 2.6 (2.5–2.8)× length thorax, tergites distinctly convex at centre; abdomen black except segments 2–5 orange centrally, segment 8 orange in posterior three-quarters and segment 9 entirely orange (Fig. 1d); antenna with 17 flagellomeres [female unknown]; distance between antennal sockets 1.5× distance between an antennal socket and front of clypeus .....*Austrocyrta fasciculata*

3 Tarsal claws simple, lacking small erect inner tooth (e.g. Fig. 22b); six maxillary palpomeres; hindwing vein 3r-m is absent *Austroxiphyda* Jennings, Macdonald, Schiff & Parslow, gen. nov. [one species: *Austroxiphyda lasallei* Jennings, Macdonald, Schiff & Parslow, sp. nov.].
- Tarsal claws with small erect inner tooth (e.g. Fig. 3b); seven maxillary palpomeres; vein 3r-m present (except variable in *Rhysacephala amplipretarsus* sp. nov., where vein 3r-m can be either incomplete or absent) .....*Rhysacephala*

Rhysacephala Benson, 1954

Rhysacephala Benson, 1954: 158; Riek 1955: 283; Smith 1978: 111; Quinlan 1974: 223; Smith 2008: 22, 23 [in key]; Jennings 2010 [catalogue]. Gender: feminine.

Type species: *Xiphydria obtusiventris* Rohwer. By original designation.

Key to Australian *Rhysacephala* species

The key is based on both sexes, but caution should be taken as in a number of cases only one sex is known. Furthermore, females and males of *Rhysacephala leai* key out separately (see couplets 7 and 11, respectively). Although Smith (2008) suggests there is considerable sexual dimorphism, our observations suggest that, apart from genitalia, the sexes of *Rhysacephala* are not distinctly dimorphic.

1 Head without cream or yellow stripes on inner margin of eyes (e.g. Fig. 4c,d) 2
- Head with cream or yellow stripes on inner margin of eyes (e.g. Figs 5c and 14c) 6

2 (1). Hind claw with enlarged pretarsus (e.g. Fig. 3a)..... 3
- Hind claw with normal pretarsus (Fig. 3b)..... 4

3 (2). Head pale brown except lateral corners of clypeus cream, brown dorso-medial band on vertex and small patch on posterior margin of eye (Fig. 16c,d); mesoscutum and mesepisternum coarsely rugose [known only from male] *Rhysacephala tenebrilata* **sp. nov.**
- Head dark brown except lateral corners and anterior margin of clypeus and malar space lighter brown (Fig. 4c,d); mesoscutum and mesepisternum not coarsely rugose [known only from females]..... *R. amplipretarsus* **sp. nov.**

4 (2). Face reticulate or rugose with reticulate microsculpture; vertex reticulate or aciculate..... 5
- Face coarsely rugose; vertex transversely striate (Figs 19c and 20c) [females and males similar] .....*R.* Benson 1954

5 (4). Vertex reticulate, longitudinal medial furrow absent; head largely black, antenna dark brown (Fig. 10a,b) [known only from female].....*R. masneri* Jennings & Austin, 2009
- Vertex aciculate, longitudinal medial furrow present; head largely dark brown, antenna cream (Fig. 14a,d) [known only from females].....*R. obtusiventris* (Rohwer, 1918)

6 (1). Cream or yellow stripes absent on vertex (Figs 5d and 8b) 7
- Cream or yellow stripes present on vertex (e.g. Figs 12d and 16d) 8

7 (6). Head pale brown (Fig. 5c,d), although in male, slightly darker brown on frons and around ocelli; third valvula dark brown (Fig. 5a).....*R. fulva* **sp. nov.**
- Head of female entirely dark brown (Fig. 8a,b); third valvula brown (Fig. 8e) [see couplet 11 for males] *R. leai* (Forsius, 1927)

8 (6). Cream or yellow band on abdominal tergum 2 (e.g. Fig. 15b)..... 9
- Cream or yellow band on abdominal tergum 2 absent..... 10

9 (8). Apical half of fourth flagellomere to apical flagellomere cream (Figs 12a and 13a); female abdomen blackish brown, with T2 mostly yellow (Fig. 12a); male abdomen pale brown, T2 largely pale brown, with small yellow spot laterally (Fig. 13a).....*R. monteithi* **sp. nov.**
- Flagellomeres entirely brown (Fig. 15b); cream band on abdominal tergum 2.....*R. phalaros* **sp. nov.**

10 (8). Cream patches on pronotum present (Figs 17a and 18a) [Tasmania].....*R. warraensis* Jennings *et al*. 2009b
- Cream patches on pronotum absent (Figs 7a and 8a) 11

11 (10). Male. Thorax and abdomen pale brown (Fig. 8c,e); distinct transverse cream stripes on posterolateral vertex present; body length 9.5 (9.1–9.9) mm *R. leai* (Forsius, 1927) [see couplet 7 for female]

- Thorax and abdomen brown (Fig. 7a); transverse cream stripes on posterolateral vertex absent (Fig. 7d); body length 19.4 mm [Queensland] [known only from female] ..... *R. impensa* **sp. nov.**

Diagnosis (modified after Benson 1954)

Head about as wide as thorax, narrowed behind the eyes where it is generally divided medially by a longitudinal furrow, often transversely striate on the vertex and gena as far as the base of the mandibles; genal carina present; occipital carina well developed, narrow; post-occipital carina well developed, narrow; malar space from eye margin to inner edge of malar depression very short. Medial process on anterior margin of clypeus, slightly off-centre. Mandible with four teeth. Labial palp with four palpomeres, apical palpomere enlarged, clavate; maxillary palp with seven palpomeres; eyes oval, inner orbits more or less parallel or subparallel. Antenna with 18 to 28 antennomeres; from fourth antennomere onwards each antennomere decreasing in length and breadth. Pronotal collar deeply excavated in front (when viewed dorsally, only lateral corners visible) (e.g. Fig. 15d). Mesoscutellum without dorsal area defined by a carina, without prominent tubercle near apex. Forewing vein 2r-rs present. Forewing vein 2A + 3A complete, generally with uniform colouration (Fig. 2). Hindwing vein 3r-m present (Fig. 2), rarely incomplete or absent. Tibiae with two apical spurs, although inner spur very short, rarely absent on fore tibia; hind tarsus longer than tibia; robust spines on apical two-thirds of inner face of fore tibia; hind tarsal claw with small erect inner tooth (Fig. 3b); bilobed tarsal plantulae present distally on tarsomeres 1–4, hind claw about 1.5× as long as middle claw. Cenchrus cream. Third valvula about equal to or shorter than length of valvifer 2.

Remarks

The diagnosis of Benson (1954) has been modified slightly to include the additional new species and to include characters used more recently by Smith (2008) in his generic diagnoses.

Rhysacephala amplipretarsus Jennings, Parslow & Macdonald, sp. nov.

(Figs 3a, 4 and 11)

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Material examined

Holotype

♀, '40 km W Ingham, QLD, nr. Wallaman Falls, 22 Jun–7 Aug 1982, S. & J. Peck coll., SBP45 600 m' 'Flight intercept trap rainforest' (ANIC: 32-163503).

Paratypes

Queensland: ♀, 17.37°S, 145.34°E, Massey Creek, 1000 m, 3 Jan–5 Feb 1995, P. Zborowski, FI trap (ANIC: 32-163543); ♀, 17.28°S, 145.29°E, Longlands Gap, 1150 m, 30 Nov 1995–3 Jan 1996, L. Umback, Malaise Trap (ANIC: 32-163544); ♀, 17.108°S, 145.569°E, Lamb Ra., 6.6 km NNE Tinaroo Falls, 1191 m, Malaise Trap, 16–24 Nov 2009, Monteith and Turco, 18614 (QM: T250690).

Diagnosis

Rhysacephala amplipretarsus sp. nov., although superficially similar to *R. leai* based on general body and head colouration, differs in that it lacks a cream/pale brown stripe on the inner

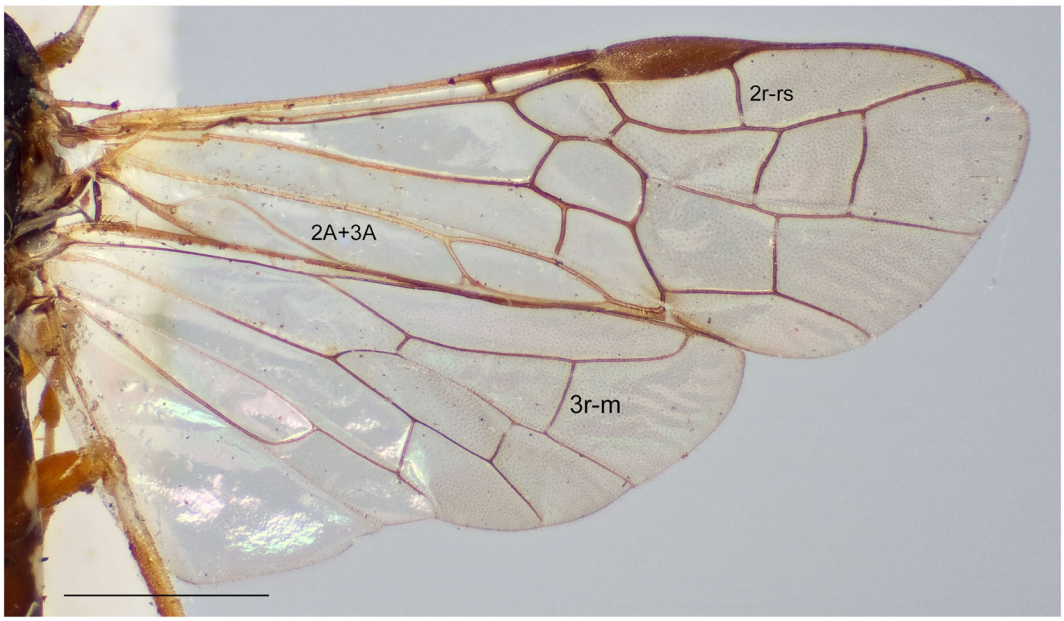

Fig. 2. Right wings of *Rhysacephala wilsoni*, female. Scale bar = 1.0 mm.

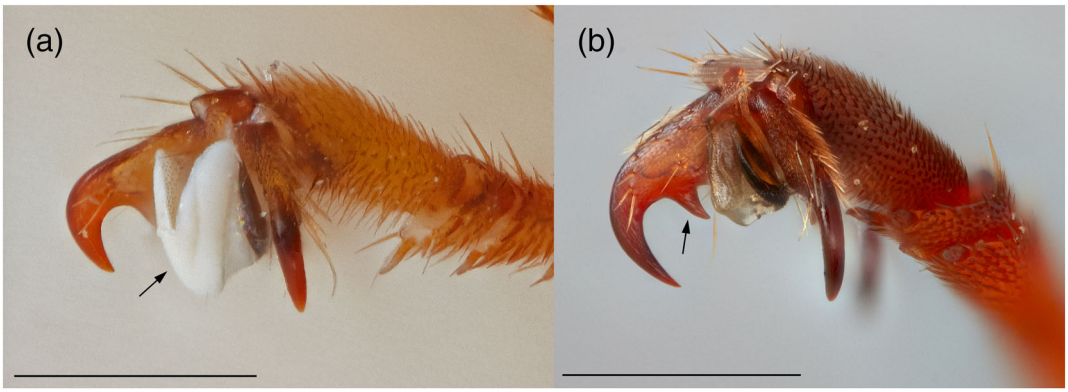

Fig. 3. Apical hind tarsus showing claw and pretarsus. (a) *Rhysacephala amplipretarsus* sp. nov. Scale bar = 0.25 mm. (b) *Rhysacephala monteithi* sp. nov. Scale bar = 0.5 mm.

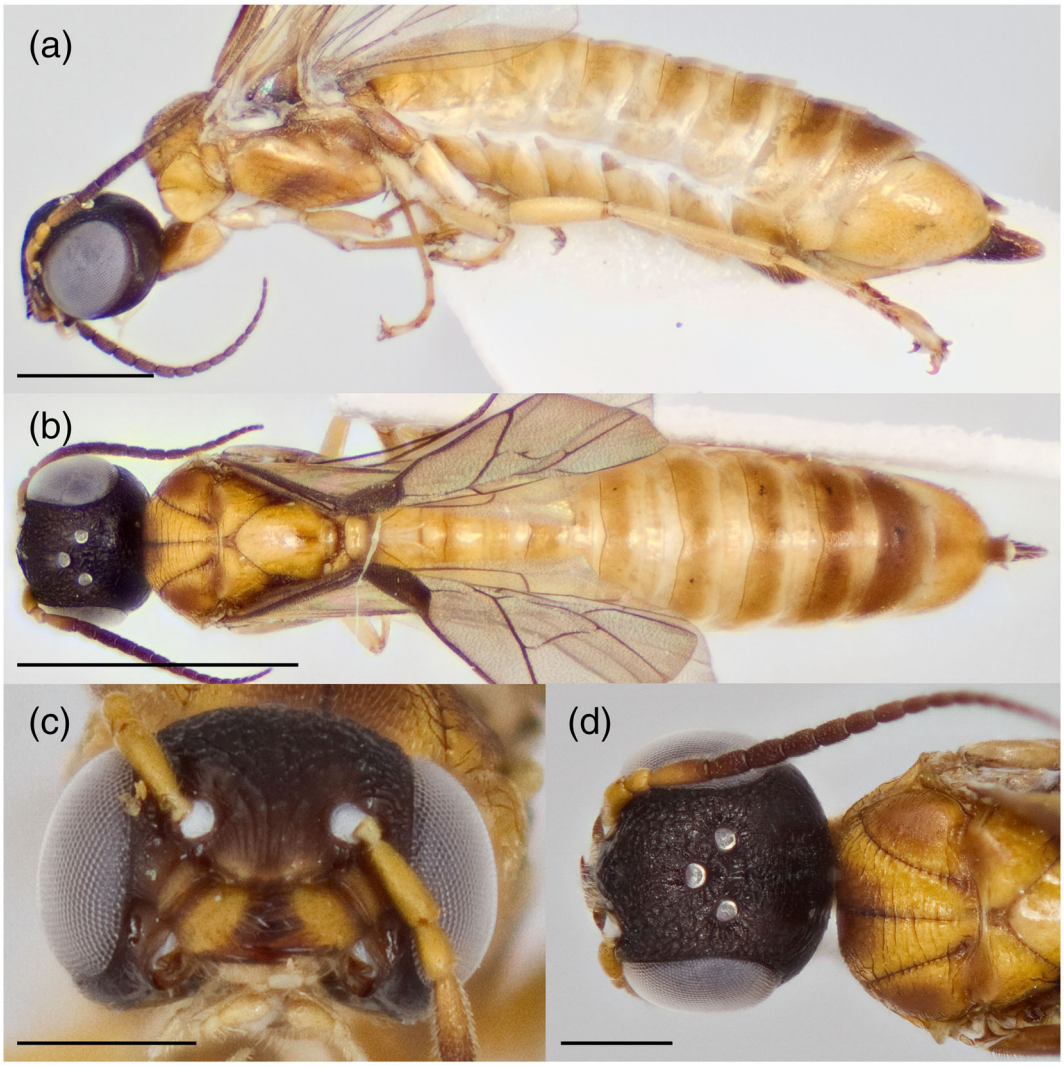

Fig. 4. *Rhysacephala amplipretarsus* sp. nov., holotype female. (a) Lateral habitus, (b) dorsal habitus, (c) frontal face and (d) dorsal head and anterior thorax. Scale bar = 1.0 mm.

