Revision of the Australian Ascalaphidae
(Insecta: Neuroptera)

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Abstract
The Australian Ascalaphidae are revised, and keys and figures provided to enable identification of all genera and species. Thirty-six species are recognized, distributed amongst 15 genera of Ascalaphinae: 11 new genera and 25 new species are described. The new genera (number of new species in parentheses) are Venacsa (1), Pilacmonotus, Megacmonotus (1), Pseudodisparomitus (1), Parasuphalomitus (2), Lobalacsa (2), Angustacsa (1), Pictacsa (3), Forcepacsa (1), Umbracsa (1) and Dentalacsa (1). Other new species are in Suhpalacsa (10) and Suphalomitus (1). Several synonyms are established.
Introduction

The family Ascalaphidae, sometimes referred to as ‘owl flies’, are large, fast-flying, myrmeleontoid Neuroptera. Although some brightly coloured European species are diurnal predators (and have been likened to dragonflies in their general appearance), others, such as the Amazonian species (Penny 1981) and apparently most of the Australian taxa, are crepuscular. Taxonomically, the family is one of the most intractable in the Neuroptera, and there has been no recent attempt to monograph the world’s species. Indeed, little constructive advance has been made in their higher taxonomic arrangement since van der Weele’s (1909) monograph, although Navás (1919) and others have suggested some tribal re-arrangements. This paper is a revision of the Australian species, based on adult characters only, and it raises a number of problems of more wide-ranging taxonomic relevance in the family.

All Australian species belong to the subfamily Ascalaphinae, characterized predominantly by having the eyes divided by a transverse furrow into upper and lower portions. The first described Australian ascalaphid was *Suhpalacsa flavipes* (Leach) (Leach 1814) but 10 others had been described by the end of the nineteenth century. Only three further species have been described this century, one by van der Weele (1909) and two by Navás (1914, 1931). None of these 14 described species was described by workers in Australia, but all by authorities in Europe. Riek (1970) estimated that the family included 22 species in Australia. Twelve of the described species were treated in detail by van der Weele (1909), but he did not figure, or include genitalic information on, all of these. He placed them in three tribes: Encyoposini (male ectoprocts forcipate, male abdomen with dorsal projection: *Pseudencyoposis* van der Weele and a number of non-Australian genera), Suhpalacsini (ectoprocts simple, male abdomen lacking dorsal prominence on second segment, anal margin of forewing not produced: *Suhpalacsa* Lefebvre, *Suphalomitus* van der Weele), and Acmonotini (male ectoprocts enlarged but not markedly forcipate, male abdomen often with dorsal prominence on segment ii, anal margin of forewing produced: *Acmonotus* McLachlan). Navás (1913) included the Indian genus *Stylonotus* Needham in Acmonotini, modifying van der Weele’s definition of the tribe to include taxa lacking marked anal expansion of the forewing margin and with prominence on the second or third male abdominal tergite. Later, Navás (1919) amalgamated Acmonotini and Suhpalacsini under the latter name.

Genera of Suhpalacsini (*sensu* Navás 1919) have generally been separated or raised predominantly on a combination of only two character suites: (1) wing shape and relative lengths of fore- and hindwings; and (2) presence, form, and position of male abdominal prominence. It has thus been difficult to allocate some females even to genus in the absence of associated males. Many of the taxa described in this paper are enigmatic: on the above, and other, characters they do not fall clearly into any described genus and the range of male abdominal prominence forms described below implies that many of the new species should also constitute new genera — often monobasic. Most of these forms are known from very few specimens but indicate possible confusion between specific and generic characterization, and suggest that some genera may have been defined too narrowly in the past. Until it is possible to revise the Suhpalacsini on a world basis — or until more information on other regional faunas, such as Dr Tjeder’s forthcoming revision of the subsaharan African species, is available — there seems little alternative to this
‘splitting’ approach without grossly distorting the criteria used for defining many genera in the subfamily. Genitalic information sometimes supports erection of the new genera, but several are clearly closely related.

Few species of Ascalaphidae are common in Australia, but these indicate that several of the earlier described species vary somewhat in details of venation and body coloration, and have necessitated establishment of several synonyms below. A wide range of characters is of use at the specific level and has necessitated rather long descriptions: such characters include intensity and colour of pubescence of various body regions and the antennal flagellum, shape and colour of the antennal club, shape and relative lengths of various leg regions, in addition to more conspicuous features of wings and genitalia.

The taxa generally support Navás’ amalgamation of Acmonotini with Suhepalacini, and appear to be wholly endemic at the species level. Distribution of the various genera is difficult to interpret. All the African species currently referred to Suhepalacsa Lefebvre belong to other genera (Tjeder, in litt.), as do all the African species currently referred to Suphalomitus van der Weele (erected to contain a range of species earlier placed in Suhepalacsa or in Helicomitus McLachlan). One species described by Navás as a Helicomitus (now a synonym of Ascalaphus F.: Tjeder 1972), however, seems to belong to Suphalomitus (Tjeder, in litt.), which genus accordingly occurs in Africa. Several species of Suhepalacsa have also been described from islands to the north of Australia. Acmonotus contained a single enigmatic species from Paraguay, but this is now included in Fillus Navás. Van der Weele (1909) recognized the substantial differences between the species he included in Acmonotus, and noted it as a ‘holding genus’. Thirty-six Australian species are here recognized, distributed amongst 15 genera, and one further taxon is regarded as incertae sedis. Types of many of the earlier described species have been examined, and material identified by van der Weele and others has been available for several species — including those described by Gerstaecker and Brauer, whose types I have not been able to examine. I have examined the collections of the following institutions:

- British Museum (Natural History), London (BMNH)
- Museum of Comparative Zoology, Harvard University (MCZ)
- Australian National Insect Collection, Canberra (ANIC)
- National Museum of Victoria, Melbourne (NMV)*
- Western Australian Museum, Perth (WAM)
- Australian Museum, Sydney (AM)
- Department of Agriculture, Rydalmere, New South Wales (RYD)
- University of Queensland (UQ)
- Queensland Museum, Brisbane (QM)

Wing figures are from camera lucida projections of pinned specimens, and venational terminology is indicated on Figs 1 and 2. Genitalic features are from macerated abdomens stored in microvials of glycerine; they are simplified by omission of non-thickened hairs and of the (rarely very distinct) trichobothrial field on the ectoproct and of at least one pulvinar lobe in ventral aspect of the male genitalia. Genitalic terminology follows Tjeder (1977) and is indicated on Figs 3–6. Measurements of forewing length (FW), hindwing length (HW), antenna length (A) and total body length (B) are given in millimetres. Figures of genitalic structures are generally referred to a scaled figure (in millimetres) of the abdominal apex, as there may be considerable intraspecific variation in size. Antennal club shapes of Australian species are indicated in Figs 7–10. I have not described or figured the

*Note added in proof: The name of the museum has been changed to Museum of Victoria, Melbourne.
(male) hypandrium internum or the (female) spermatheca: although these structures are present, they are small and of little taxonomic significance in this family. An interdens appears to be absent from females of all the species examined here. Ascalaphidae may be separated from other families of Australian Neuroptera by the following combination of characters:

Costal area of wings with numerous crossveins, pterostigma well defined; ocelli absent; head not produced into rostrum; antennae clubbed, at least \( \frac{1}{3} \) length of forewing; eyes divided horizontally in Australian species.

### Key to Genera of Ascalaphidae in Australia

<table>
<thead>
<tr>
<th>Key</th>
<th>Description</th>
<th>Genus</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Forewing with 2 rows of cells in distal part of costal cell</td>
<td>Venacsa</td>
</tr>
<tr>
<td>2</td>
<td>Forewing with single row of costal cells throughout</td>
<td></td>
</tr>
<tr>
<td>2(1)</td>
<td>Wing bases very narrow (forewing anal margin produced) (Fig. 31)</td>
<td>Acrnonotus</td>
</tr>
<tr>
<td>3</td>
<td>Wings not as above, usually much broader</td>
<td></td>
</tr>
<tr>
<td>3(2)</td>
<td>Wings relatively broad; hindwing broader than forewing</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>pterostigma: although these structures are present, they are small</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>(male) hypandrium internum or the (female) spermatheca: although these</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>structures are present, they are small and of little taxonomic significance</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>(male) hypandrium internum or the (female) spermatheca: although these</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>structures are present, they are small and of little taxonomic significance</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>Male prominence, if present, on 1st or 2nd tergite; wings not as in Figs 11</td>
<td>Pseudodysonopins</td>
</tr>
<tr>
<td>9(1)</td>
<td>......-17</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>Wings tapered to narrow apex (Figs 232, 283)</td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>Wings, if tapered, not as much as above; generally more broadly rounded at</td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>apex</td>
<td></td>
</tr>
<tr>
<td>12(8)</td>
<td>Forewing apical field with veins forked near margin; hindwing margin</td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>somewhat sinuous; hindwing ( R_s ) arises before fork of ( M_p )</td>
<td></td>
</tr>
<tr>
<td>14</td>
<td>Forewing apical field without veins forking near margin; hindwing margin</td>
<td></td>
</tr>
<tr>
<td>15</td>
<td>somewhat sinuous; hindwing ( R_s ) arises well beyond fork of ( M_p )</td>
<td></td>
</tr>
<tr>
<td>16</td>
<td>Male prominence on 3rd tergite; wings elongate, venation dense,</td>
<td></td>
</tr>
<tr>
<td>17</td>
<td>pterostigma long (Figs 11-17)</td>
<td></td>
</tr>
<tr>
<td>18</td>
<td>Male prominence, if present, on 1st or 2nd tergite; wings not as in Figs 11</td>
<td>Pseudodysonopins</td>
</tr>
<tr>
<td>19</td>
<td>......-17</td>
<td></td>
</tr>
<tr>
<td>20</td>
<td>Hindwing with 2 or 3 (rarely 4) presectoral crossveins; male abdomen</td>
<td></td>
</tr>
<tr>
<td>21</td>
<td>with prominence on 1st segment</td>
<td></td>
</tr>
<tr>
<td>22</td>
<td>Hindwing with about 6 presectoral crossveins; male abdomen with</td>
<td></td>
</tr>
<tr>
<td>23</td>
<td>prominence, if present, on 2nd segment</td>
<td></td>
</tr>
<tr>
<td>24</td>
<td>Pseudodysonopins</td>
<td></td>
</tr>
<tr>
<td>25</td>
<td>Male abdomen without dorsal prominence</td>
<td></td>
</tr>
<tr>
<td>26</td>
<td>Male abdomen with dorsal prominence</td>
<td></td>
</tr>
<tr>
<td>27</td>
<td>Male abdomen with dorsal prominence</td>
<td></td>
</tr>
<tr>
<td>28</td>
<td>Male dorsal prominence long and apically divided; gonarcus not markedly</td>
<td></td>
</tr>
<tr>
<td>29</td>
<td>'hooded', parameres protuberant (wings with greyish brown markings)</td>
<td></td>
</tr>
<tr>
<td>30</td>
<td>Male dorsal prominence short and domed; gonarcus hooded (wings without greyish</td>
<td></td>
</tr>
<tr>
<td>31</td>
<td>brown shading except, sometimes, apically</td>
<td></td>
</tr>
<tr>
<td>32</td>
<td>Male abdomen without dorsal prominence</td>
<td></td>
</tr>
<tr>
<td>33</td>
<td>Male abdomen with dorsal prominence</td>
<td></td>
</tr>
<tr>
<td>34</td>
<td>Male abdomen with dorsal prominence, ectoprocts usually simple;</td>
<td></td>
</tr>
<tr>
<td>35</td>
<td>forewing anal margin rounded or angled</td>
<td></td>
</tr>
<tr>
<td>36</td>
<td>Male abdomen with dorsal prominence, ectoprocts ornamented;</td>
<td></td>
</tr>
<tr>
<td>37</td>
<td>forewing anal margin angled</td>
<td></td>
</tr>
<tr>
<td>38</td>
<td>Male ectoprocts slender and divergent, strongly setose; prominance long</td>
<td></td>
</tr>
<tr>
<td>39</td>
<td>and bifid; antennal club pear-shaped</td>
<td></td>
</tr>
<tr>
<td>40</td>
<td>Male ectoprocts produced ventrally (Fig. 292); prominance slight, domed;</td>
<td></td>
</tr>
<tr>
<td>41</td>
<td>antennal club fusiform</td>
<td></td>
</tr>
</tbody>
</table>

### References

- For the full key, refer to the original source details provided within the text.
A checklist of Australian ascalaphids, with a summary of their known distributions, is given in Appendix 1.

Generic diagnoses given below are rather brief, but draw attention to characters of value for the separation of genera. Many are monobasic, and it is not certain whether some details given in specific descriptions are also diagnostic for genera. Because many of the genera are very similar, amplified descriptions would inevitably contain much repetition.

Genus *Pseudencyoposis* van der Weele

*Pseudencyoposis* van der Weele, 1909, p. 251.

Type-species: *Pseudencyoposis bicornis* van der Weele.

Belonging to the Ascalaphinae. Wings long and slender, scarcely broadened medially; apices slightly tapered. Hindwing nearly as long as forewing. Forewing anal margin angled, not produced. Pterostigma long. Apical fields moderately broad, cells in 2 or (intermittently) 3 rows (especially in forewing). Antennae straight, not extending to pterostigma; club pear-shaped. Legs moderately short and stout. Male with 2 posteriorly inclined dorsal prongs near posterior of abdominal tergite iii; ecdysozoa strongly extended and divergent ventrally; gonarcus shallow, parameres exposed. Eye regions of similar size. Tibial spurs extend to apex of t3.

No further species of *Pseudencyoposis* have been described.

*Pseudencyoposis bicornis* van der Weele

(Figs 11-24)

*Pseudencyoposis bicornis* van der Weele, 1909, p. 251.