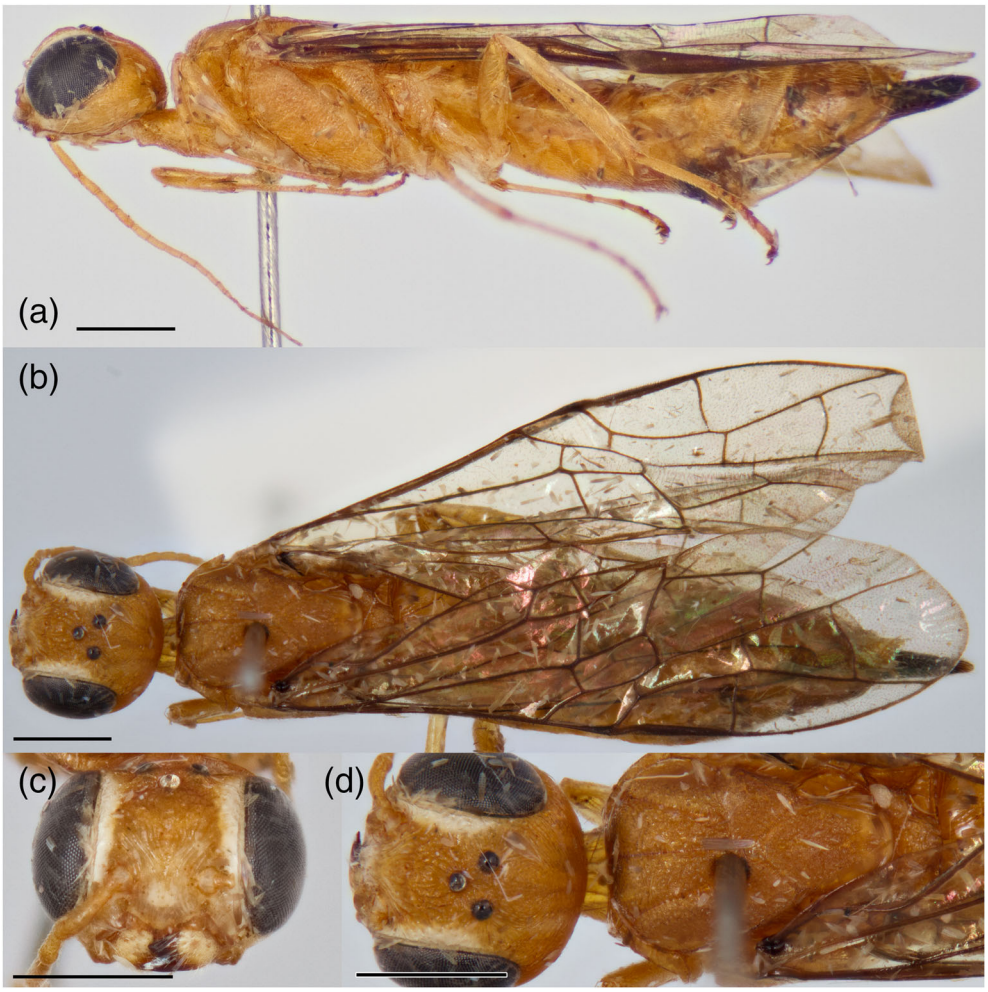

Fig. 5. *Rhysacephala fulva* sp. nov., holotype female. (a) Lateral habitus, (b) dorsal habitus, (c) frontal face and (d) dorsal head and thorax. Scale bar = 1.0 mm.

eye margin and has an enlarged and cream hind pretarsus (e.g. Fig. 3a). *R. amplipretarsus* sp. nov. keys out with *R. tenebrilata* sp. nov., and although described from opposite sexes, the two species can be easily separated based on the distinctive body colouration of *R. tenebrilata*.

Description

Female

Based on holotype. Length 7.2 (7.1–9.4) mm (Fig. 4a,b).

Colour. Head dark brown except lateral corners and anterior margin of clypeus and malar space lighter brown, mandibles pale brown with dark brown teeth, scape, pedicel and basal half of flagellomere 1 pale brown. Thorax pale brown except darker brown patches on anterior medial and lateral mesoscutum, brown patches on mesepisternum, mesepimeron and metepisternum. Legs pale brown, trochanters and trochantelli cream, pretarsi cream. Wings with a slight pale brown tint, veins and pterostigma dark brown. Abdomen pale brown (Fig. 4a,b), except T7 and T8 darker dorsally (not so in paratype), sternite 7 darker except apex cream, T10 darker except apical margin cream. Third valvula dark brown, posterior and ventral margin cream.

Head. 1.3× wider than long when viewed dorsally (Fig. 4d). Face coarsely strigate, frons slightly raised medially and with shallow indentation, frons areolate–rugose. Inner orbits of eyes more or less parallel (Fig. 4c). Distance between antennal sockets 1.6 (1.6–1.8)× distance between an antennal socket and front of clypeus, posterior margin of clypeus indistinct. Vertex (Fig. 3d) areolate–rugose near ocelli to rugulose–striate posteriorly, weak longitudinal groove medially on vertex. Gena strigate, carina present. Malar space 0.1× height of eye, shallow antennal groove, striate. Clypeus strigate. Antenna with 18 antennomeres, scape 2.0 (1.6–2.0)× length pedicel, first flagellomere 0.9 (0.9–1.1)× length scape, 1.3 (1.5–1.7)× as long as second flagellomere. Pedicel 1.8 (1.8–2.0)× as long as wide.

Thorax. Pronotal collar hidden, lateral corner weakly carinate. Mesoscutum with indistinct crenulate furrow antero-medially, weakly punctate to weakly punctate–rugose anteriorly, transversely carinate posteriorly, medial patch on lateral mesoscutum granulate. Mesoscutellum smooth. Axilla, metascutellum and metapostnotum smooth (Fig. 4b). Pronotum largely smooth,

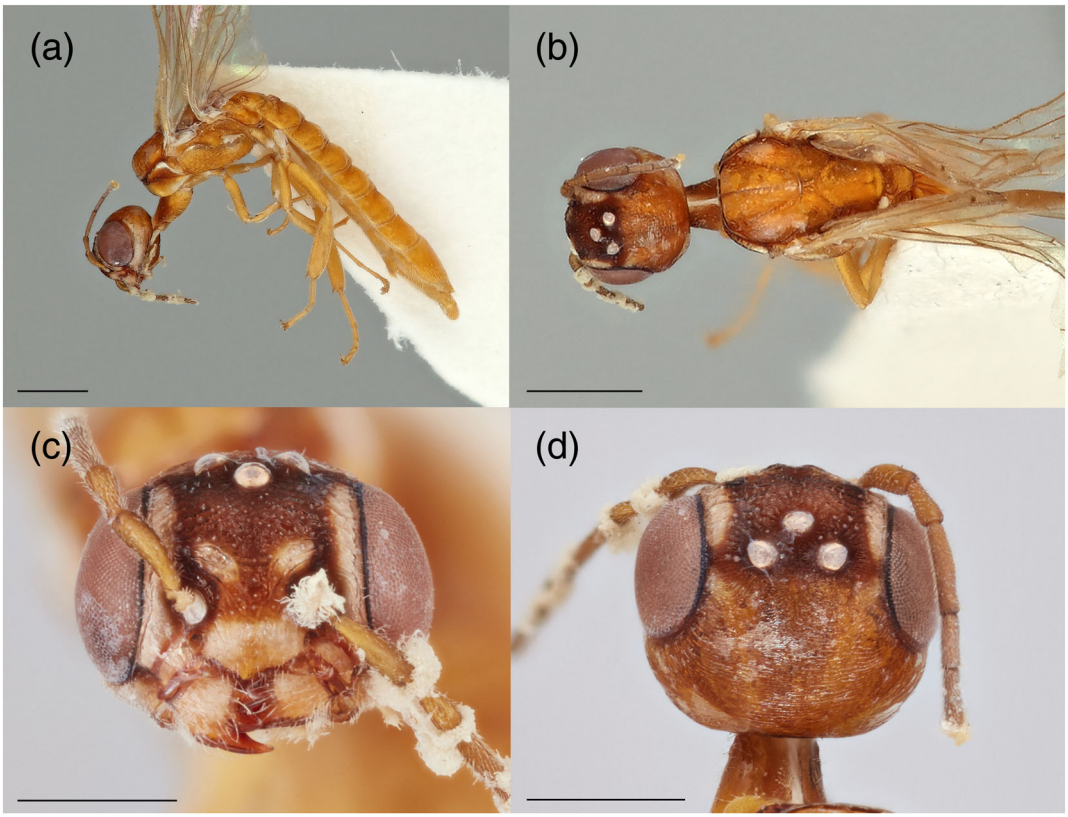

Fig. 6. *Rhysacephala fulva* sp. nov., male. (a) Lateral habitus and (b) dorsal habitus. Scale bar = 1.0 mm. (c) Frontal face and (d) dorsal head. Scale bar = 0.5 mm.

weakly carinate in medial groove and posterior margin. Mesepisternum weakly imbricate laterally, becoming smooth posteriorly and ventrally. Mesepimeron broad, weakly carinate. Metepisternum weakly imbricate, metepimeron rugulose (Fig. 4a). Hind femur about 0.6× length hind tibia. Hind basitarsus 0.8× length of remaining tarsomeres combined. Pretarsus enlarged (Fig. 4a), more so on hind leg. Hindwing vein 3r-m variable (see Remarks). Hindwing with four or five hamuli basally and five or six hamuli distally.

Abdomen. 2.7 (2.5–2.8)× length thorax (Fig. 4a,b), T1 largely smooth, weakly reticulate laterally, remaining abdominal terga imbricate. Third valvula 0.8× length valvifer 2.

Male

Unknown.

Remarks

The hindwing vein 3r-m seems to be somewhat variable in this species. In the holotype, vein 3r-m is present in the anterior half of the right hindwing but is completely absent on the left hindwing. In the paratype, the posterior two-thirds of vein 3r-m is almost entirely absent on the right hindwing but is complete on the left hindwing.

Etymology

The species name *amplipretarsus* is a combination of the Latin word *amplius* meaning larger, and pretarsus, in reference to the enlarged pretarsus on the hind leg.

Rhysacephala fulva Jennings, Parslow & Macdonald, sp. nov.

(Figs 5,6,11)

http://zoobank.org/urn:lsid:zoobank.org:act:F9730D44-FC80-4191-82C5-E5A81F5A9B1D

Material examined

Holotype

♀, '19.00°S, 146.12°E, Paluma, Q 900 m, 20–30 Nov 1979, Coll. D.W. Frith' 'Malaise Trap' (ANIC: 32-163504).

Paratype

Queensland: ♂, 17.20°S, 145.30°E, Worgabel St. For., nr. Atherton, QLD, no date, S. Howie (ANIC: 32-163505).

Diagnosis

Rhysacephala fulva sp. nov. is a pale brown species (e.g. Figs 5a and 6a) similar to *R. leai*, although in the latter species, the head is dark brown (e.g. Figs 8a and 9c). Both species have

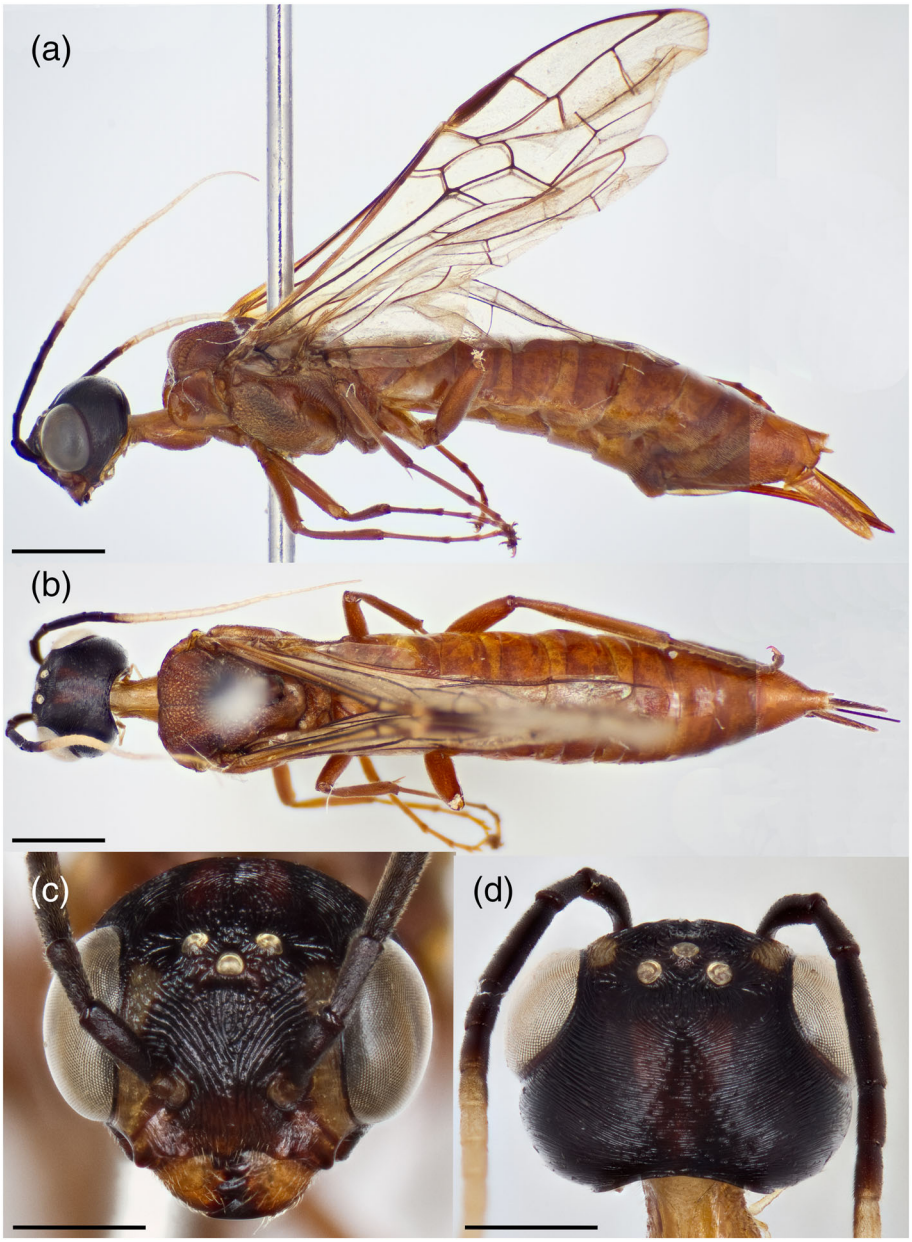

Fig. 7. *Rhysacephala impensa* sp. nov., holotype female. (a) Lateral habitus, (b) dorsal habitus, (c) frontal face and (d) dorsal head. Scale bar = 1.0 mm.

a distinct cream stripe on the inner eye margin (e.g. Figs 5c, 6c, 8a and 9c), but *R. fulva* lacks a cream or yellow stripe on the vertex (Fig. 5d).

Description

Female

Based on holotype. Length 8.8 mm (Fig. 5a,b).

Colour. Pale brown (tawny). Narrow cream band on inner margin of eye, small cream spot between antennal sockets, mandibles cream with dark brown teeth. Wings with a slight pale brown tint, veins and pterostigma distinctively dark brown (Fig. 5b). Abdomen pale brown, except sternite 7 dark brown. Third valvula dark brown, valvifer 2 cream.

Head. 1.2× wider than long when viewed dorsally (Fig. 5d). Face coarsely strigate, frons slightly raised medially and with shallow indentation. Inner orbits of eyes more or less parallel (Fig. 5c). Distance between antennal sockets 1.3× distance between an antennal socket and front of clypeus, posterior margin of clypeus indistinct. Vertex rugose near ocelli to curved transverse striations posteriorly. Gena strigate, carina present. Malar space 0.07× height of eye, shallow antennal groove, striate. Clypeus strigate. Antenna with 22 antennomeres, scape 1.7× length pedicel, first flagellomere about 1.0× length scape, 1.7× as long as second flagellomere. Pedicel 2.1× as long as wide.

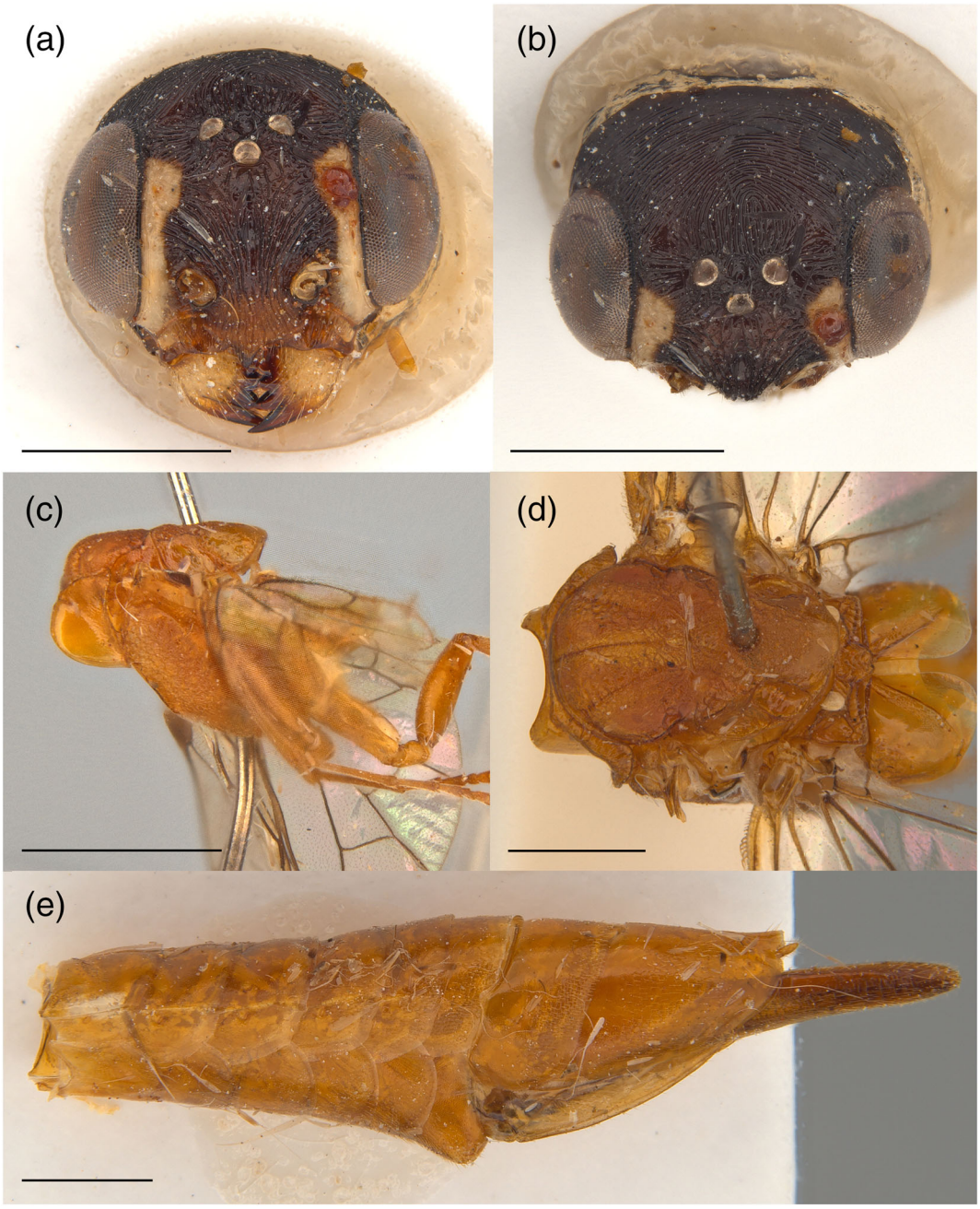

Fig. 8. *Rhysacephala leai* (Forsius), female. (a) Frontal face, (b) dorsal head, (c) lateral thorax, (d) dorsal thorax and (e) lateral abdomen. Scale bar = 1.0 mm.