**Coloration.** Yellow and black. Eyes dark grey, sometimes with brownish motting. Labrum very pale yellow. Clypeus similar, but slightly browned laterally and with lateral white hairs. Genae and inner eye margin to above antennal socket pale yellow. Frons dark brown to black with white hairs, most dense as lateral tufts. Vertex greyed centrally, with grey and black hairs. Postocciput mainly tawny but with small central black marks. Interantennal hairs dense, white. Antenna: scape brown with black hairs on outer edge; flagellum tawny brown, basal halves of segments of distal ¼ darkened; club almost black ventrally, basal ½ of dorsal surface ivory. Thorax greyish brown with broad median yellow stripe: this sometimes obscured over central region of pterothorax, or with corners produced to form 'X' on mesonotum. Pleura dark, sometimes with silver-grey pruinosecence; hairs grey. Abdomen with broad orange-tawny median stripe except at anterior of iii and across posterior margin (irregularly) of other tergites; borders of anterior tergites black; tergites beyond vii blacker, with pale posterior band or marginal paired lunules; anterior sternites with lateral yellow streaks and posterior margins, black medially and across anterior border; from vi backwards black, irregularly with pale posterior margins. Wing venation very dark brown to black, C paler; pterostigma mid- to dark brown; Sc cell sometimes browned; much of apical wing membrane sometimes very slightly fumose. Legs: F dark except apex, with black and white bristles; T dark ventrally, pale dorsally, with black bristles; t segments all blackened apically; spurs and claws black.
Morphology. Vertex slightly less than eye diameter in dorsal aspect. Antenna: minute verticils on apical flagellar segments, club elongate pear-shaped. Wings as in Figs 11, 12: relatively narrow, venation dense; anal margin of forewing slightly angled, not produced; wings narrowed apically, apical fields moderately narrow with cells in 2-3 (forewing) rows; pterostigma long. Legs slender; spurs to end t.; claws long, strong; \( T=t \).

Female abdominal apex as in Fig. 19: ectoproct narrow, simple; distivalvae shallow; ventrovaivae shallow, linguella moderately developed. FW 26-32, HW 25-29, A 17-21, B 26-32.

Male 3rd abdominal tergite with raised bifid hump near posterior margin (Figs 17, 18), this with moderately long black hairs at apices; abdomen strongly arched at prominence. Abdominal apex as in Figs 20, 21: ectoprocts forcipate, strongly extended and divergent ventrally, with short black bristles; sternite ix tapered posteriorly (Fig. 22). Gonarcus (Figs 23, 24) relatively shallow, arms slightly divergent anteriorly; parameres simple, hooked; pelta small; pulvinus with small ovate lobes with dense short gonosetae. FW 24-27, HW 22-25, A 17-20, B 32-36.

Types
Van der Weele described this species from a ♂ (Western Australia, Lawless, 1898) and a ♀ (Australia, 1895). Both BMNH (seen).

Other Material Examined
Northern Territory: 1, 25°18'S., 130°44'E., Valley of the Winds, The Olga (ANIC). Western Australia: 2, 12.4 km SSE. Banjiwarrn HS. (WAM); 8, Charles Knob, 125°E., 25°S., c. 500 km NE. Laverton (WAM); 1, near Mt Gibson (WAM); 2, Marble Bar (NMV); 1, 315 km NW. Warburton (WAM); 1, between Tabba Tabba Ck and W. Strelley R., c. 70 km SE. Port Hedland (AM); 1, 8 km SW. by W. Cane R. HS., 22°07'S., 115°33'E. (ANIC); 1, Wooramel R., 25°47'S., 115°58'E., (WAM); 1, Wittenoom (WAM); 1, 37 km SW. Youanmi, 28°45'S., 118°31'E. (WAM); 2, 7.5 km E. of Yuinmery HS., 28°34'S., 119°01'E. (WAM).

Comments

*P. bicornis* is readily distinguished from all other Australian Ascalaphidae on the male abdominal ornamentation: tergite iii is substantially deepened posteriorly and the abdomen appears arched. The strongly forcipate ectoprocts are also distinctive, as is the wing shape. The species appears to be largely limited to Western Australia and to be moderately common there.

Genus *Venacsa*, gen. nov.

Type-species: *Venacsa bicostalis*, sp. nov.

Belonging to the Ascalaphinae. Wings broad, with dense venation, and slightly tapered to apex; hindwing little shorter than forewing; forewing with costal cells doubled in apical \( \frac{1}{2} \) of wing; pterostigma long and deep; apical fields broad, with 3-4 rows of cells; forewing anal margin smoothly rounded, not produced. Antennae straight, club pear-shaped; much shorter than forewing. Legs short and stout. Eye regions of similar size.

Male
Unknown.
The above combination of wing features separates this genus from other Ascalaphinae. Other than for the unique form of the forewing costal region, the very dense venation is unusual, and *Venacsa*, in as far as it is possible to judge in the absence of males, appears to have no very close relatives in the Australian fauna or elsewhere.

*Venacsa bicostalis*, sp. nov.
(Figs 25–30)

**Female**

**Coloration.** Face tawny-yellow. Eyes brownish grey. Genae with irregular small reddish brown spots. Labrum and clypeus with sparse white hairs, on latter mainly lateral. Central region of frons black, with dense white hairs, including lateral tufts. White hairs immediately above antennal sockets, most vertical hairs black; posterior of vertex black. Antennal scape black, with dense black hairs, pedicel – f1 pale, remainder of flagellum dark brown to black; segments long and simple, with minute verticils on distal segments; club elongate pear-shaped, black. Thorax dark brown, paler (yellowish) in midline, dorsal hairs black. Pleura dark brown, with white hairs. Abdomen with anterior segments pale in midline, iii and beyond with conspicuous yellow dorsal stripe, borders and anterior margin black; pleural membrane mainly pale; sternites black. Wing venation mainly dark greyish brown, costal cell (both wings) slightly tawny; pterostigma dark castaneous; margins of many cells in apical field and of rows of apical radial cells slightly shaded with brown (more pronounced in hind wing); membrane otherwise hyaline. Legs mainly black, F apically and T externally pale yellow; spurs and claws black.

**Morphology.** Interocular vertex about equal to eye diameter in dorsal aspect. Wings as in Figs 25, 26; broad, forewing anal angle not produced, wing broad; pterostigma slightly longer than deep, 5 crossveins enclosed; costal cells in 2 rows in much of apical ½ of forewing; apical field wide, with 3–4 rows of cells; venation dense; forewing with 6 presectoral crossveins. Legs short and stout; spurs slender, extending to just beyond t1; claws stouter and longer; t1 > t; T slightly > t.

Abdominal apex as in Figs 29, 30. Ectoproct simple; tergite ix somewhat narrowed dorsally; distivalvae rather broad; ventrovalvae slightly divergent; linguella indistinct; sternite vii transverse. FW 37, HW 33, A 22, B 32.

**Male**

Unknown.

**Type**

Holotype ♀, Queensland, Bowen, 12.i.1968, R. Dobson (ANIC).

**Comments**

The doubling of the forewing costal cells is not known in any other ascalaphid and renders the above species very distinctive. The very dense venation is also unusual in the Australian fauna.

Genus *Acmonotus* McLachlan


Type-species: *Acmonotus incusifer* McLachlan.

Belonging to the Ascalaphinae. Wings elongate and narrow; hindwing only slightly shorter than forewing. Forewing anal angle produced; hindwing MP; very long, only single row of cells behind this. Apical fields broader than costal cell, with cells in 2 rows. Pterostigma moderately large. Antennae straight, not reaching pterostigma; basal flagellar segments with long hairs; club pear-shaped. Body and legs densely hairy, hairs on genae. Legs short. Male with short stout bifid prominence on tergite ii; ectoprocts produced ventrally and divergent; parameres exposed, blunt. Upper region of eye somewhat larger than lower region.