Thorax. Pronotal collar hidden, lateral corner weakly carinate. Mesoscutum with distinct crenulate furrow medially, coarsely reticulate–rugose anteriorly areolate–rugose laterally and posteriorly, medial patch on lateral mesoscutum granulate. Mesoscutellum rugose, tending to smooth on posterior and lateral margins. Axilla, metascutellum and metapostnotum rugose. Pronotum largely smooth, medial groove weakly carinate. Mesepisternum areolate–rugulose, becoming smooth posteriorly and ventrally. Mesepimeron broad, carinate in ventral half, smooth in dorsal half. Metepisternum largely smooth, weak carinae anteriorly, metepimeron not visible. Hind femur 0.6× length hind tibia. Hind basitarsus 1.1× length of remaining tarsomeres combined. Hindwing with five hamuli basally and seven hamuli distally.

Abdomen. 2.3× length thorax (Fig. 5a), T1 largely rugulose laterally, smooth medially, remaining abdominal terga imbricate. Third valvula equal to length valvifer 2.

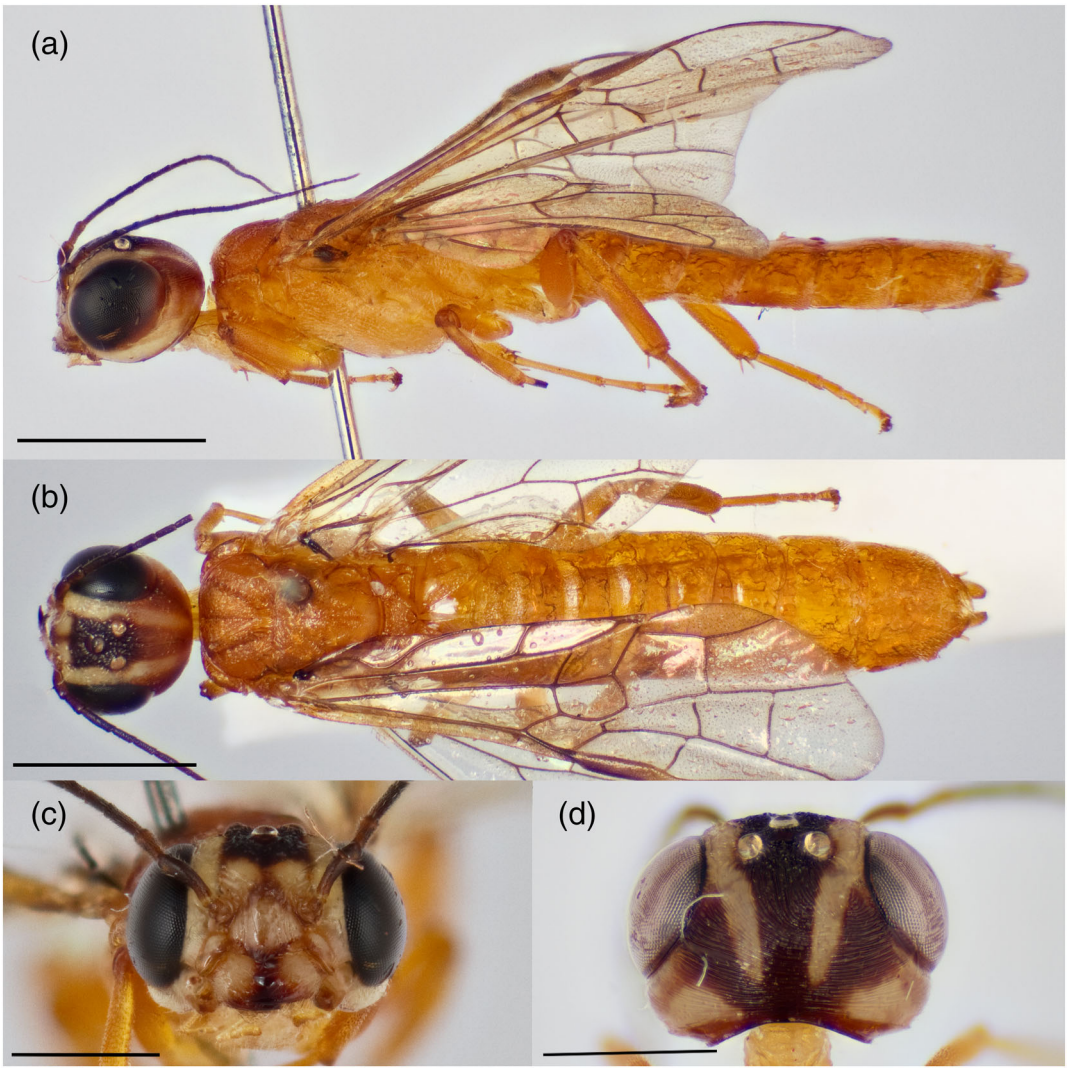

Fig. 9. *Rhysacephala leai* (Forsius), male. (a) Lateral habitus, (b) dorsal habitus, (c) frontal face and (d) dorsal head. Scale bar = 1.0 mm.

Male

There are only slight differences from the female as follows: dorsal head somewhat darker brown, margin of pronotum cream, cream patches on median and dorsal margin of mesepisternum which are lacking in the female.

Etymology

This species is named from the Latin *fulva* (= tawny, reddish yellow) in reference to the light brown (tawny) body colour.

Rhysacephala impensa Jennings, Parslow & Macdonald, sp. nov.

(Figs 7,11)

http://zoobank.org/urn:lsid:zoobank.org:act:66505ADD-3CB1-45BE-A0CE-4843E76702B0

Material examined

Holotype

♀, 'Malaise Trap, Mt Glorious Rainforest, SE QLD, 26 Jun–10 Jul 1979. No collector data' 'ASCT 00025222' (ASCT).

Diagnosis

Rhysacephala impensa sp. nov. is the largest Australian species (19.4 mm) and can be readily distinguished from other species based on its size. It is one of several species with a cream/pale brown stripe on the inner eye margin. It keys out together with the males of *R. leai*, but the two species are readily separated by the brown body colouration in *R. impensa*.

Description

Female

Based on holotype. Length 19.4 mm (Fig. 7a,b).

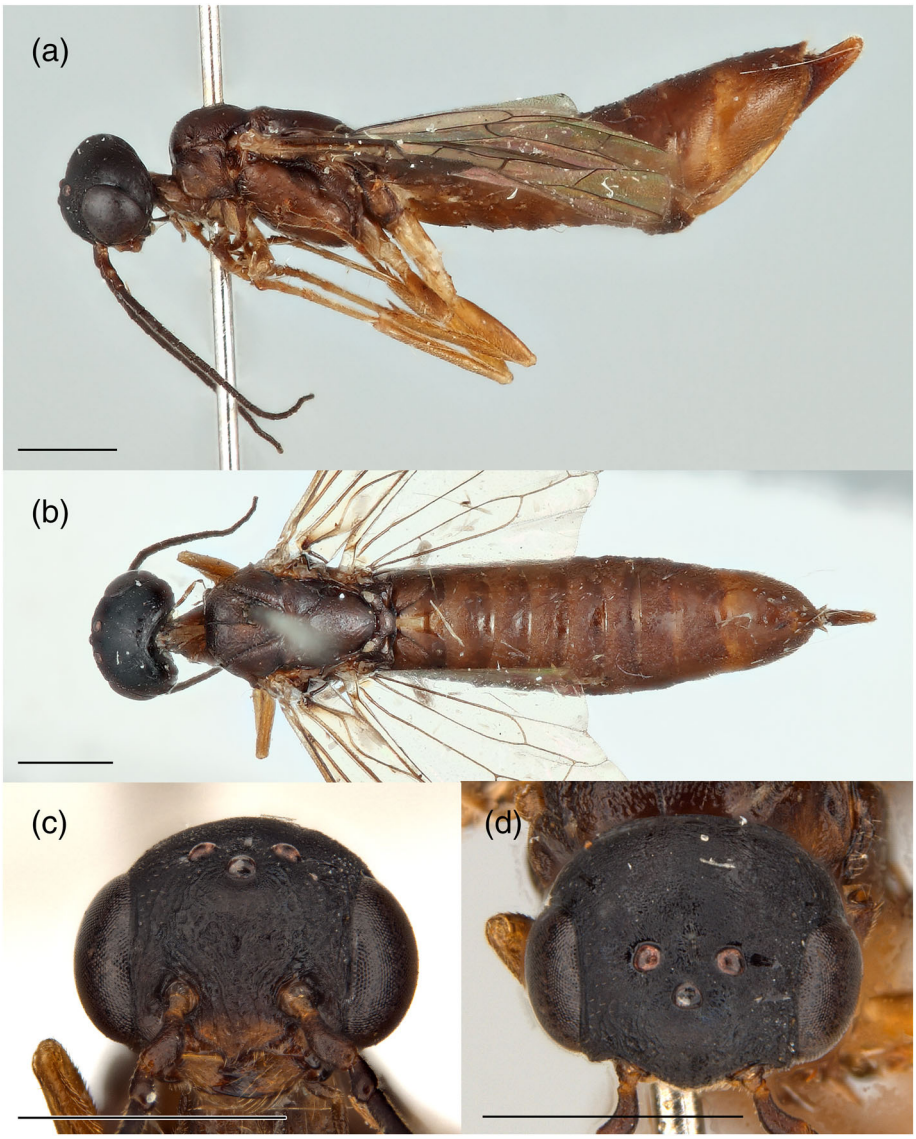

Fig. 10. *Rhysacephala masneri* Jennings & Austin, holotype female. (a) Lateral habitus, (b) dorsal habitus, (c) frontal face and (d) dorsal head. Scale bar = 1.0 mm.

Colour. Head dark blackish brown except cream stripe on eye margin from level of ocelli to malar space, indistinct brown stripe on vertex either side of midline, clypeus and malar space brown, mandibles pale brown with dark brown teeth, scape, pedicel and basal half of flagellomeres 1–3 blackish brown, remaining flagellomeres cream. Thorax brown except darker brown patches on posterolateral mesoscutum. Legs brown. Wings with a pale brown tint, veins and pterostigma dark brown (Fig. 7a). Abdomen brown, except cream spot laterally on T2, sternite 7 darker brown. Third valvula brown.

Head. 1.4× wider than long when viewed dorsally (Fig. 7d). Face and frons coarsely strigate. Inner orbits of eyes more or less parallel (Fig. 7c). Distance between antennal sockets 1.2× distance between an antennal socket and front of clypeus, posterior margin of clypeus indistinct. Vertex strigate–rugose near ocelli to transversely striate posteriorly, weak longitudinal groove medially on vertex. Gena strigate, carina present. Malar space 0.1× height of eye, shallow antennal groove, striate. Clypeus strigate. Antenna with 28 antennomeres, scape 1.3× length pedicel, first flagellomere 1.5× length scape, 2.5× as long as second flagellomere. Pedicel 3.4× as long as wide.

Thorax. Pronotal collar hidden, lateral corner weakly carinate. Mesoscutum areolate–rugose, weakly punctate–rugulose anteriorly, crenulate furrow antero-medially, medial patch on lateral mesoscutum granulate. Mesoscutellum areolate–rugose, smooth laterally and along posterior margin. Axilla areolate–-ugose, metascutellum and metapostnotum carinate. Pronotum largely smooth, weakly carinate in medial groove. Mesepisternum areolate–rugulose laterally, posteriorly weakly reticulate, smooth ventrally. Mesepimeron broad, carinate. Metepisternum strigate dorsally, rugose ventrally, metepimeron carinate. Hind femur 0.7× length hind tibia. Inner spur lacking

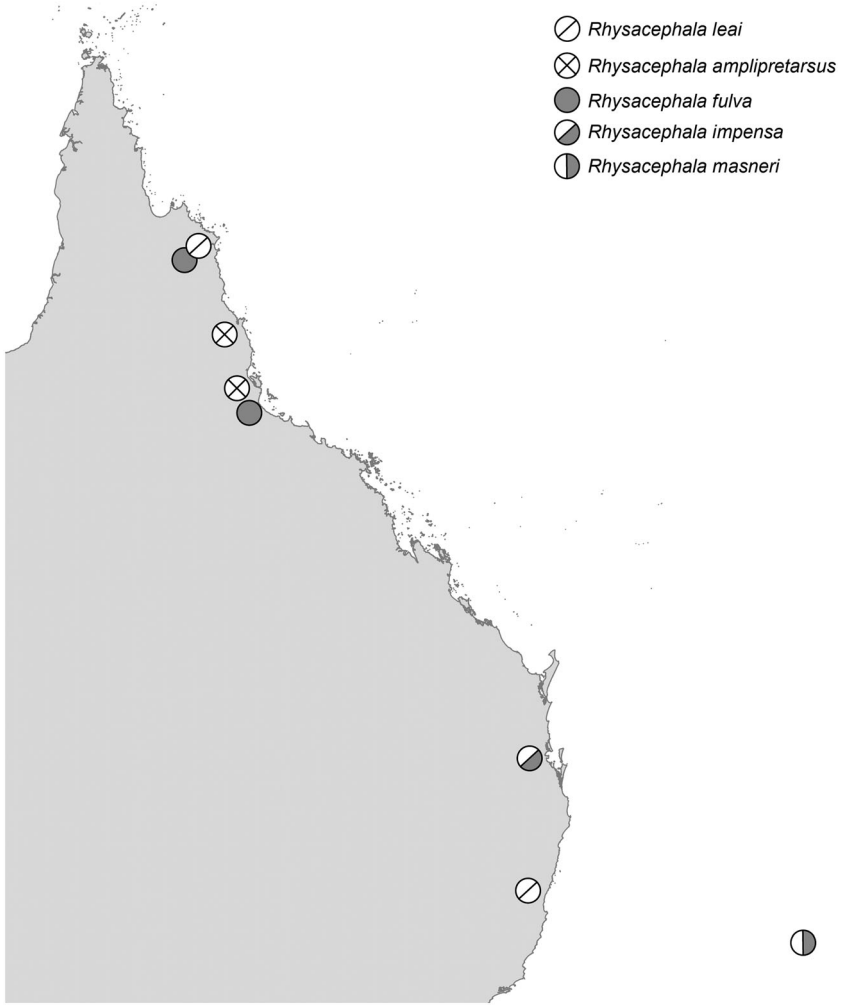

Fig. 11. Distribution of *Rhysacephala amplipretarsus* sp. nov., *R. fulva* sp. nov., *R. impensa* sp. nov., *R. leai* and *R. masneri*.

on fore tibia. Hind basitarsus equal to length of remaining tarsomeres combined. Hindwing with 9 hamuli basally and 10 hamuli distally.

Abdomen. 3.0× length thorax (Fig. 7a,b), T1 largely smooth, weakly rugulose laterally, remaining abdominal terga imbricate. Third valvula 0.8× length valvifer 2.

Male

Unknown.

Etymology

This species is named *impensa*, a Latin adjective for ample, great or large, in reference to its size when compared with the other species of *Rhysacephala*.

Rhysacephala leai (Forsius, 1927)

(Figs 8,9,11)

Xiphydria leai Forsius, 1927: 283, 286.
Rhysacephala leai: Benson 1954: 159; Riek 1955: 283; Smith 1978: 111; Jennings 2010 [catalogue].
Moaxiphia leai: Maa 1949: 29.

Material examined

Holotype

♂, Cairns district, Queensland (SAMA: 32-45038).

Other material

Queensland: ♂, 15.04°S, 145.07°E, Mt Webb N.P., 28–30 Sep 1980, J.C. Cardale (ANIC); 2 ♂♂, same locality, 27–30 Apr 1981, I.D. Naumann (ANIC). **New South Wales:** ♀ (very damaged – several parts glued to card), Dorrigo N.P., 11 Nov 1961, C.W. Frazier (ANIC).

Diagnosis

Rhysacephala leai is superficially similar to *R. amplipretarsus* sp. nov. based on general body and head colouration but differs in having a cream/pale brown stripe on the inner eye margin (absent in *R. amplipretarsus*) and lacking the enlarged, cream pretarsus on the hind claw of *R. amplipretarsus* (e.g. Fig. 3b).

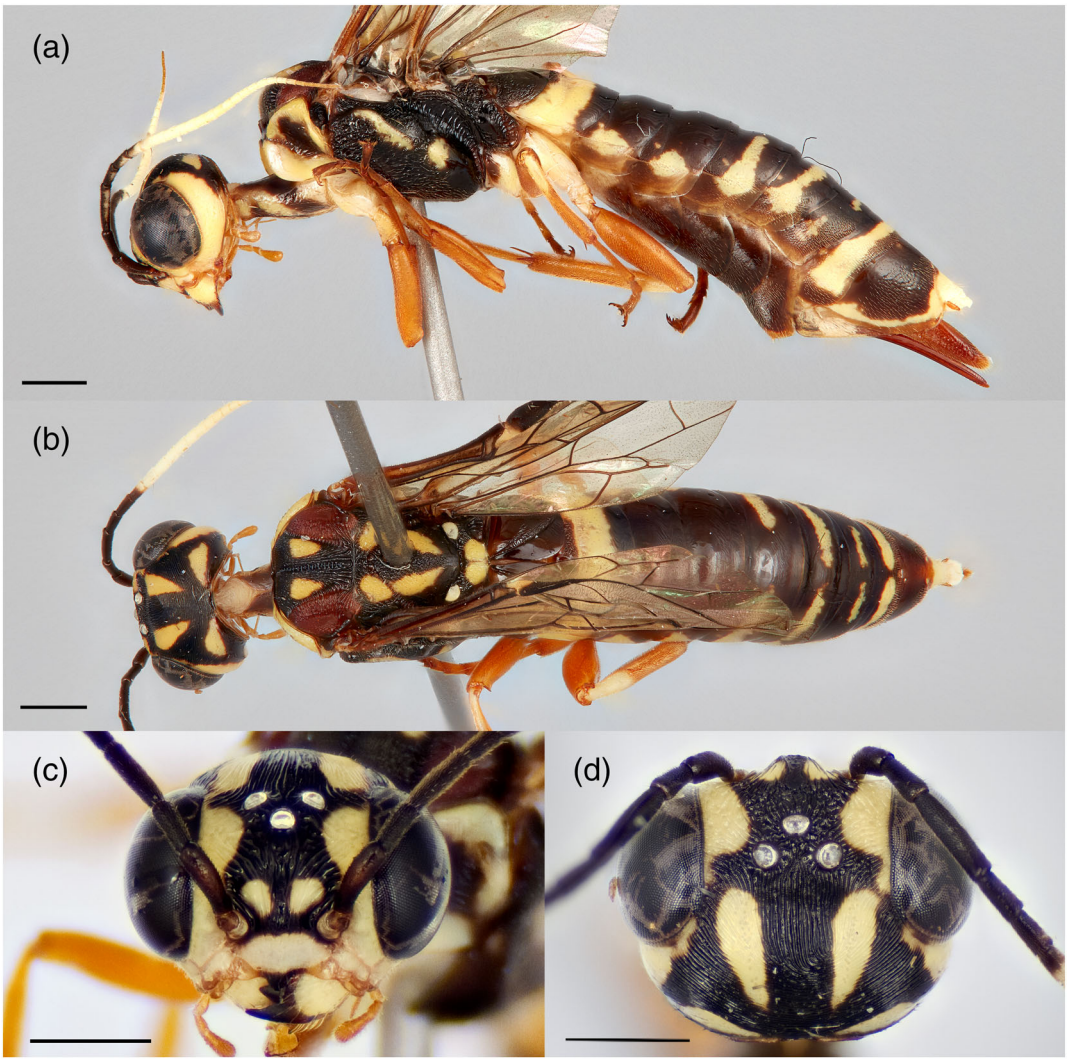

Fig. 12. *Rhysacephala monteithi* sp. nov., female. (a) Lateral habitus, (b) head and dorsal thorax, (c) frontal face and (d) dorsal head. Scale bar = 1.0 mm.

Redescription

Female

Length 10.9 mm (combination of the lengths of the three broken body parts).

Colour. Head dark brown (Fig. 8a,b), except for pale cream stripe along inner eye margin on face and frons, mandibles cream, dark brown apices of teeth, malar space and clypeus brown; flagellomeres 1–3 largely dark brown, small cream patches on inner face, remainder of flagellomeres cream. Thorax pale brown, legs pale brown. Wings with a pale brown tint. Abdomen pale brown except tergum 2 with cream patch lateromedially, valvifer 2 dull cream, third valvula brown.

Head. 1.2× wider than long when viewed dorsally (Fig. 8b). Face coarsely strigate. Inner orbits of eyes more or less parallel (Fig. 8a). Distance between antennal sockets equal to distance between an antennal socket and front of clypeus, posterior margin of clypeus indistinct. Vertex strigate, radiating striae around ocelli. Gena strigate, carina not visible. Malar space 0.2× height of eye, distinct antennal groove, striate. Clypeus strigate. Antennae detached (glued on a card), scape equal to length pedicel, first flagellomere 1.4× length of scape, 2.0× as long as second flagellomere. Pedicel 3.3× as long as wide.

Thorax. Pronotal collar hidden, lateral corner weakly carinate. Mesoscutum with crenulate furrow medially, becoming shallower posteriorly, coarsely areolate–rugose, medial patch on lateral mesoscutum granulate, medial posterior margin carinate. Mesoscutellum rugulose, almost smooth posteriorly and laterally. Axilla areolate–rugose. Metascutellum coarsely carinate, shiny. Metapostnotum smooth with weak carinae laterally. Pronotum almost smooth, with reticulate microsculpture dorsally and ventrally, except weak carinae in medial groove. Mesepisternum areolate with reticulate microsculpture. Mesepimeron broad, carinate. Metepisternum largely reticulate–rugulose, posterior margin scrobiculate. Metepimeron rugose. Hind femur 0.7× length hind tibia. Hind basitarsus about

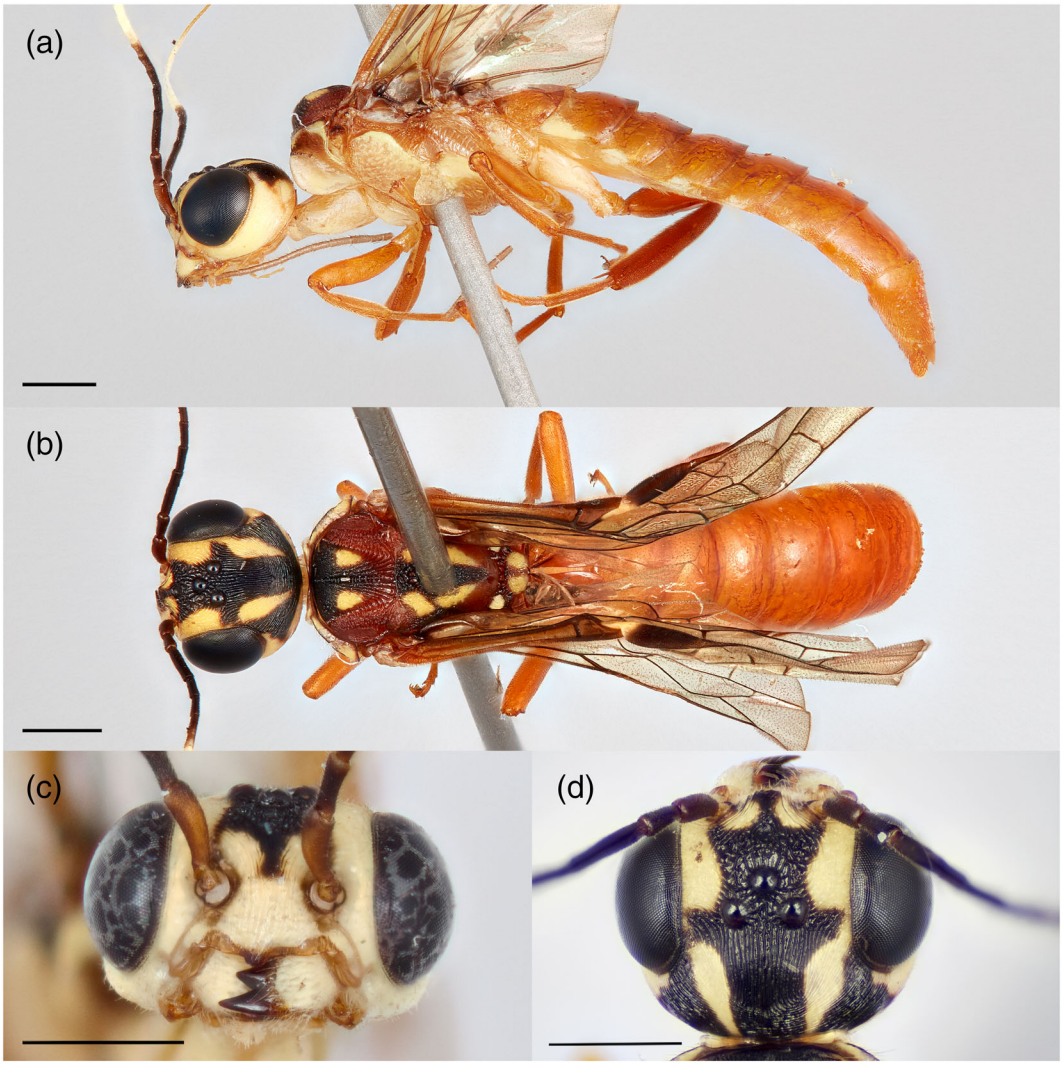

Fig. 13. *Rhysacephala monteithi* sp. nov., male. (a) Lateral habitus, (b) head and dorsal thorax, (c) frontal face and (d) dorsal head. Scale bar = 1.0 mm.

equal to length of remaining tarsomeres combined. Hindwing with 5–6 hamuli basally (five on left and six on right) and nine hamuli distally.

Abdomen. 2.3× length thorax, T1 largely rugulose laterally, smooth medially, remaining abdominal terga imbricate. Third valvula slightly shorter than length valvifer 2 (Fig. 8e).

Male

(Fig. 9).

Similar to female except: body length, three males 9.1–9.9 mm, with one male from Mt Webb is significantly smaller, 4.9 mm. Head largely dark brown (Fig. 9c,d) except cream stripe along inner eye margin extends into vertex, cream spots on face slightly above antennal sockets, malar space, clypeus and gena cream, antennomeres entirely dark brown. One specimen with thorax darker brown dorsally, and mesepisternum largely cream. Abdominal tergum 2 lacking cream patch latero-medially. Malar space smaller than female, 0.06–0.12× height of eye. Antenna with 19 (17–20) antennomeres. Metascutellum much broader, rugose. Hindwing with 5 (4–5) hamuli basally and 6 (6–8) hamuli distally. Abdomen 2.7 (2.4–2.7)× length thorax.

Remarks

It should be noted that the original description of *R. leai* by Forsius (1927) was based on a solitary male.

Rhysacephala masneri Jennings & Austin, 2009

(Figs 10,11)

Rhysacephala masneri Jennings & Austin, 2009: 381; Jennings 2010 [catalogue].

Diagnosis

Rhysacephala masneri keys out with *R. obtusiventris*. Although both species lack cream stripes on the inner eye margin (see key above) (Figs 10c and 14c), the two species can be distinguished by the vertex of *R. masneri* having reticulate sculpture whereas

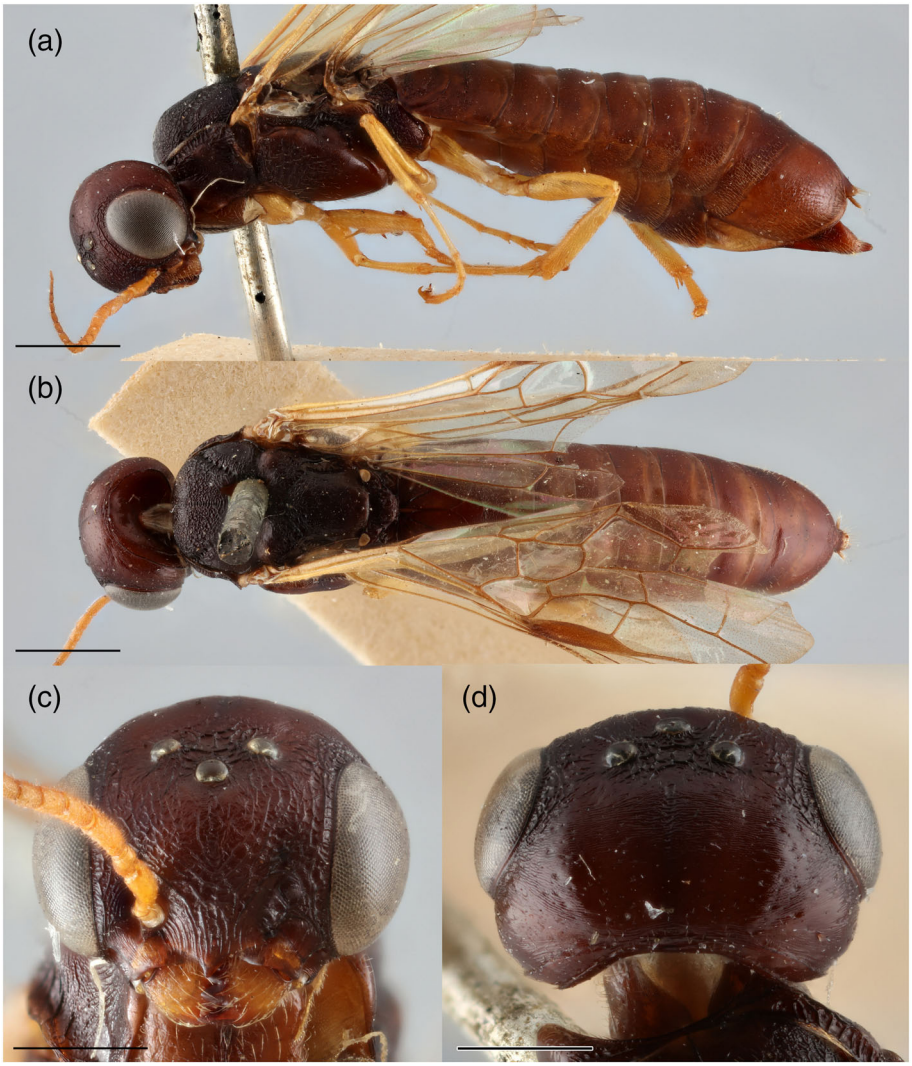

Fig. 14. *Rhysacephala obtusiventris* (Rohwer), female. (a) Lateral habitus and (b) head and dorsal thorax. Scale bar = 1.0 mm. (c) Frontal face and dorsal head. Scale bar = 0.5 mm. The images of the holotype were provided by Dr Gavin Broad and © NHMUK.

the vertex of *R. obtusiventris* is aciculate. In addition, *R. masneri* lacks a longitudinal medial furrow on the vertex which is present in *R. obtusiventris*. The antennae of *R. masneri* are entirely dark brown (Fig. 10a) but are cream in *R. obtusiventris* (Fig. 14a).

Remarks

This species from Lord Howe Island was recently described by Jennings and Austin (2009). In addition to the description in Jennings and Austin (2009), the pronotal collar is hidden, but lateral corner is weakly carinate; hindwing with three (left) or four (right) basal hamuli and seven distal hamuli; third valvula 0.8× length of valvifer 2.

Rhysacephala monteithi Jennings, Parslow & Macdonald, sp. nov.

(Figs 12,13,21)

http://zoobank.org/urn:lsid:zoobank.org:act:AAC4974B-CA64-4D18-84B2-D0794275002C

Material examined

Holotype

♀, 'QLD: 28.188°S, 153.121°E, Lamington NP, IBISCA 700A, 9 Nov–2 Dec 2008. Mal. [Malaise Trap] RF, G. Monteith' (QM: T250692).