McLachlan (1871) differentiated *Acmonotus* from *Suhpalacsa* on the very narrow wings and male abdominal structure: his comment that the male abdominal prominence was on the first tergite was corrected by Kimmins (1929), following van der Weele (1909). Van der Weele included species of the following two new genera in *Acmonotus*, and noted the diversity of the taxa thus included. Not only does *incusifer* differ markedly from the other species in wing venation, but also in the form of the male prominence and substantially in the male genitalic structures. Clearly they should not be retained in the same genus as *incusifer*, which appears to be unique in the above character combination.

*Acmonotus incusifer* McLachlan
(Figs 31–41)


**Coloration.** Black. Eyes dark grey. Labrum and clypeus tawny, genae somewhat darker. Genae, clypeus and frons with very dense white hairs. Frons and vertex dark. Vertex with very dense grey hairs. Postocciput dark. Antenna: base dark, flagellum largely pale tawny-yellow, segments beyond about $f_6$ with apical $\frac{1}{2}$ black; club dorsally ivory, ventrally and anteriorly black. Thorax mainly black, with dense grey hairs; anterior of mesoprescutum sometimes yellow; 2 parallel yellow streaks along scutal lobes; lateral margins of mesoscutellum yellow; metanotum wholly dark grey to black. Pleura with dense grey hairs. Abdomen black, with dense black hairs and dorsal spicules, very dense on pleural membrane; posterior margin of tergites beyond ii with paired ivory lunules; sternites similar. Wing venation dark brown to black; pterostigma very dark brown to black; Sc cell sometimes slightly shaded, membrane otherwise hyaline. Basal hind margin of hindwing with long grey hairs. Legs: $F$ dark except apex, with dense white pairs and few black bristles; $T$ black ventrally and 2 black bands, less dense vestiture than $F$; $t$ mainly pale, apices and ventral sides of segments darker; spurs and claws dark.

**Morphology.** Densely hairy. Vertex width less than eye diameter in dorsal aspect. Antenna: long verticils on basal flagellar segments, whorls of short black verticils on all other flagellar segments; club blunt pear-shaped. Wings as in Figs 31–34: long, and very narrow, tapered apically; forewing anal margin angled and produced; hindwing anal margin expanded before very narrow region; apical fields with cells in 2 rows; pterostigma fairly large. Legs short; spurs to end $t_3$; claws longer; $T > t$.

Female abdominal apex as in Fig. 37: ectoproct slender, simple; distivalvæ broadly rounded; ventrovalvæ shallow; linguella moderately developed. FW 25–28, HW 23–26, A 16–19, B 22–26.
Male 2nd abdominal tergite with short stout prominence (Figs 35, 36), slightly reflexed posteriorly, incipiently bifid at apex, posterior surface spiculate. Abdominal apex as in Figs 38–39: ectoprocts slender, produced ventrally and divergent; sternite ix tapered to narrow apex; segment viii very long. Gonarcus (Figs 40, 41) shallow, lateral arms sinuous; parameres broad, slightly hooked, rugose; pelta small; pulvinus without well-developed lobes, groups of short dark gonosetae. FW 24–27, HW 20–25, A 16–19, B 23–30.

Type

♂, formerly in alcohol, now pinned, south-west Australia (BMNH) (seen).

Other Material Examined

Western Australia: 11, ‘S.W. Australia’ (BMNH); 1, Araluen (WAM); 1, Chidlows (WAM); 2, Forrestfield (WAM); 1, Jandakot (WAM); 1, Jarrahdale (WAM); 2, Kalamunda (WAM); 1, 10 km E. Kalamunda (WAM); 1, Mt Pleasant (WAM); 1, Mt Yokine (NMV); 1, Mundaring Weir (WAM); 1, Narrogin (WAM); 1, Perth (AM); 1, S. Perth (WAM); 1, Wembley (NMV); 1, Newlands (ANIC); 1, 16 km S. Geraldton (ANIC); 1, Pingrup (ANIC); 3, Waroona (ANIC); 2, Yellingup (ANIC); 1, 15 km N. by E. Mt Singleton (ANIC); 1, 5 km SW. by W. Payne’s Find (ANIC).

Comments

A. incusifer appears to be very different from the other species hitherto placed in this genus. Particularly, the very narrow wings, the very short abdominal prominence and the extremely hairy appearance are unlike the other species.

Genus Pilacmonotus, gen. nov.

Type-species: Ascalaphus sabulosus Walker.

Belonging to the Ascalaphinae. Wings elongate, moderately broad; hindwing slightly shorter than forewing. Forewing anal angle produced. Apical fields with cells predominantly in 2 rows. Pterostigma slightly longer than deep. Antennae straight, not reaching pterostigma; basal flagellar segments with long hairs; club pear-shaped. Legs moderately short. Male without abdominal prominence; ectoprocts simple; parameres exposed, hooked. Upper region of eye somewhat larger than lower region.

This genus contains a single species formerly included by van der Weele in Acmonotus. It resembles A. incusifer in being conspicuously hairy, and is perhaps the taxon most closely related to that species. However, the major differences in wing and abdominal characters clearly preclude it being placed in the same genus.

Pilacmonotus sabulosus (Walker), comb. nov.

(Figs 42–49)

Ascalaphus sabulosus Walker, 1853, p. 427.

Coloration. Dark greyish brown. Eyes grey with black mottling. Labrum, clypeus, genae, inner eye margin to above suture yellow. Frons black with very dense white and grey hairs. Vertex dark, with dense black and white hairs. Postocciput yellow near eye rim, otherwise black. Antenna: basal 4–6 flagellar segments yellow dorsally, rest of flagellum dark brown to black; club dorsally ivory except black leading edge, ventrally white posteriorly and along apex of each seg-
ment. Thorax dark greyish brown, with dense grey hairs; pleura dark, many of dense hairs white. Abdomen dark grey, with dense hairs: particularly in grey and black tufts on pleural membrane; tergites with paired elongate chocolate brown streaks (Fig. 44), sometimes flanking indistinct orange median spot; each tergite with paired small posterior orange lunules with black or dark brown anterior margin; posterior segments darker. Wing base tawny; venation dark brown to black, C paler; pterostigma dark brown, membrane otherwise hyaline. Legs dark; 'knees' and basal dorsal ½ of Ti, ii yellow; t black except t, (tawny); spurs and claws black; F with dense white hairs; Ti, ii with white hairs, iii with black bristles.

Morphology. Vertex about equal to eye diameter in dorsal aspect; Antenna: long whorls of verticils on basal few flagellar segments, others with short verticils; club large, elongate pear-shaped. Wings as in Figs 42, 43: forewing anal margin produced; apical field narrow, with cells in 2 rows; pterostigma slightly longer than deep, basal hind margins with long hairs. Legs moderately stout; spurs to end t,; claws shorter. Abdominal hair tufts well developed.

Female abdominal apex as in Fig. 45: ectoproct broad; distivalvae broad; ventrovalvae broad; linguella moderately developed. FW 27-36, HW 23-32, A 18-22, B 24-28.

Male has no abdominal prominence. Abdominal apex as in Fig. 46: ectoproct simple; sternite ix very broad (Fig. 47). Gonarcus (Figs 48, 49) shallow, arms divergent anteriorly; parameres small, rugose, hooked; pelta small, slender; pulvinus lobes small, rounded with dense pale gonosetae. FW 25-34, HW 22-31, A 18-23, B 26-31.

Type

♀, southern Australia (BMNH) (seen).