Paratypes

Queensland: 38 ♀♀ and 5 ♂♂, 28.188°S, 153.121°E, Lamington NP, IBISCA 700A, various dates 2008 and 2009, Malaise Trap RF, G. Monteith (QM); ♀ and ♂, same data except 3–19 Feb 2009, F. Turco (QM); 5 ♀♀, 28.192°S, 153.124°E, Lamington NP, IBISCA 700B, various dates 2008 and 2009, Malaise Trap RF, G. Monteith (QM); 12 ♀, 28.193°S, 153.128°E, Lamington NP, IBISCA 700C, various dates 2008 and 2009, Malaise Trap RF, G. Monteith (QM); ♀, 28.145°S, 153.113°E, Cainbable Quarry, Malaise Trap, RF, 6–22 Jan 2009, G. Monteith (QM); ♀, 27.295°S, 152.749°E, Mt Tenison

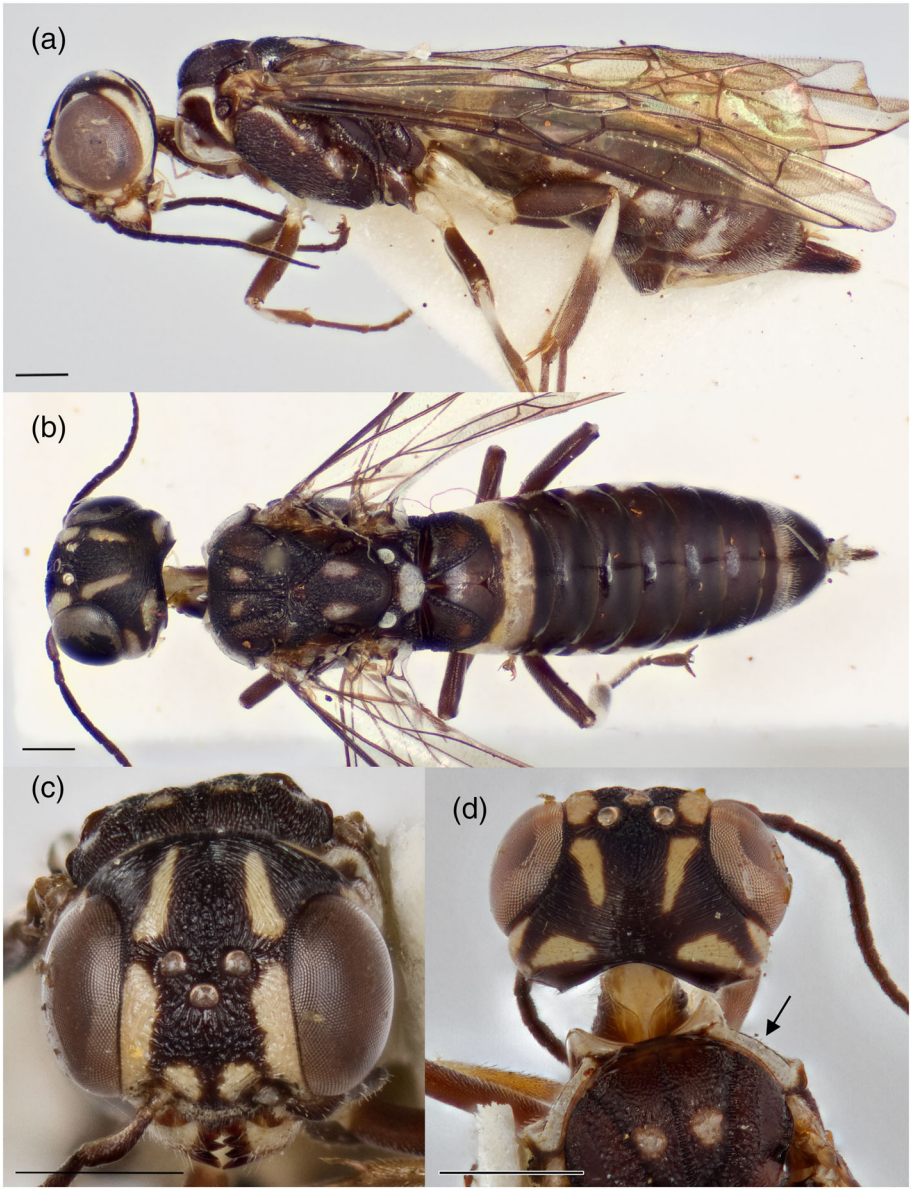

Fig. 15. *Rhysacephala phalaros* sp. nov., holotype female. (a) Lateral habitus, (b) dorsal habitus, (c) frontal face and (d) dorsal head and anterior thorax showing deeply excavated pronotal collar and lateral corners (arrowed). Scale bar = 1.0 mm.

Woods, 631 m, 30 Oct–6 Nov 2009, Malaise Trap RF, G.B. Monteith & F. Turco, 19158 (QM). **New South Wales:** ♀, E. Dorrigo, NSW, 3 Dec [19]29 W. Heron (AM – K61356).

Diagnosis

Rhysacephala monteithi sp. nov. is one of a group of species with cream or yellow stripes on the inner margin of the eye (see key above). Of these, both *R. monteithi* and *R. phalaros* sp. nov. have a broad band dorsally on abdominal tergum 2, yellow in the former species but cream in the latter. This colour difference also applies to most of the coloured patches which are mostly yellow on *R. monteithi* but are cream on *R. phalaros*. These patches are also more extensive on *R. monteithi*. In addition, *R. monteithi* has cream apical antennomeres (Fig. 13b), but they are dark brown in *R. phalaros* (Fig. 15b).

Description

Female

Based on holotype. Length 14.1 (8.5–19.6) mm (Fig. 12a,b).

Colour. Head (Fig. 12c,d) blackish brown, with yellow along eye margin, two yellow spots on face (sometimes bilobed), yellow patches either side of midline and posterior margin of vertex, gena yellow, clypeus yellow except medial process dark brown, mandibles yellow with dark brown teeth, scape and pedicel blackish brown (sometimes scape brown), first to third flagellomeres and basal half of fourth flagellomere blackish brown, remaining flagellomeres cream; dorsal surface of thorax largely blackish brown, mesoscutum reddish brown on lateral lobes, each with a central yellow spot (variable in size),

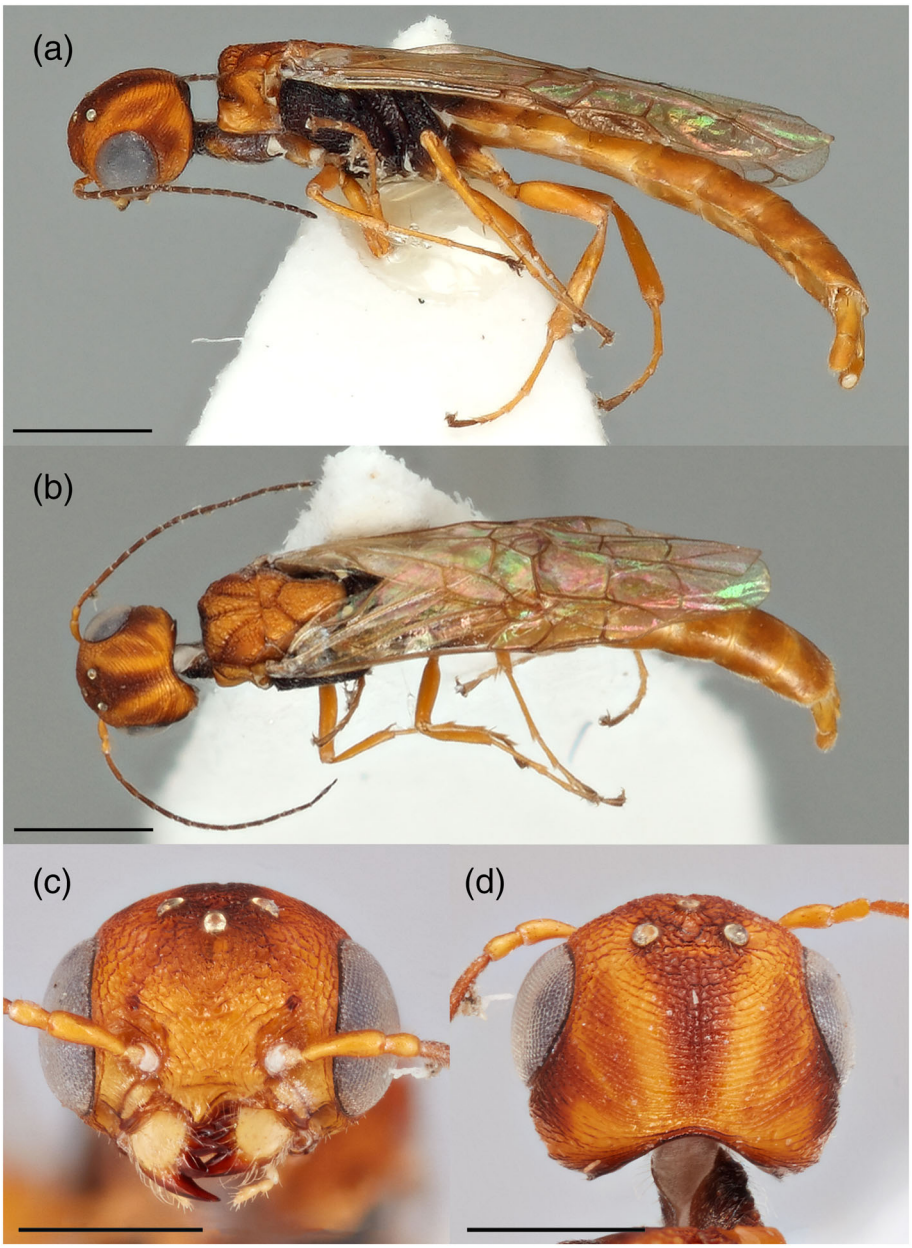

Fig. 16. *Rhysacephala tenebrilata* sp. nov., holotype male. (a) Lateral habitus and (b) dorsal habitus. Scale bar = 1.0 mm. (c) Frontal face and (d) dorsal head. Scale bar = 0.5 mm.

mesoscutellum and axilla with yellow lateral spots (variable in size), metapostnotum largely yellow, lateral surface of thorax largely blackish brown, pronotum largely yellow, with dark brown medial spot, mesepisternum largely blackish brown, with dorso-medial yellow band with a yellow patch posteriorly (variable amounts of yellow, sometimes quite extensive), mesepimeron and metapleuron blackish brown, legs yellowish brown to brown, coxae pale yellow, basal quarter of hind tibia cream, trochanter and trochantellus cream. Wings with a pale brown tint. Abdomen blackish brown, except T2 mostly yellow, T3 and T4 with yellow spot laterally, T5–T8 with almost complete yellow bands, T9 yellow along posterior and ventral margins, T10 largely yellow. Third valvula brown, valvifer 2 pale cream.

Head. 1.3 (1.2–1.4)× wider than long when viewed dorsally (Fig. 12d). Face coarsely strigate, frons slightly raised medially and with shallow groove medially between antennal sockets and extending nearly to anterior ocellus. Inner orbits of eyes subparallel. Distance between antennal sockets 1.3 (1.2–1.4)× distance between antennal socket and front of clypeus, posterior margin of clypeus indistinct. Vertex striate. Gena strigate, carina present. Malar space 0.16 (0.13–0.17)× height of eye, distinct antennal groove, striate. Clypeus strigate. Antenna with 27 (27–29) antennomeres, scape 1.3 (1.2–1.6)× length pedicel, first flagellomere 1.2 (1.1–1.2)× length of scape, 2.2 (1.9–2.3)× as long as second flagellomere. Pedicel 3.5 (2.2–4.6)× as long as wide.

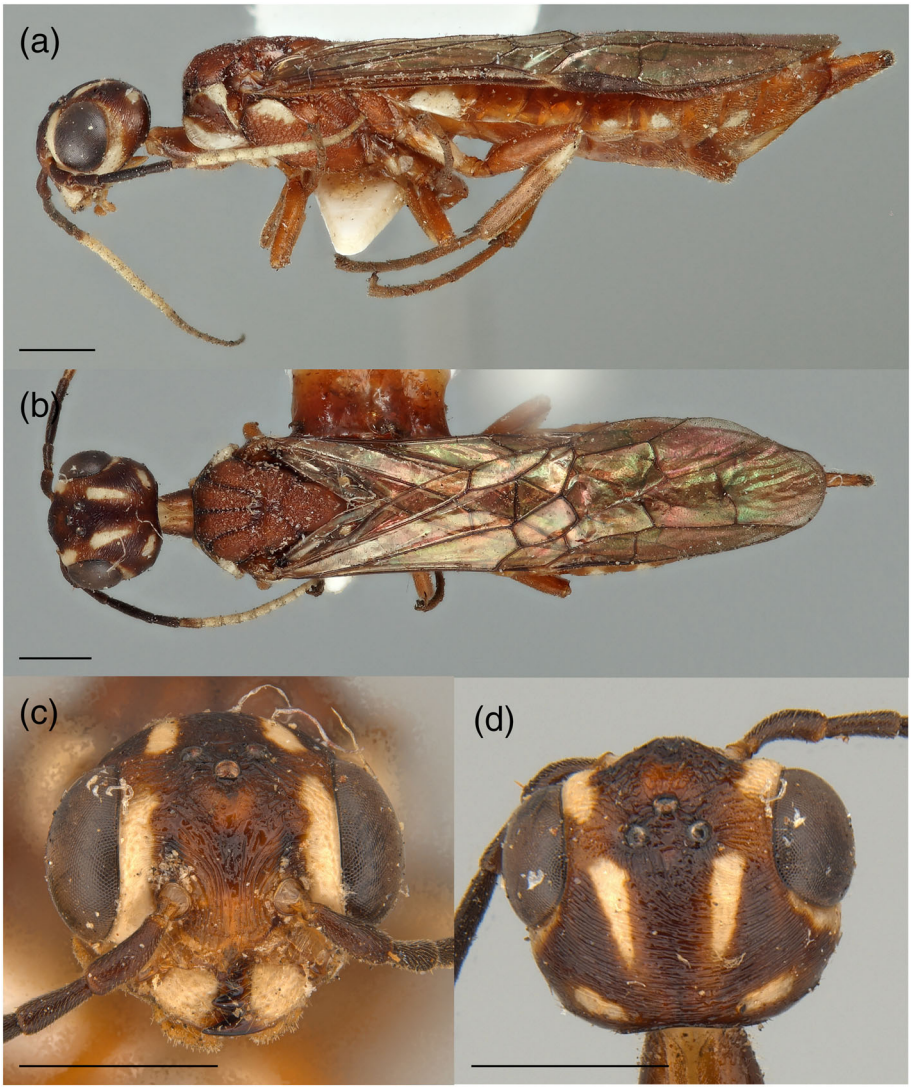

Fig. 17. *Rhysacephala warraensis* Jennings & Austin, holotype female. (a) Lateral habitus, (b) dorsal habitus, (c) frontal face and (d) dorsal head. Scale bar = 1.0 mm.

Thorax. (Fig. 12a,b). Pronotal collar hidden, lateral corner smooth. Mesoscutum with distinct crenulate furrow medially, coarsely reticulate–rugose anteriorly, strigate–rugose laterally and posteriorly, medial patch on lateral mesoscutum granulate. Mesoscutellum rugose, weakly reticulate laterally, posterior margin smooth. Axilla rugulose–carinate. Metascutellum areolate, metapostnotum rugose. Pronotum smooth, weak medial carina. Mesepisternum areolate–rugulose laterally, becoming smoother ventrally, dorso-posteriorly reticulate, ventro-posteriorly tending smooth. Mesepimeron broad, carinate. Metepisternum rugulose or largely smooth, becoming carinate posteriorly, metepimeron areolate. Hind femur 0.7 (0.6–0.7)× length hind tibia. Hind basitarsus about equal to length of remaining tarsomeres combined. Hindwing with 7 (5–8) hamuli basally and 11 (10–12) hamuli distally (one female has four basal hamuli on left and three basal hamuli on right hindwing).

Abdomen. 2.5 (2.3–2.8)× length thorax (Fig. 12a,b), T1 medial and lateral lobes divided by rugose sculpturing, lobes smooth except tending rugulose laterally, remaining abdominal terga imbricate. Third valvula 0.9 (0.9–1.2)× length of valvifer 2.

Male

Body length 11.8–13.9 mm. Similar to female except as follows. Mesoscutum reddish brown medially and on lateral lobes, paler brown on lateral thorax and abdomen, less extensive yellow on abdominal tergites, smaller cream spots on T2–T6. Head 1.2× wider than long when viewed dorsally, antennomeres 26–28. Hind femur 0.7× length hind tibia, hind tarsus less robust, hind basitarsus about equal to length of remaining tarsomeres combined. Abdomen 2.7× length thorax, abdomen dorso-ventrally compressed when compared with females (Fig. 13a).

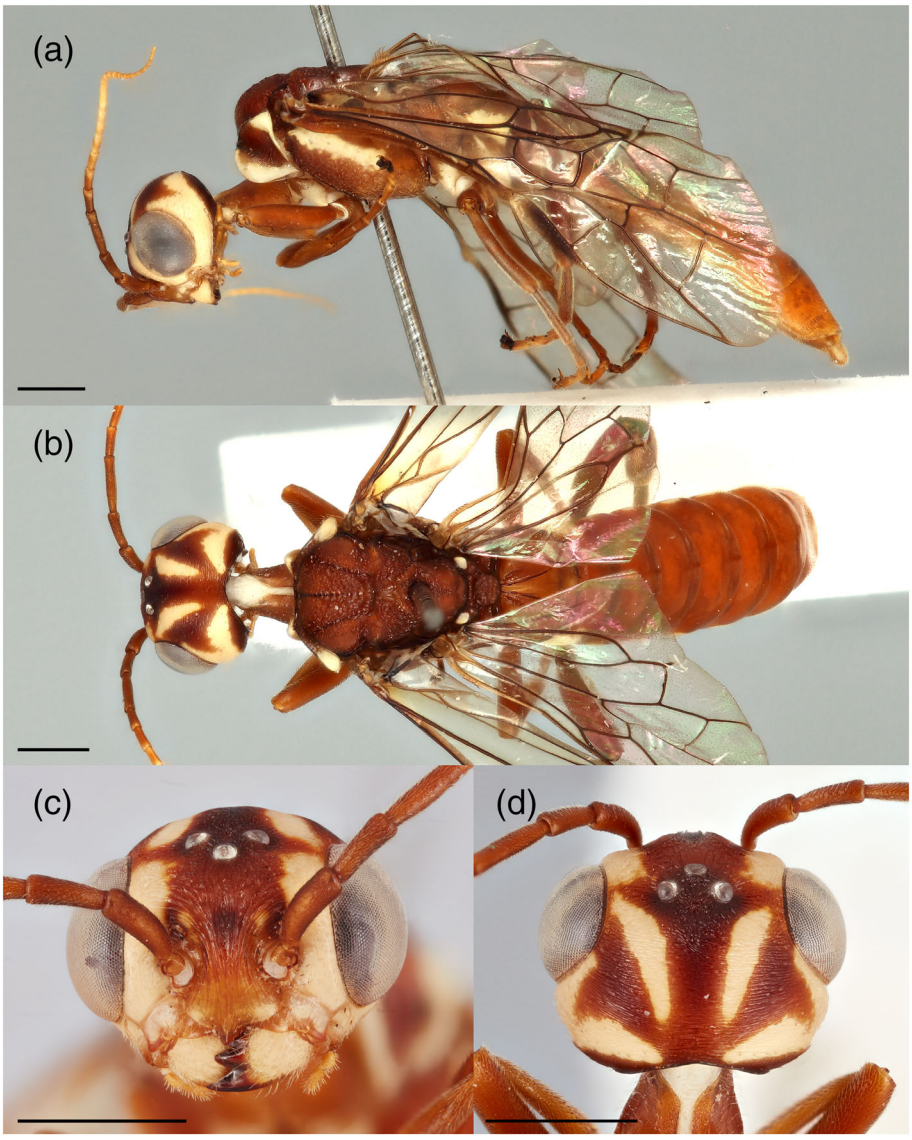

Fig. 18. *Rhysacephala warraensis* Jennings & Austin, male. (a) Lateral habitus, (b) dorsal habitus, (c) frontal face and (d) dorsal head. Scale bar = 1.0 mm.

Remarks

The female from E. Dorrigo, NSW, and labelled 'HOLOTYPE *Rhysacephala pallidus* Riek' is a manuscript name and was never published.

Etymology

This species is named for Dr Geoff Monteith, entomologist, Queensland Museum.

Rhysacephala obtusiventris (Rohwer, 1918)

(Figs 14,21)

Xiphydria obtusiventris Rohwer, 1918: 433, 434; Morice 1919: 253; Tillyard 1926: 265; McKeown 1942: 167; Hedicke 1938: 10.
Rhysacephala obtusiventris: Benson 1954: 159; Riek 1955: 284; Smith 1978: 111; Jennings 2010 [catalogue].
Moaxiphia obtusiventris: Maa 1949: 20.

Material examined

Holotype

♀, 'N. Queensland. Kuranda, 1100 ft, 3 May–20 Jun 1913, R.E. Turner, 1913 – 438' (NHMUK010635106). Left antenna, left hind tarsomeres 2–5 and claw missing. Forewings complete but slightly torn. Examined from images.

Other material

Queensland: 1 ♀, Mt Glorious, 18 Sep 1927 H. Hacker (QM) [note: this specimen lacks the head and much of the thorax and has not been used for body measurements in the redescription. It has an identification label by Roh[w]er].

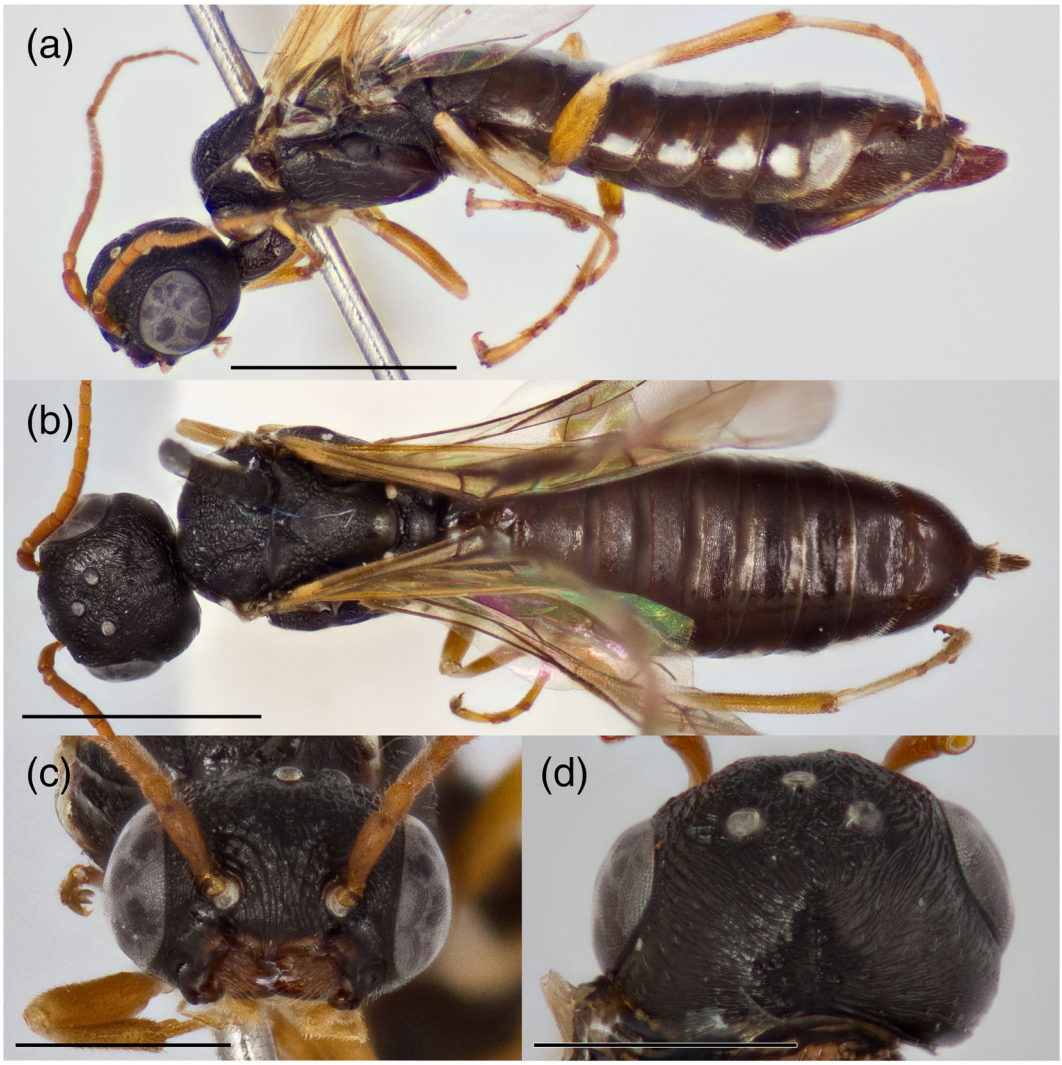

Fig. 19. *Rhysacephala wilsoni* Benson female. (a) Lateral habitus and (b) dorsal habitus. Scale bar = 1.0 mm. (c) Frontal face and (d) dorsal head. Scale bar = 0.5 mm.

Diagnosis

Rhysacephala obtusiventris keys out with *R. masneri*. Both species lack cream stripes on the inner eye margin (see key), and the two species can be distinguished by the vertex of *R. obtusiventris* having aciculate sculpturing whereas the vertex of *R. masneri* is reticulate. In addition, *R. obtusiventris* has a longitudinal medial furrow on the vertex which is absent in *R. masneri*. The antennae of *R. obtusiventris* are cream compared with the entirely dark brown antenna in *R. masneri*.

Redescription

Female

Based on holotype. Length 8.0 mm (Fig. 14a,b).

Colour. Head (Fig. 14c,d) dark brown, lateral corners of clypeus slightly lighter cream, mandibles cream with dark brown teeth, scape and pedicel cream, flagellomeres cream; dorsal surface of thorax, mesoscutum, mesoscutellum, axilla and metapostnotum dark brown, lateral thorax dark brown, lighter than dorsal surface. Legs cream. Wings with a pale brown tint. Abdomen brown. Third valvula dark brown, valvifer 2 lighter brown.

Head. 1.5× wider than long when viewed dorsally (Fig. 14d). Face strigate–rugose, frons slightly raised medially and with shallow groove medially between antennal sockets. Inner orbits of eyes subparallel. Distance between antennal sockets 1.8× distance between an antennal socket and front of clypeus, posterior margin of clypeus indistinct. Vertex weakly transverse aciculate, a few scattered shallow punctures, shallow median longitudinal furrow. Gena weakly aciculate, carina present. Malar space 0.14× height of eye, distinct antennal groove, striate. Clypeus strigate. Antenna with 16 antennomeres, scape 1.4× length pedicel, first flagellomere 1.4× length of scape, 1.5× as long as second flagellomere. Pedicel 1.1× as long as wide.

Thorax. Lateral corner of pronotal collar carinate. Mesoscutum with distinct crenulate furrow medially, rugose, medial patch on lateral mesoscutum granulate. Mesoscutellum

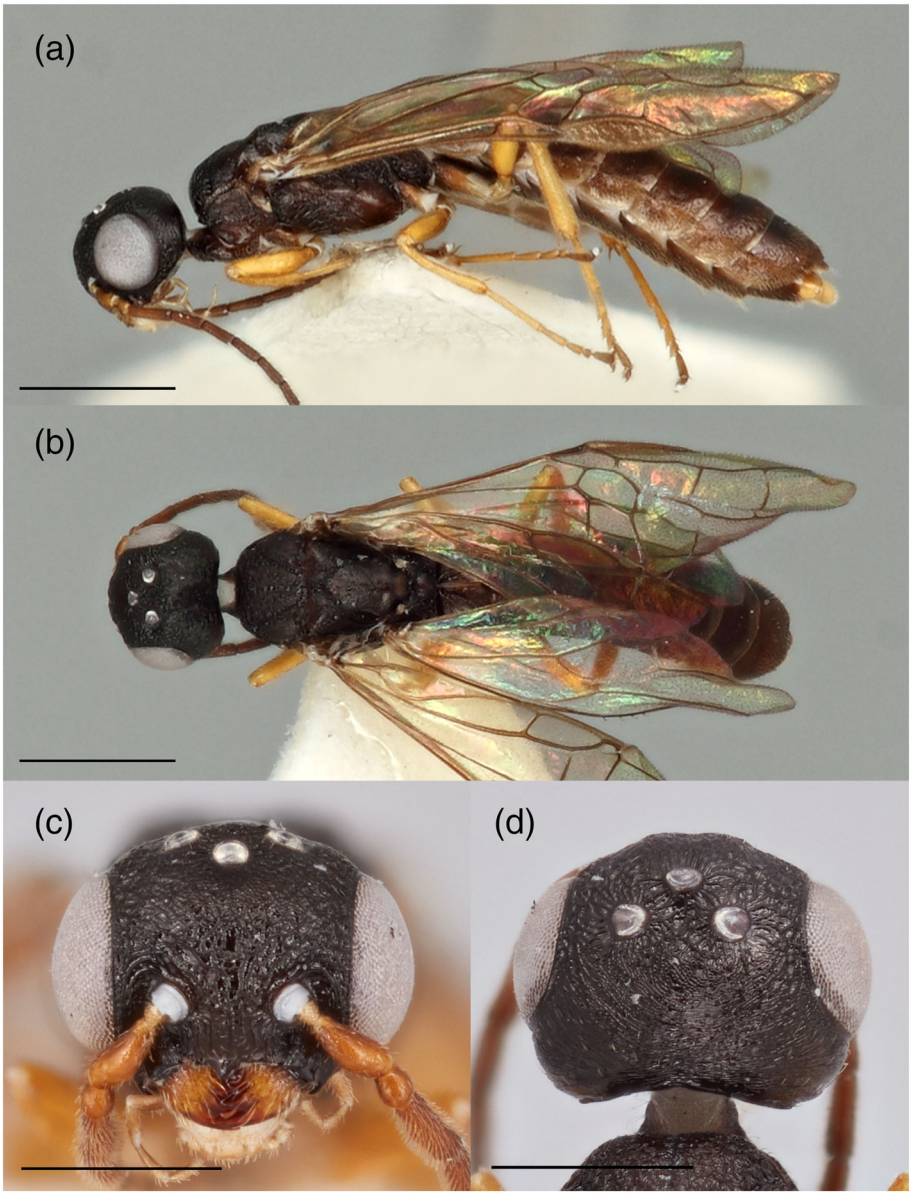

Fig. 20. *Rhysacephala wilsoni* Benson, male. (a) Lateral habitus, (b) dorsal habitus, (c) frontal face and (d) dorsal head. Scale bar = 1.0 mm.

rugose anteriorly, smooth laterally, posterior margin smooth. Axilla rugose, coarser posteriorly, smooth laterally. Metascutellum coarsely rugose. Pronotum smooth, weak carinae medially, anterior margin carinate. Mesepisternum weakly rugose laterally, becoming smoother ventrally and posteriorly, weakly reticulate dorsally. Mesepimeron broad, carinate. Metepisternum rugulose, becoming carinate posteriorly, metepimeron rugose. Hind femur approx. 0.9× length hind tibia. Hind basitarsus 0.9× length of remaining tarsomeres combined. Hindwing with four hamuli basally and six hamuli distally.

Abdomen. 1.9× length thorax (Fig. 14a,b), T1 medial and lateral lobes divided by rugose sculpturing, lobes smooth except tending towards rugulose laterally, remaining abdominal terga imbricate. Third valvula 0.9× length valvifer 2.

Male

Unknown.

Rhysacephala phalaros Jennings, Parslow & Macdonald, sp. nov.

(Figs 15,21)

http://zoobank.org/urn:lsid:zoobank.org:act:E5EF51DE-14A2-42BE-935A-2B58D98E31DE

Material examined

Holotype. ♀, 'The Crater, Atherton Tableland, N. QLD, 25 Apr 1970, S.R. Curtis' (ANIC: 32-163506).

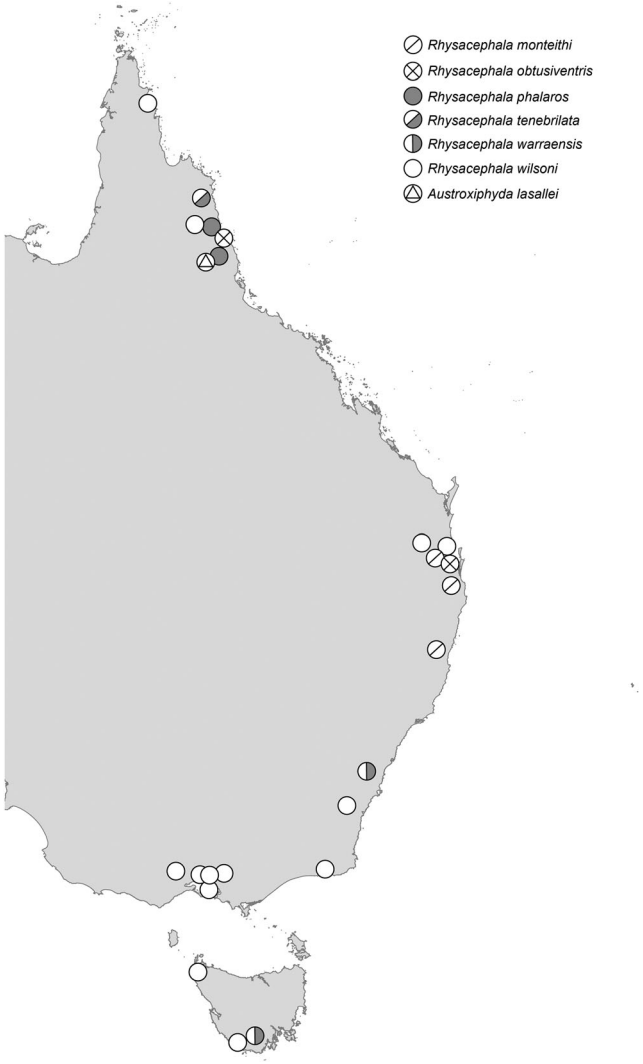

Fig. 21. Distribution of *Rhysacephala monteithi* sp. nov., *R. obtusiventris*, *R. phalaros* sp. nov., *R. tenebrilata* sp. nov., *R. warraensis*, *R. wilsoni* and *Austroxiphyda lasallei* sp. nov.