Other Material Examined

Queensland: 1, Bee Ck, 25 km SW. Nebo (AM); 1, Blackdown Tableland, Expedition Ra. (AM); 1, Byfield State Forest (AM); New South Wales: 1, Canowindra (NMV); 1, Deniliquin (NMV); Victoria: 1, Ararat (NMV); 1, Healesville (NMV); 1, Hurstbridge (NMV); 1, Morton (NMV); 1, Stawell (ANIC); Australian Capital Territory: 17, Canberra (ANIC); 1, Kambah (ANIC); South Australia: 1, Adelaide (det. Hagen, MCZ).

Comments

*P. sabulosus* is distinctive in having the combination of produced forewing anal angle and no male abdominal prominence. Its very hairy appearance is rather similar to that of *A. incusifer*, from which it differs in having much broader wings.

Genus *Megaconotus*, gen. nov.

Type-species: *Suhpalasca magna* McLachlan.

Belonging to the Ascalaphinae. Wings elongate and moderately broad; hind-wing slightly shorter than forewing. Forewing anal angle moderately produced. Apical fields broad, with cells mainly in 3 or 4 rows. Pterostigma moderately long to long. Antennae straight, bare except for (sometimes) minute verticils; club pear-shaped. Legs moderately stout. Male with long more or less bifid dorsal prominence on abdominal tergite ii; ectoprocts sometimes extended and/or with ventral field of setae or spicules; tergite viii sometimes flattened dorsoventrally, with setose lateral flanges; parameres exposed, hooked. Body not densely hairy. Upper region of eye slightly larger than lower region.
This genus includes some of the largest and most spectacular Australian Ascalaphidae, and the three species redescribed here were formerly included in Acmonotus by van der Weele. They differ clearly from Acmonotus sensu stricto and Pilacmonotus on many features of wing and abdomen, but are themselves rather diverse. They are clearly rather similar on wing characters and in the gross form of the male abdominal prominence. However, the type-species, magnus, differs from the other two in the much simpler form of the male abdominal apex and could conceivably be considered to represent a distinct subgenus.

**Key to Species of Megacmonotus**

1. Thorax dark greyish brown, without contrasted dorsal markings. Male abdominal prominence slender, setose near apex; no spicules on posterior face; male tergite viii without lateral flanges ................................................................. *magnus*

   Thorax with contrasted dorsal stripe or other markings. Male abdominal prominence stout, occupying most of tergite ii in lateral aspect; spiculate on posterior face; male tergite viii with lateral flanges ................................................................. 2

2(1). Dorsal prominence incipiently bifid .................................................................................. 3

   Dorsal prominence strongly bifid (Fig. 85); body with strongly contrasted black and yellow pattern ............................................................................................................................. *wilsoni*

3(2). Dorsal prominence very stout (Fig. 66); anterior abdominal tergites almost wholly tawny ...

   Dorsal prominence more slender (Fig. 55); anterior abdominal tergites darker ... *spectabilis*

**Megacmonotus spectabilis** (Gerstaecker), comb. nov.

*(Figs 52–61)*

*Suhspalasca spectabilis* Gerstaecker, 1885, p. 84.

*Acmonotus spectabilis* (Gerstaecker). van der Weele, 1909, p. 200.

**Coloration.** Tawny-brown. Eyes brownish grey. Face yellow; frons somewhat browned, with white hairs (relatively sparse). Vertex tawny with relatively short grey hairs. Postocciput not darkened. Antennae: scape with ventral white fringe of long hairs; flagellum tawny, extreme tip of each segment dark brown; club mainly black but much of basal 1/2 of dorsal surface (except edges) tawny-yellow. Thorax greyish brown; broad tawny median stripe along mesonotum, except dark centre to scutellum; relatively sparse dark grey hairs; pleura grey with pale grey or white hairs. Abdomen with dense black spicules on margins of tergites and pleural membrane; sides of tergites darkened from median broad tawny streak; tergites beyond about tergite v predominantly grey dorsally, with pale hind margin; sternites with pale hind borders. Wing venation dark brown, except C (yellow-brown); pterostigma brown; cell Sc slightly shaded, membrane otherwise hyaline. Legs predominantly dark brown to black; F (narrowly) and T dorsally yellow; basal parts of tarsal segments slightly paler than apex; F and T with sparse black bristles, F also with white hairs; spurs and claws black.

**Morphology.** Vertex about equal to eye diameter in dorsal aspect. Antenna bare, with blunt pear-shaped club. Wings as in Figs 52, 53: pterostigma small, deeper than long; apical fields narrow, cells in 2–4 rows; forewing anal margin slightly produced. Legs moderately slender; spurs strong, to beyond t;; claws strong, longer.

Female abdominal apex as in Fig. 57: ectoproct simple, distivalvae small, rounded; ventrovalvae deep; linguella well developed. FW 38–45, HW 32–41, A 24–28, B 40–46.
Male 2nd abdominal tergite with broad prominence, slightly arched anteriorly, incipiently bifid at apex, spiculate posteriorly (Figs 55, 56). Apex of abdomen (Figs 58, 59) flattened dorsoventrally; tergite viii with strong lateral flanges bearing tufts of black hairs; ectoprocts transverse, membranously linked dorsally and each with group of short black dorsally directed bristles; tergite ix with ventral dark hairs; sternite ix deep. Gonarcus (Figs 60, 61) shallow, sides almost parallel; parameres simply hooked, rugose; pelta small, with minute apical hairs; pulvinus lobes with groups of dark gonosetae. FW 38–43, HW 35–40, A 24–27, B 50–58, prominence 4½.

Type

♀, Queensland, Peak Downs (Greifswald) [not seen: diagnosis based on ♂♀ det. by van der Weele, and figured by him (1909): both Queensland, F. P. Dodd, BMNH].

Other Material Examined

Western Australia: 1, Fitzroy R. Crossing, Derby-Broome Rd (AM); 2, Larrimah (ANIC); Northern Territory: 1, Katherine Gorge, 24 km NE. Katherine (ANIC); 1, Renner Springs (ANIC); Queensland: 1, 16 km SSE. Mt Isa (ANIC); 1, 160 km NNW. Clermont (ANIC).

Comments

M. spectabilis appears to be rather rare, and very few specimens have been traced. The very stout male abdominal prominence and the form of the abdominal apex are distinctive. See also comment on next species.

Megacmonotus vanderweelei, sp. nov.
(Figs 63–72)

Female

Unknown.

Male

Coloration. Tawny-brown with black markings. Eyes grey. Labrum, clypeus, genae and inner eye margin to beyond suture pale yellow. Frons browned, largely obscured by dense white hairs. Antennal scape and sockets yellow; remainder of antennae missing. Vertex dark except yellow stripes each side of narrow black midline; with dense grey hairs. Postocciput brown centrally, otherwise pale. Thorax with black median stripe, this obsolete on posterior of mesoscutellum; other black stripes above wing bases; hairs grey to white. Pleura dark, with dense white and pale grey hairs. Abdomen: prominence blackened anterolaterally; anterior tergites mainly tawny-brown with black lateral margins; slight median black spots near posterior margin and trace (only) of median stripe (Fig. 65): posterior tergites darker; central region of sternites black. Wing venation dark brown except C and MP, (yellow); pterostigma yellow; Sc cell tawny; membrane otherwise hyaline. Legs tawny-yellow, slight ventral blackening to T; t scarcely darkened; spurs and claws black.