Paratype. **Queensland:** ♀, 17.06°S, 145.37°E, Mt Edith, 1050 m, 31 Oct–29 Nov 1995, L. Umback, Malaise Trap (ANIC: 32-163542); ♀, 16°28′S, 145°19′E, Rex Creek, 5 km W Mossman, 29 Apr 1998, C. Burwell and C. Rodriguez (QM: T250691).

Diagnosis

This species is superficially similar to *R. monteithi*, based on the general body colouration with many colour patches. Both species have a broad band dorsally on abdominal tergum 2, yellow in *R. monteithi*, but cream in *R. phalaros* sp. nov. This colour difference also applies to most of the coloured patches which are mostly cream on *R. phalaros* but are yellow on *R. monteithi*. The coloured patches are also more extensive on *R. monteithi*. In addition, *R. monteithi* has cream apical antennomeres (Fig. 13a,b), but they are dark brown in *R. phalaros* (Fig. 15b).

Description

Female

Based on holotype. Length 8.5 (8.5–11.1) mm (Fig. 15a,b).

Colour. Dark brown. Narrow cream band on inner margin of eye (Fig. 15c), continuing on malar space and gena, two small cream spots above antennal sockets, clypeus cream, mandibles cream with dark brown teeth, longitudinal cream stripe on each side of vertex, transverse cream spot each side of posterior vertex, scape with cream stripe on inner face, mesoscutum with a small cream spot either side of medial furrow, mesoscutellum with a large cream patch either side of midline, metapostnotum cream, outer margin of pronotum cream, mesepisternum with faint medial disjunct cream band. Legs largely brown, trochanters, trochantelli, basal third tibiae and hind coxa cream. Wings with a slight pale brown tint, veins and pterostigma dark brown (Fig. 15b). Abdomen dark brown, broad cream band on T2 and

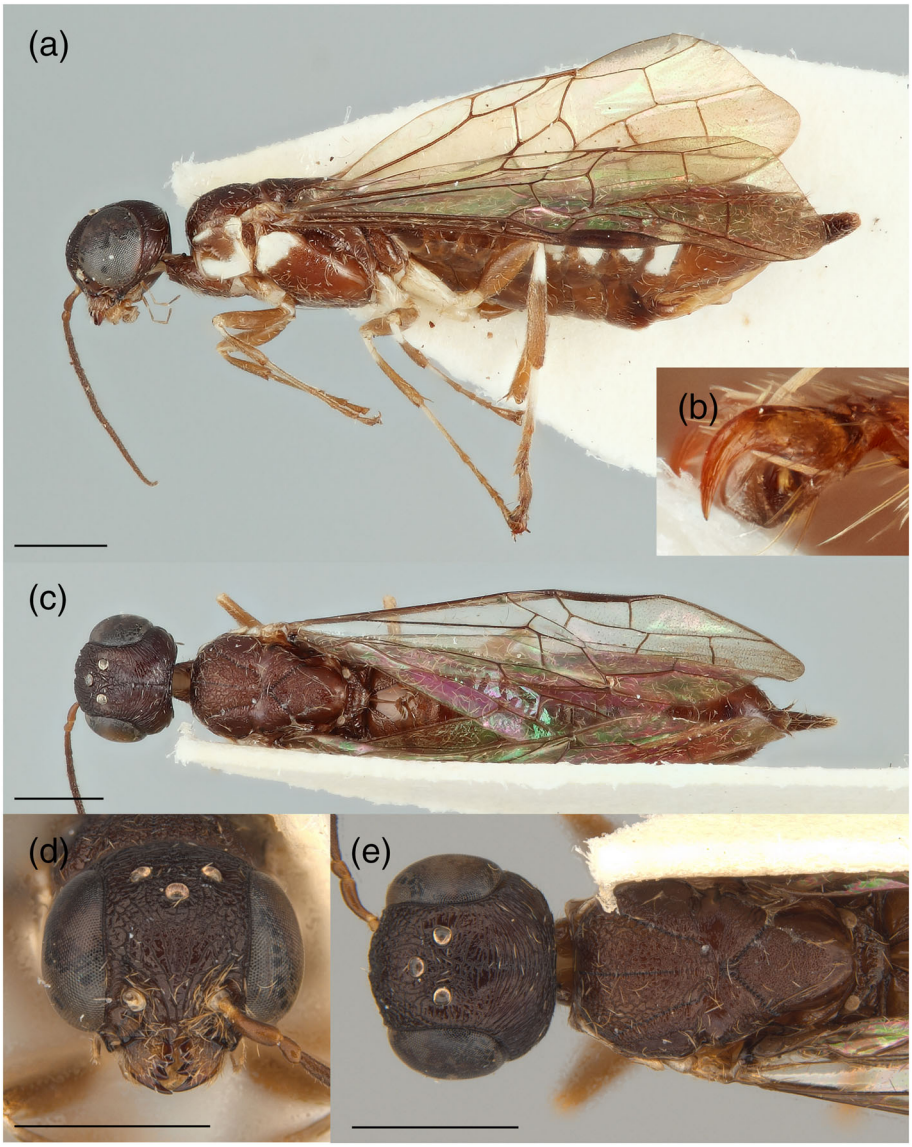

Fig. 22. *Austroxiphyda lasallei* sp. nov., holotype female. (a) Lateral habitus; (b) simple tarsal claw, lacking the inner tooth; (c) dorsal habitus; (d) frontal face; and (e) dorsal head and thorax. Scale bar = 1.0 mm

T3–T7 with lateral cream spot, T8 cream band dorsally and lateral cream spot, T10 and cercus cream. Third valvula dark brown, valvifer 2 cream.

Head. 1.2 (1.2–1.3)× wider than long when viewed dorsally (Fig. 15d). Face coarsely strigate tending to coarsely areolate–rugose towards vertex, frons slightly raised medially and with shallow indentation. Inner orbits of eyes slightly convergent dorsally (subparallel) (Fig. 15c). Distance between antennal sockets 1.6× distance between an antennal socket and front of clypeus, posterior margin of clypeus indistinct. Vertex with radiating striations near ocelli, strigate–rugose medially behind ocelli, curved transverse striations posteriorly. Gena strigate, carina present. Malar space 0.1× height of eye, shallow antennal groove, striate. Clypeus strigate. Antenna with 22 antennomeres, scape 1.5 (1.5–1.6)× length pedicel, first flagellomere 0.9× length scape, 2.0 (2.0–2.2)× as long as second flagellomere. Pedicel 2.8 (2.6–2.8)× as long as wide.

Thorax. Pronotal collar hidden, lateral corner weakly carinate. Mesoscutum with distinct crenulate furrow medially, rugose except coarsely punctate–rugose anteriorly, medial patch on lateral mesoscutum granulate. Mesoscutellum rugose, smooth on posterior and lateral margins. Axilla, metascutellum and metapostnotum rugose (Fig. 14a,b). Pronotum largely smooth, weakly carinate in medial groove. Mesepisternum rugulose laterally, becoming smooth ventrally. Mesepimeron broad, smooth dorsally, carinate ventrally. Metepisternum rugulose, metepimeron areolate. Hind femur 0.7× length hind tibia. Hind basitarsus 0.9× length of remaining tarsomeres combined. Hindwing with 5 hamuli basally and 8–10 hamuli distally (paratype with eight distal hamuli on right and nine on left hindwing).

Abdomen. 2.0 (2.0–2.5)× length thorax (Fig. 15b), T1 largely rugulose laterally, smooth medially, remaining abdominal terga imbricate. Third valvula about 0.9× length valvifer 2 (paratype about equal to length of valvifer 2).

Male

Unknown.

Etymology

The species name is derived from the Greek noun *phalaros*, meaning white patch, in reference to the many patches/spots on this species.

Rhysacephala tenebrilata Jennings, Parslow & Macdonald, sp. nov.

(Figs 16,21)

http://zoobank.org/urn:lsid:zoobank.org:act:654708B0-1736-4AB3-AAFE-828ECA699F8C

Material examined

Holotype

♂ '15.50°S, 145.20°E, Gap Ck., 5 km ESE, Mt Finnegan Q, 13–16 May 1981, I.D. Nauman, ex ethanol' (ANIC: 32-163507).

Diagnosis

Rhysacephala tenebrilata sp. nov. is very distinctively coloured, with body generally orange brown, propleuron, lateral mesopleura and metapleura, and metascutellum black (Fig. 16a,b). This colouration separates it from other Australian species.

Description

Male

Based on holotype. Length 6.5 mm (Fig. 16a,b).

Colour. Head orange brown (Fig. 16c), lateral corners of clypeus cream, mandibles cream with dark brown teeth, brown dorso-medial band on vertex and small patch on posterior margin of eye, occipital carina black and gena between carina and occipital carina dark brown, scape and pedicel orange brown, flagellomeres brown, propleuron largely dark brown, thorax largely orange brown except for mesopleuron, metapleuron and metascutellum black. Legs orange brown, except bases of mid and hind coxae and fifth tarsomeres and claws of all legs darker. Wings with a slight brown tint, veins and pterostigma brown (Fig. 16b). Abdomen orange brown, T1 and base of T2 black.

Head. 1.2× wider than long when viewed dorsally (Fig. 16d). Face coarsely rugose towards vertex, frons slightly raised medially and with shallow indentation. Inner orbits of eyes parallel (Fig. 16c). Distance between antennal sockets 2.09× distance between an antennal socket and front of clypeus, posterior margin of clypeus indistinct. Vertex with radiating striations near ocelli, remainder curved transverse striations, shallow medial furrow. Gena strigate, carina present. Malar space 0.13× height of eye, shallow antennal groove, fine striate. Clypeus largely smooth. Antenna with 17 antennomeres, scape 1.8× length pedicel, first flagellomere equal to length scape, 1.4× as long as second flagellomere. Pedicel 2.0× as long as wide.

Thorax. (Fig. 16a,b). Pronotal collar hidden, lateral corner coarsely rugose. Mesoscutum with distinct crenulate furrow medially, coarsely rugose except smooth patch anteriorly, medial patch on lateral mesoscutum granulate. Mesoscutellum coarsely rugose, tending to smooth on posterior and lateral margins. Axilla, metascutellum and metapostnotum coarsely rugose. Pronotum largely rugulose, anterior lobe smooth, carinate in medial groove. Mesepisternum coarsely rugose. Mesepimeron broad, carinate. Metepisternum coarsely rugose, indistinct crenulate groove posteriorly, metepimeron coarsely rugose. Hind femur 0.9× length hind tibia. Hind basitarsus 0.8× length of remaining tarsomeres combined. Hindwing with three basal hamuli; distal hamuli could not be observed.

Abdomen. 2.8× length thorax (Fig. 16b), T1 and base of T2 coarsely rugose, remaining abdominal terga imbricate.

Female

Unknown.

Remarks

Although we have described this species from a male we do so because of its very distinctive colouration, which separates it from all other Australian species.

Etymology

The name of this new species is derived from a combination of *tenebris* which is Latin for dark, and *lata*, Latin for side, in reference to the distinctive colouration.

Rhysacephala warraensis Jennings & Austin, 2009

(Figs 17,18,21)

Rhysacephala warraensis Jennings & Austin, 2009, in Jennings *et al*. 2009b: 25; Jennings 2010 [catalogue].

Diagnosis

Rhysacephala warraensis keys out together with *R. impensa* and the male of *R. leai* (see key). It is, however, readily separated from these two species by having cream patches on the pronotum and lacking a cream or yellow band on abdominal tergum 2 which is present in these species.

Remarks

This species was described by Jennings & Austin (in Jennings *et al*. 2009b). In addition to their description of the female, we

add the following: pronotal collar with lateral corner weakly carinate; third valvula 0.9× length valvifer 2 (Fig. 17a). A first male known for this species from Knapsack Hill, 4 km E Robertson, NSW (ANIC), is now included, substantially extending its distribution (Fig. 21). The male (Fig. 18) is similar to female except it is larger, length 12.5 mm, and the posterolateral stripes on the vertex are joined with the genal stripes. Jennings *et al*. (2009b) indicated that *R. warraensis* was reared from *Anodopetalum biglandulosum* (Cunoniaceae). Interestingly, this plant is a Tasmanian endemic (Barker & Brown 1994), so the extension of this wasp's range to near Robertson, NSW, indicates that there is another as yet unknown host plant.

Rhysacephala wilsoni Benson, 1954

(Figs 2,19–21)

Rhysacephala wilsoni Benson, 1954: 159; Riek 1955: 284; Quinlan 1974: 248; Smith 1978: 111; Jennings 2010 [catalogue].

Material examined

Holotype

♀, 'Ringwood, Victoria' (MVMA). Flagellomeres 8 to tip on right and 11 to tip missing on left antenna.

Other material

Queensland: ♂, 12.43°S, 143.18°E, 11 km ENE Mt Tozer, 11–16 Jul 1986, J.C. Cardale, Malaise Trap (ANIC); ♂, same data except MV Light (ANIC); ♂, 16°27′S, 145°12′E, 2 km SSE Mt Spurgeon, 1110 m 19–22 Nov 1997. C.J. Burwell Rainforest (QM); ♀, 27.294°S, 152.745°E, 0.5 km W Mt Tenison Woods, 608 m, 9–19 Oct 2009, Malaise Trap RF, F. Turco (QM); 9 ♀♀, 26.875°S, 152.164°E, Benarkin, 3 km ENE, 28 Mar–10 Apr 2010 [G.] Monteith (QM); ♀, 27.015°S, 152.977°E, King John Creek, 10 m, 27 Aug–10 Sep 2010, Malaise Trap, Euc/Wallum, G. Monteith (QM). **New South Wales:** ♂, 10 km SW Braidwood, by Shoalhaven R., 4 May 1986, NSW, C. Reid (ANIC). **Victoria:** 3 ♀♀, Baxter, 12 Feb 1943, C. Oke [ANIC specimen was figured in Riek 1955] (MVMA, ANIC); ♀, Millgrove, VIC, 9 Jan 1957 Neboiss (ANIC); ♀, Nunawading, 30 Jan 1963, A.N. [Neboiss] (MVMA); ♂, Dingo Ck., Lind Nat. Pk., 26 Feb 1980, I.D. Naumann, J.C. Cardale (ANIC); ♀, Frankston, N 40 Ballarto Road, DPI, 26 Nov 2008, I.G. Faithfull. Ovipositing into fallen branch of *Eucalyptus viminalis* subsp. *pryoriana* (VAIC). **Tasmania:** 43.25°S, 146.10°E, Melaleuca, Bathurst Harbour. 12–17 Feb 1990, I.D. Naumann. Malaise Trap, margin of *Leptospermum* scrub, healthy sedge land (ANIC); ♂, 40.57°S, 144.49°E, 5 km SE by E, Redpa, 18 Jan 1983, I.D. Naumann and J.C. Cardale, ex ethanol (ANIC); ♀, Millbrook C.P., no date or collector (MVMA).

Diagnosis

Rhysacephala wilsoni can be separated from *R. masneri* and *R. obtusiventris* by its coarsely rugose sculpturing of the face, which is reticulate or rugulose in the latter two species, and the presence of lateral cream spots on abdominal terga 2–7 in *R. wilsoni* (although spots sometimes less distinct).

Redescription

Female

Based on holotype. Length 10.2 (5.0–12.3) mm (Fig. 19a,b).

Colour. Head, thorax and abdomen dark brown (abdomen and lateral clypeus lighter in some specimens), mandibles and antenna pale brown (one specimen dark brown antenna), anterior and posterior margins of pronotum cream (variable amount in some specimens), legs mostly pale brown (dark brown on coxae and tarsomeres 4 and 5 in one specimen), mid and hind coxae and base of tibiae and basitarsi cream. Wings with a pale brown tint. Abdominal terga 2–7 with cream spot laterally, more extensive on tergum 8 (spots sometimes less distinct).

Head. 1.2 (1.2–1.5)× wider than long when viewed dorsally (Fig. 19d). Face coarsely rugose. Inner orbits of eyes more or less parallel (Fig. 19c). Distance between antennal sockets 1.7 (1.5–2.0)× distance between an antennal socket and front of clypeus, posterior margin of clypeus indistinct. Vertex transversely striate, rugose radiating from ocelli, shallow median longitudinal furrow. Gena strigate, carina present. Malar space 0.12 (0.07–0.15)× height of eye, distinct antennal groove, striate. Clypeus strigate. Antenna with (19–21) antennomeres (holotype damaged), scape 1.7 (1.7–2.2)× length pedicel, first flagellomere 0.9 (0.9–1.2)× as long as scape, 1.5 (1.4–1.5)× as long as second flagellomere. Pedicel 1.8 (1.5–2.0)× as long as wide.

Thorax. Pronotal collar hidden, lateral corner carinate. Mesoscutum coarsely rugose, with crenulate furrow medially, medial patch on lateral mesoscutum granulate, medial posterior margin rugose or rugose–carinate. Mesoscutellum rugose, finely reticulate posteriorly and laterally. Axilla rugose, with fine striations anteriorly. Metascutellum rugose (medially reticulate on holotype). Metapostnotum smooth, carinate laterally. Pronotum striate, with anterior lobe smooth. Mesepisternum rugose or areolate–rugose laterally, with reticulate microsculpture towards ventral and dorsal margins, and posterior corner generally smooth. Mesepimeron broad, carinate. Metepisternum reticulate, with narrow scrobiculate groove on posterior margin. Metepimeron rugose. Hind femur 0.6 (0.6–0.7)× length hind tibia. Hind basitarsus 0.8 (0.7–0.8)× length of remaining tarsomeres combined. Hindwing with 5 (3–5) hamuli basally and 8 (6–9) hamuli distally.

Abdomen. 2.3 (2.2–2.4)× length thorax (Fig. 19a,b), T1 largely rugulose laterally, smooth medially, remaining abdominal terga imbricate. Third valvula 0.7 (0.6–0.8)× length valvifer 2.

Male

Similar to female except anterior and posterior margins of pronotum lack cream colouration, and abdominal terga 2–7 without cream spot laterally (Fig. 20b). Flagellomeres brown

(Fig. 20a). Length 4.0–6.8 mm. Antenna with 15–19 antennomeres. Pronotum rugose, with anterior lobe smooth. Groove on posterior margin of metepisternum weakly carinate. Hind femur 0.7–0.9× length hind tibia. Hindwing with 3–4 hamuli basally and 3–5 distally. Abdomen 1.9–2.4× length thorax (Fig. 20a,b).

Remarks

The number of hamuli both basally and distally on the hindwing is quite variable with most individuals showing variation between left and right hindwings.

The female from Millgrove, Victoria, also has a second label – 'HOLOTYPE *Rhysacephala minor* Riek' 'Manuscript species name'. However, this was never published by Riek.

Biology

A female from Frankston, Victoria, has been collected 'ovipositing into fallen branch of *Eucalyptus viminalis* subsp. *pryoriana*'.

Austroxiphyda gen. nov. Jennings, Macdonald, Schiff & Parslow

http://zoobank.org/urn:lsid:zoobank.org:act:08FEF964-647C-40EF-B0CD-A57C75A7C433

Type species: *Austroxiphyda lasallei* Jennings, Macdonald, Schiff & Parslow, sp. nov.

Diagnosis

Head slightly wider than thorax, narrowed behind the eyes where it is divided medially by a longitudinal furrow, transversely striate on the temple and gena as far as the base of the mandibles; one of these striae represents the genal carina below; occipital carina well developed, narrow; post-occipital carina well developed, narrow; malar space from eye margin to inner edge of malar depression very short. Medial process on anterior margin of clypeus, slightly off-centre. Mandible with four teeth. Labial palp with four palpomeres, apical palpomere enlarged clavate; maxillary palp with six palpomeres; eyes oval, inner orbits more or less parallel. Antenna with 21 antennomeres; scape and first flagellomere about equal in length; from fourth antennomere onwards each antennomere decreasing in length and breadth. Pronotal collar deeply excavated in front (when viewed dorsally, only lateral corners visible). Mesoscutellum without dorsal area defined by a carina, without prominent tubercle near apex. Forewing vein 2r-rs present. Forewing vein 2A + 3A complete, with uniform colouration. Hindwing vein 3r-m absent. Tibiae with two apical spurs, although inner spur lacking on fore tibia; hind tarsus longer than tibia; robust spines on apical two-thirds of inner face of fore tibia; tarsal claws simple, lacking small erect inner tooth; bilobed tarsal plantulae present distally on tarsomeres 1–4, hind claw about 1.7× as long as middle claw. Third valvula about 0.8× as long as valvifer 2.

Remarks

This new genus keys out in couplet 5 in the key of Smith (2008), but neither of the two choices lead to genera with six palpomeres. This new genus differs from the only other Australian Xiphydriinae, *Rhysacephala*, in a number of characters including six maxillary palpomeres (seven in *Rhysacephala*), tarsal claws simple (tarsal claws with a small erect inner tooth in *Rhysacephala*). Also, hindwing vein 3r-m is absent in this new genus, whereas it is generally present in *Rhysacephala* (*R. amplipretarsus* sp. nov. is an exception and is apparently variable, with vein 3r-m being either complete, incomplete or absent). There are also differences in sculpturing and colouration.

Smith (2008) indicated that *Calexiphyda*, *Lissoxiphyda* and *Rhysacephala* all have seven maxillary palpomeres. *Calexiphyda* is confined to New Caledonia (Smith & Villemant 2017), and *Lissoxiphyda* is distributed in an area from Papua New Guinea to Aru and Sulawesi in Indonesia and includes one species in New Caledonia (Smith 2008; Smith & Villemant 2017). *Austroxiphyda* gen. nov. has six maxillary palpomeres thus readily distinguishing it from these three genera.

There are a number of other differences that also distinguish *Austroxiphyda* from these three genera: (1) *Calexiphyda* and *Rhysacephala* both have a hind tarsal claw with a small inner tooth, although in *Austroxiphyda*, the hind tarsal claw is simple, lacking the inner tooth (Fig. 22b). In this respect, *Austroxiphyda* is similar to *Lissoxiphyda* which also lack the inner tooth on the hind tarsal claw. (2) *Austroxiphyda*, together with *Calexiphyda* and *Rhysacephala*, have hindwing cells Rs, M and A, whereas *Lissoxiphyda* lack cells Rs and M, and most species also lack cell A (Smith 2008). (3) *Rhysacephala* has a dull, sculptured gena and vertex which are entirely smooth in species of *Lissoxiphyda* (Smith 2008). In this respect, *Austroxiphyda* is similar to *Rhysacephala*.

Given the various differences outlined, we establish the new monotypic genus *Austroxiphyda*.

Etymology

The name of this new genus is derived from 'austro' indicating its Australian origin, and the suffix 'xiphyda' which has been used for a number of other xiphydriid genera. Gender: feminine.

Austroxiphyda lasallei Jennings, Macdonald, Schiff & Parslow sp. nov.

(Figs 21,22)

http://zoobank.org/urn:lsid:zoobank.org:act:7DB15A94-F6A7-47E3-9639-60AC9BEFFE05

Material examined

Holotype

♀, 'The Crater, Atherton Tablelands, N. QLD, 25 Apr 1970, S.R. Curtis' (ANIC: 32-163508). Left hind leg damaged, tarsus missing, tibia removed for future DNA analysis.

Diagnosis

This new species is well defined as per the generic diagnosis.

Description

Female

Based on holotype. Length 8.1 mm (Fig. 22a,c).

Colour. Head dark brown (Fig. 22d,e) except mandibles paler brown with dark brown teeth, scape and pedicel paler brown. Thorax brown, pronotum mostly cream with dark brown spot medially and on anterior margin and mesepisternum with anterior cream patch, cenchrus cream. Legs brown except mid and hind coxae and all trochanters cream except fore trochanter cream only on apical margin, basal third of tibiae cream, basitarsi of mid and hind legs cream. Wings with a pale brown tint, veins and pterostigma dark brown (Fig. 22a). Abdomen brown, except lateral cream spots on T5–T8, broader on T8, sternite 7 dark brown, valvifer 2 pale brown. Third valvula dark brown (Fig. 22a).

Head. 1.2× wider than long when viewed dorsally (Fig. 22e). Face and frons coarsely strigate anteriorly becoming areolate–rugose posteriorly. Inner orbits of eyes more or less parallel (Fig. 22d). Distance between antennal sockets 1.9× distance between an antennal socket and front of clypeus, posterior margin of clypeus indistinct. Vertex coarsely rugose near ocelli to transverse coarsely striate posteriorly, weak longitudinal groove medially on vertex. Gena strigate, carina present. Malar space 0.07× height of eye, shallow antennal groove, striate. Clypeus strigate. Antenna with 21 antennomeres, scape 2.2× length pedicel, first flagellomere about equal to length scape, 1.4× as long as second flagellomere. Pedicel 1.5× as long as wide.

Thorax. (Fig. 22e). Pronotal collar hidden, lateral corner weakly carinate. Mesoscutum with weak crenulate furrow anteromedially, areolate–rugose, weakly punctate–rugulose anteriorly, medial patch on lateral mesoscutum granulate. Mesoscutellum reticulate, tending to smooth laterally and along posterior margin. Axilla strigate–rugulose, weaker anteriorly, metascutellum carinate, metapostnotum rugose. Pronotum reticulate, smooth anteriorly, weakly carinate in medial groove. Mesepisternum weakly reticulate anteriorly tending to smooth ventrally and laterally, posteriorly weakly reticulate, smooth ventrally. Mesepimeron broad, carinate. Metepisternum reticulate, metepimeron not visible. Hind femur 0.7× length hind tibia. Inner spur lacking on fore tibia. Hind basitarsus 0.9× length of remaining tarsomeres combined. Forewing vein 2A + 3A complete, uniform colouration (Fig. 20a). Hindwing with five hamuli basally and six hamuli distally.

Abdomen. 2.4× length thorax (Fig. 22a), T1 largely smooth, rugulose laterally, remaining abdominal terga imbricate except for T2 punctate antero-dorsally. Third valvula 0.7× length valvifer 2.

Male

Unknown.

Etymology

This species is named in honour of the late Dr John La Salle who made a significant contribution to insect taxonomy, spent a decade as director of the Australian National Insect Collection in Canberra and was director of the Atlas of Living Australia.

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We thank the various collections for the loans of specimens. We especially thank Dr Rebecca Kittel for taking a number of the photographs. Dr Gavin Broad (NHMUK) is especially thanked for providing holotype images of *R. obtusiventris* during the Covid-19 pandemic. This work was partially carried out with funding support from an Australian Biological Resources Study grant (ABRS 205-56) to J. T. J. and N. M. S.

REFERENCES

Barker PCJ & Brown MJ. 1994. *Anodopetalum biglandulosum*: growth form and abundance in Tasmanian rainforest. *Australian Journal of Ecology* **19** (4), 435–443.

Basset Y. 1991. The taxonomic composition of the arthropod fauna associated with an Australian rain-forest tree. *Australian Journal of Zoology* **39**, 171–190.

Benson RB. 1954. Classification of the Xiphydriidae (Hymenoptera). *Transactions of the Royal Entomological Society, London* **105**, 151–162.

Forsius R. 1927. On some sawflies from the Australian Region (Hymenoptera Tenthredinidae). *Records of the South Australian Museum* **3**, 283–308.

Gauld I & Bolton B. 1996. *The Hymenoptera*, 2nd. edn. British Museum (Natural History): London and Oxford University Press, Oxford 332 pp.

Harris RA. 1979. A glossary of surface sculpturing. *Californian Department of Food and Agriculture, Bureau of Entomology, Occasional Papers* **28**, 1–28.

Hedicke H. 1938. Xiphydriidae. In: *Hymenopterorum Catalogus, Pars 7* (ed H Hedicke), pp. 1–17. Dr W. Junk, 's-Gravenhague, The Hague.

Huber JT & Sharkey MJ. 1993. Chapter 3. Structure. In: *Hymenoptera of the World: An Identification Guide to Families* (eds H Goulet & JT Huber), pp. 13–59. Research Branch, Agriculture Canada, Ottawa Publication 1894/E: 668 pp.

Jennings JT. 2010. Family Xiphydriidae. Australian Faunal Directory. Available from URL: https://biodiversity.org.au/afd/taxa/XIPHYDRIIDAE [Accessed 2 April 2020]

Jennings JT & Austin AD. 2009. Rhysacephala masneri n. sp. (Xiphydriidae), the first symphytan wasp recorded from Lord Howe Island. *ZooKeys* **20**, 379–384.

Jennings JT, Austin AD & Bashford R. 2009b. First record of the woodwasp family Xiphydriidae from Tasmania with a description of a new species and host record. *Journal of Australian Entomology* **48**, 25–28.

Jennings JT, Austin AD & Schiff NM. 2007. *Rhysacephala novacaledonicus* sp. nov. (Hymenoptera: Xiphydriidae), the first xiphydriid woodwasp from New Caledonia. *Zootaxa* **1516**, 23–30.

Jennings JT, Austin AD & Schiff NM. 2009a. The Australian endemic woodwasp genus *Austrocyrta* Riek (Hymenoptera: Xiphydriidae). *Journal of Australian Entomology* **48**, 29–35.

Kajimura H. 2000. Discovery of mycangia and mucus in adult female xiphydriid woodwasps (Hymenoptera: Xiphydriidae) in Japan. *Annals of the Entomological Society of America* **93** (2), 312–317.

Maa T. 1949. A synopsis of Asiatic Siricoidea with notes on certain exotic and fossil forms (Hymenoptera Symphyta). *Notes d'Entomologie Chinoise* **13** (2), 11–189.

McKeown KC. 1942. *Australian Insects: An Introductory Handbook*. Royal Zoological Society of New South Wales, Sydney 304 pp.

Morice FD. 1919. XIV. Notes on Australian sawflies, especially the "authors' types" and other specimens in the British Museum of Natural History and the Hope Collections of the Oxford University Museum; with diagnostic synopses of the genera and species, and photographs. *Transactions of the Entomological Society of London for the Year* **1918** (3–4), 247–333.

Quinlan J. 1974. The nominal taxa described by R.B. Benson and their types, with a bibliography of his works (Hymenoptera). *Bulletin of the British Museum (Natural History) Entomology* **30**, 217–265.

Riek EF. 1955. The Australian Xiphydriidae (Hymenoptera: Symphyta). *Australian Journal of Zoology* **3**, 282–285.

Rohwer SA. 1918. Notes and descriptions of some sawflies from the Australian region. *Annals and Magazine of Natural History (Series 9)* **2**, 433–440.

Smith DR. 1976. The xiphydriid woodwasps of North America (Hymenoptera: Xiphydriidae). *Transactions of the American Entomological Society* **102**, 101–131.

Smith DR. 1978. Suborder Symphyta. (Xyelidae, Pararchexyelidae, Parapamphiliidae, Xyelydidae, Karatavitidae, Gigasiricidae, Sepulcidae, Pseudosiricidae, Anaxyelidae, Siricidae, Xiphydriidae, Paroryssidae, Xyelotomidae, Blasticotomidae, Pergidae). *Hymenopterorum Catalogus (nova editio)* **14**, 1–193.

Smith DR. 1988. A synopsis of the sawflies (Hymenoptera: Symphyta) of America south of the United States: introduction, Xyelidae, Pamphiliidae, Cimbicidae, Diprionidae, Xiphydriidae, Siricidae, Orussidae, Cephidae. *Systematic Entomology* **13**, 205–261.

Smith DR. 2008. Xiphydriidae of the Philippines, Insular Malaysia, Indonesia, Papua New Guinea, New Caledonia, and Fiji (Hymenoptera). *Beiträge zur Entomologie* **58** (1), 15–95.

Smith DR & Schiff NM. 2001. A new species of *Xiphydria* Latreille (Hymenoptera: Xiphydriidae) reared from River Birch, *Betula nigra* L., in North America. *Proceedings of the Entomological Society of Washington* **103** (4), 962–967.

Smith DR & Villemant C. 2017. Additions to the xiphydriid woodwasp (Hymenoptera, Xiphydriidae) fauna of New Caledonia. *Journal of Hymenoptera Research* **61**, 65–74.

Thompson GH & Skinner ER 1961. The alder wood wasp and its insect enemies. Commonwealth Forestry Institute film. Distributed by World Educational Films. Available from: https://www.youtube.com/watch?v=EsZu7jFTHds [Accessed 15 January 2021]

Tillyard RJ. 1926. *The Insects of Australia and New Zealand*. Angus & Robertson, Sydney 560 pp.

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