Morphology. Wings as in Figs 63, 64: pterostigma short; apical fields with cells in 2–3 rows. Legs long, slightly thickened; spurs to end t. 2nd abdominal tergite with broad prominence slightly inclined posteriorly; apex scarcely bifid, with
groups of short black hairs on sides (Figs 66, 67). 3rd abdominal tergite rather swollen. Apex of abdomen (Figs 68, 69) flattened dorsoventrally; tergite viii with slight lateral flanges, not markedly setose; ectoprocts transverse, with dorsally directed thickened black setae; tergite ix with group of long ventral setae; sternite ix (Fig. 70) shallow, with 2 long black sinuous hairs each side amid shorter pale hairs. Gonarcus (Figs 71, 72) long, with long lateral apodemes, sides scarcely divergent; parameres small, hooked; pelta with sides extended anteriorly; pulvinar lobes slender, with long apical black gonosetae and smaller proximal pale gonosetae. FW 33, HW 30, A —, B 38, prominence 4½.

Type

Holotype, ♂, Queensland, via Burketown, Wernadinga, 5.ix.1930, T. G. Campbell (ANIC).

Comments

This species is very similar to spectabilis, but differs in genitalic features and in having the pterostigma pale. Particularly, the abdomen indicates a close relationship to spectabilis: these are the only two species with the gonarcus apodemes extended and the abdominal prominence scarcely divided.

Megacmonotus magnus (McLachlan), comb. nov.
(Figs 50, 51, 73-81)

Suhpalasca magna McLachlan, 1871, p. 256.
Acmonotus magnus (McLachlan). van der Weele, 1907, p. 256; 1909, p. 202

Coloration. Greyish brown to dark grey, with yellow and/or orange markings. Eyes dark brown. Labrum, clypeus, gena and inner eye margin greyish yellow. Frons black with central white hairs and outer black tufts. Vertex dark greyish brown, with grey hairs. Postocciput mainly brown, somewhat paler dorsally. Antennae: flagellum basally tawny-brown, otherwise black; club white except for partial black annuli around anterior edge of segments of apical ½. Thorax dark greyish brown, with sparse grey hairs; sometimes with slight paler median mark; pleura dark. Abdomen black laterally; tergites with ± well-developed oval yellow or orange mark medially, paired orange posterior lunules bordered anteriorly with black (Fig. 75); anterior mark not always evident, and progressively reduced on posterior segments; pleural membrane predominantly pale; sternites with pale apex; dense short dark hairs. Wing venation dark, except C paler; wing base shaded with greyish brown; pterostigma dark greyish brown; cell Sc and base of cell C usually shaded with greyish brown; membrane otherwise hyaline. Legs black; ‘knees’, apex of T, whole of t₁, tawny; black bristles; spurs and claws black.

Morphology. Vertex about equal to eye diameter in dorsal aspect. Antennae: distal flagellar segments with small verticils; club bluntly pear-shaped. Wings as in Figs 50, 51, 73, 74: pterostigma longer than deep, incorporating 3 or 4 crossveins; apical fields with cells predominantly in 3 rows; forewing anal margin produced. Legs moderately stout; spurs strong, to beyond t₁; claws very strong, longer.

Female abdominal apex as in Fig. 78: ectoproct simple; distivalvae rounded; ventrovalvae short; linguella moderately developed. FW 37-42, HW 34-38, A 25-29, B 38-43.
Male 2nd abdominal tergite with slender prominence (Figs 76, 77) towards anterior edge; incipiently bifid, each side of apex with dense black hairs, otherwise bare. Abdominal apex as in Fig. 79: ectoproct simple with group of about 35 ventral thickened setae; sternite ix deep. Gonarcus (Figs 80, 81) shallow, sides almost parallel; parameres simply hooked; pelta slender; pulvinus lobes rather slender with long gonosetae concentrated dorsally. FW 35-40, HW 31-36, A 26-28, B 39-45.

**Type**

♀, Western Australia, Champion Bay (BMNH) (seen).

**Other Material Examined**

Queensland: 1, Bindle (ANIC); 1, 56 km N. Bollon (ANIC); 1, 11 km NE. by N. Blackhall (ANIC); 7, Boula area (ANIC); 1, Cunnamulla dist. (AM); 1, 24 km SE. Charleville (ANIC); 1, 42 km NW. Durham Downs (ANIC); 1, Hebel (ANIC); 1, Mareeba (ANIC); 1, nr Naryilco (ANIC); 1, 8 km S. Kuranda (AM); 1, 3 km SW. Wallal (ANIC); Western Australia: 2, Bullbrook (WAM, NMV); 5, 7–5 km SE. Banjiwarn HS. (WAM); 1, Bannister (WAM); 1, Boorabbin Rock (WAM); 1, 27 km S. Balladonia Motel (ANIC); 2, Buningonia Spring (WAM); 2, 13 km E. Carnarvon (ANIC); 1, 171 km SSE. Carnarvon (ANIC); 1, Cottessie (WAM); 2, Culham (WAM); 3, 3–8 km NE. Comet Vale Siding (WAM); 1, Charles Knob, c. 480 km NE. Laverton (WAM); 1, Deeba Rock Hole, 34 km NE. by N Laverton (ANIC); 5, Drummond Cove, nr Geraldton (ANIC); 1, Deepdene (WAM); 1, 40 km E. Eucla (ANIC); 1, Fremantle (ANIC); 1, Forest Grove (WAM); 1, Garden I. (WAM); 1, 27 km SW. Halls Ck (ANIC); 1, Jandakot (WAM); 1, Kalamunda (WAM); 1, 108 km E. Kalamunda (WAM); 1, Kalgoorlie (ANIC); 2, Kings Park (WAM); 1, Kundip (WAM); 1, Kelm Scott (WAM); 1, Malaga (WAM); 2, Mt Linden (WAM); 1, Mt Worsnop (WAM); 1, Marble Bar (AM); 36, Mt Yokine (NMV); 2, Minilya Stn (WAM, NMV); 1, Mt Singleton, nr Lake Moore (ANIC); 1, Mt Tom Price (ANIC); 1, Murdoch (WAM); 5, Millstream (area) (ANIC); 1, 13 km E. by N. Newman (ANIC); 1, 56 km SW. by S. Norseman (ANIC); 4, Perth (AM); 1, 30 km ENE. Perth (ANIC); 3, Rotnest I. (WAM); 1, Swan R. (ANIC); 2, Towrana Stn (WAM); 1, Waddi Forest (WAM); 1, 25 km ENE. Yuinmery HS. (WAM); 35, West Midland (NMV); 1, Wooraloo (WAM); 1, Widgeeemooltha (WAM); Northern Territory: 6, 39 km E. Alice Springs (ANIC); 2, 53 km E. by N. Alice Springs (ANIC); 3, Standley Chasm, 42 km W. Alice Springs (ANIC); 3, NE. of Andado HS. (ANIC); 1, 26 km WSW. Mulga Park HS. (ANIC); 1, Clay Pan Well, 37 km NW. Tanami (ANIC); 2, Entire Ck, 155 km NE. by E. Alice Springs (ANIC); 1, 10 km SSE. Finke (ANIC); 5, The Olgas, Valley of the Winds (ANIC); 1, 5 km NE. Gosses Bluff (ANIC); 1, 9 km N. Kulgera (ANIC); 4, Illungnarra WH., 90 km SW. by S. Urandangi (2) (ANIC); 1, Roe Ck (ANIC); 1, Plenty Highway, 268 km ENE. Alice Springs; South Australia: 2, Arkaroola (AM); 4, 91 km S. by E. Coober Pedy (ANIC); 2, Mt Barr, 24 km SSE. Alminga (ANIC); 1, 16 km E. by N. Kimba (ANIC); 1, Leigh Ck (ANIC); 1, 32 km W. Granite Downs HS. (ANIC); 2, Olary (ANIC); 1, Hammond (AM); 1, Wilpena Pound (AM); New South Wales: 5, Broken Hill (area) (4 ANIC, 1AM); 2, Mt Boppy (ANIC); 1, Brewarrina (det. Esben-Petersen, ANIC); 1, Mt Bunganbil, 37 km NNE. Narrandera (ANIC); 1, Callubri, Nyngan (AM); 1, 65 km W. Cobar (AM); 1, 16 km E. Hay (AM); 1, Como West (AM); 1, Fowler's Gap Res. Stn (ANIC); 1, 15-5 km N. Lightning Ridge (ANIC); 1, Pack Saddle Mt (ANIC); 1, 107 km N. Tibooburra (ANIC); 3, Wanaaring (area) (ANIC); 1, Wittabrenna Ck (ANIC).

**Comments**

*M. magnus* appears to be by far the most common of the species formerly included in *Acmonotus*, and is somewhat variable in the intensity of its body colouring, particularly in the size of the median patch of anterior tergites. It differs from the other species of this genus in having the male tergite viii lacking lateral flanges, the male ectoprocts relatively simple, and the dorsal prominence only with apical hairs, and could be taken to represent a distinct genus. In view of the close similarity of wing form and venation, it is, though, closely allied to the other species.
**Megacmonotus wilsoni** (McLachlan), comb. nov.
(Figs 62, 82–91)

**Suhpalasca wilsoni** McLachlan, 1871, p. 255.

**Acmonotus wilsoni** McLachlan. van der Weele, 1909, p. 207.

**Coloration.** Eyes dark grey or brownish grey. Labrum and clypeus yellow. Frons mainly dark with dark grey and black hairs, posterior median region yellow; postocciput mainly yellow. Antenna: basal 6–12 flagellar segments yellow, remainder darker and grading to dark brown; club yellow basally, apex black, bluntly pear-shaped. Thorax black with strongly contrasted yellow marks including median streak: prescutum ii with paired yellow spots; scutum ii with inner yellow streaks on lateral lobes and small spot above wing base; scutella ii and iii laterally yellow. Many dorsal hairs of mesonotum white, rest grey. Pleura partly pale, dense white hairs. Abdominal tergites (Fig. 82) with large oval central yellow spot and paired posterior yellow lunules, these sometimes flanked with black; pleura largely yellow; sternites with pale paired posterior lunules, most conspicuous on anterior segments. Dark parts of abdomen sometimes pruinose silver. Wing venation mainly dark brown to black; basal length of C pale; Sc pale except where intersecting with black crossveins. Pterostigma dark cream, much of cell Sc and posterior of costal crossveins shaded with pale greyish brown in both wings, membrane otherwise hyaline. Legs: F black basally, yellow over apical ½; T with apical ½ black except dorsal pale apex; t black; spurs and claws black; F with dense white hairs.

**Morphology.** Vertex slightly less than eye diameter in dorsal aspect. Antenna: apical flagellar segments with minute verticils, club bluntly pear-shaped. Wings (Figs 82, 83) long and relatively slender, apically tapered; pterostigma incorporating 2 or 3 crossveins only; forewing anal margin angled but scarcely emphasized; 6–8 presectoral crossveins in forewing, 5 or 6 in hindwing; apical field with 2–3 rows of small cells. Legs short and stout; spurs slender, extend slightly beyond t; claws slightly larger; T slightly <t.

Female abdominal apex as in Figs 86, 87; ectoprocts relatively small, tergite ix large, distivalvae shallowly curved; ventrovalvae slender; linguella a simple lobe; sternite vii strongly tapered. FW 32, HW 28, A 19, B 28.

Male abdomen with stout vertical bifurcate process (Figs 84, 85) on tergite ii; apices of lobes with dense short black spicules, these also scattered on posterior face and on other tergites. Abdominal apex as in Fig. 88; ectoproct slender, very slightly produced ventrally, moderately transverse; hairs dense but scarcely thickened; sternite ix broadly arched (Fig. 89), with few long hairs; tergite viii with broad lateral flange about ½ its length. Gonarcus arms (Figs 90, 91) relatively broad; parameres hooked and spiculate, well separated apically; pelta small; pulvinus large, each side with dark dense apically spatulate gonosetae arising from conspicuous bases. FW 28, HW 26, A 18, B 31, prominence length 6. Type FW 31, HW 27, B 28.

**Type**

♂, Australia (BMNH) (seen). Damaged: abdominal prominence and both antennae missing.
Other Material Examined

South Australia: 1, Hammond; 1, Innamincka, Cooper Ck; 1, Moralana Ck, 40 km NNW Hawker; 1, S. of Moomba Gas Fields; 1, Tingatingana Crossing, Strzelecki Ck (all AM); 1, Mt Barr (ANIC); New South Wales: 1, Moree (det. as *sabulosus* by Esben-Petersen) (ANIC); 1, Narrabeen (ANIC); 3, Fowler’s Gap Res. Stn (ANIC); 1, Groman (RYD).

Comments

This species closely resembles *spectabilis* in many features and differs from it predominantly in the form of the male abdominal prominence and genitalia. The strongly contrasted thoracic markings appear to be diagnostic within this group of species, and are the main reason for referring these specimens to *wilsoni* rather than erecting a new species for them.

The single previously recorded specimen of *wilsoni* is damaged, and the potentially distinctive male prominence is broken off and missing. The abdominal apex of the type, also slightly damaged, shows slight lateral flanges on tergite viii, and the ectoprocts are similar to those of the present series. I have little doubt that they represent this species, as wing features also tally closely.

Genus *Pseudodisparomitus*, gen. nov.

Type-species: *Pseudodisparomitus australiensis*, sp. nov.

Belonging to the Ascalaphinae. Wings elongate and slender, tapered apically. Forewing anal margin rounded or angled, not produced. Hindwing noticeably shorter than forewing; apical fields narrow, with cells in 2 or 3 rows; pterostigma long. Antenna much shorter than forewing, bare, club bluntly pear-shaped. Legs moderately short and stout. Male abdomen very long; slight domed prominence on tergite i, this inclined towards anterior tuft of long hairs on tergite ii; ectoproct with ventral field of spicules or setae. Upper region of eye slightly larger than lower region.

I had originally considered the new species representing this genus to belong to *Disparomitus* van der Weele (van der Weele 1909, p. 191), a genus known from a few African species and that would represent a geographically intriguing addition to the Australian fauna. The new genus closely resembles *Disparomitus* in its extremely long abdomen and in many general features of its body form. Dr Tjeder has kindly sent me sketches of, and notes on, the African genus and the differences — though small — appear to be of generic significance. In *Disparomitus*, (1) the abdominal prominence is bilobed in caudal aspect, (2) male ectoprocts have a lateral conical projection rather than merely being swollen in this region, (3) the parameres are long and not apically hooked, and (4) the tibial spurs are shorter than in the present species. The form of the parameres appears to be of particular diagnostic value in the ‘*Disparomitus* -group of genera’ (Tjeder, *in litt.*). *Pseudodisparomitus* is separated predominantly on this feature.

*Pseudodisparomitus australiensis*, sp. nov.

(Figs 92-101)

Female

Unknown.
Male

Coloration. Eyes greyish brown. Labrum, clypeus, genae and eye margin to level of antennal socket pale tawny-yellow. Frons black with white hairs, including lateral tufts; clypeus bare. Vertex mainly dark brown, with grey and black hairs; post occiput tawny dorsally. Antenna: base of flagellum tawny, rest dark grey to black; club mainly white, leading edge black. Mesonotum black, except pronounced tawny band across scutellum, hairs dark. Metanotum paler, except scutum blackened above hindwing bases. Pleura black, with white hairs. Abdomen: i, prominence pale with long black bristles; ii, anterior with long black hairs, borders black; iii–v (Fig. 97), anterior and lateral borders black, angled transverse black arch near posterior; more posterior segments black except for paired tawny-orange posterior lunules; pleural membrane pale; sternites black, except for pale posterior margins from iii; tergites beyond iii with short black hairs only. Wing venation almost black, C paler; pterostigma dark greyish brown; cell Sc darkened, membrane otherwise hyaline. Legs: F black, except apically, with long intermingled black and white bristles; T, dark apically and ventrally, other T pale only at base; t tawny, but basal segments slightly darkened apically; spurs and claws black.

Morphology. Slender. Vertex width about equal to eye diameter in dorsal aspect. Antennal flagellum bare, club elongate pear-shaped, slightly fusiform. Wings as in Figs 92–95: forewing anal margin angled but not produced; apical field narrow, with cells in 2 rows; both wings somewhat tapered towards apex; pterostigma (Figs 94, 95) long. Legs short and stout; spurs straight, to end t, or rather longer on anterior legs; claws rather longer; T= t. Abdominal tergite i with simple rounded dorsal prominence (Fig. 96) with dense black bristles. Abdominal apex as in Figs 98, 99; ectoproct broad, not expanded ventrally but with ventral field of dorsally directed black bristles; tergite ix almost square; sternite ix long. Gonarcus (Figs 100, 101) tapered anteriorly, almost parallel-sided; parameres hooked, slightly spiculate; pelta small, with long lateral arms; pulvinus lobes relatively long with dark gonosetae arising from conspicuous bases. FW 34, HW 29, A 21, B 47.

Types


Comments

Males of this genus are easily recognized by the form of the abdominal prominence and the tuft of hairs at the anterior of tergite ii. Details of colour pattern should enable recognition of the female of this rather rare species, which appears to be limited to Western Australia. It appears to have no very close relatives in Australia.
Genus *Suhpalacsa* Lefebvre

*Suhpalacsa* Lefebvre, 1842, p. 7.
*Suhpalacsa* emend. Hagen, 1866, p. 373 (partim).
*Suhpalacsa* emend. Brauer, 1868, p. 397 (partim).

Type-species: *Ascalaphus flavipes* Leach.

Belonging to the Ascalaphinae. Wings generally elongate and narrow, venation not particularly dense. Forewing anal margin rounded or slightly angled, not produced. Wing apices rounded, sometimes slightly tapered; apical field broad, with 2 or 3 rows of cells. Antennae straight, unornamented, club pear-shaped, about \( \frac{1}{3} \) forewing length. Legs short, usually somewhat thickened. Abdomen generally shorter than hindwing; ectoprocts usually scale-like, not ornamented; male without dorsal abdominal prominence; gonarcus usually not hooded, parameres small and hook-like. Eye regions generally of similar size.

The male abdomen is sometimes rather longer than the female abdomen. Several species of *Suhpalacsa* show sexual dimorphism in wing shape, wings of males having rather more cell rows in the basal posterior region of one or both wings (cf. Figs. 117, 118 with 119, 120).

The name is a reversal of 'Ascalaphus' and, although therefore without any classical meaning, the emendation from '---acsa' to '---asca' used by several authors and the reversal '---ph-' for phonetic convenience is not justified. The genus is well represented in Australia, and is distinguished mainly by the above combination of wing features and the unornamented male abdomen.

**Key to Species of *Suhpalacsa***

1. Pterostigma pale yellow, in hindwing with dark basal spot, or scarcely pigmented (membrane otherwise unmarked, wings relatively broad) ........................................... *flavipes*  
   Pterostigma not as above, usually dark greyish brown or tawny (if, rarely, very pale, grey rather than yellow) ................................................................. 2  

2(1). Abdomen with central tergites medially yellow or distinctly paler than sides, with black or dark brown lateral borders ................................................................. 3  
   Abdomen not as above, either medially or more extensively dark ............................................. 6  

3(2). Central abdominal tergites with narrow pale median stripe ending posteriorly in chocolate brown spot ................................................................. *sagittaria*  
   Not as above .................................................................................................................. 4  

4(3). Pterostigma grey or greyish brown, sometimes very dark (if dark brown, then wing apex not shaded with dark brown) ............................................. *subtrahens*  
   Pterostigma uniform creamy yellow or tawny (if, rarely, dark brown, then wing apex extensively shaded with dark brown) ............................................. 5  

5(4). Wing apex rounded, apical field often with partial 3rd row of cells; pterostigma creamy yellow to (rarely) dark brown; apex of wings with brown shading (very variable in intensity, some specimens scarcely marked) ............................................. *dietrichiae*  
   Wing apex tapered, apical field with 2 rows of cells only; pterostigma tawny-orange; apex of wings unmarked ............................................................................. *pequena*  

6(2). Abdomen with dark brown velvety dorsal marks, or wholly dark grey or brown ........... 7  
   Abdomen with paler orange or yellow markings, sometimes only as posterior marks to central tergites .................................................................................................................  

7(6). Forewing with greyish brown band (Fig. 158) .................................................. *fuscostriata*  
   Forewing without such band ..................................................................................... 9  

8(7). Central abdominal tergites with distinct velvety brown band and posterior lyriform mark; antennal club with small dorsal pale patch ............................................. *lyriformis*  
   Central abdominal tergites with more irregular or less distinct brown markings; antennal club largely ivory ............................................................... *pequena*  

9.
Central abdominal tergites with midline wholly black or dark brown ........................................ 10
Central abdominal tergites with at least traces of pale markings in midline, sometimes only at posterior margin .......................................................... 11

Central abdominal tergites with narrowly interrupted yellow stripe each side of median black stripe (Fig. 179); thorax with pale median stripe ........................................ striata
Central abdominal tergites with 2 oval yellow spots and pair of posterior lunules; thorax without pale median stripe ............................................... trimaculata

Central abdominal tergites with pale posterior border only ......................................................... 12
Not as above, central abdominal tergites with at least paired pale marginal lunules rather than band ......................................................................................... 13

Basal cells of forewing apical field long (Fig. 192); hindwing narrow (Fig. 193)... barrowensis
Basal cells of forewing apical field short (Fig. 144); hindwing broad medially (Fig. 145) .... nigriscens
Central abdominal tergites with paired lateral anterior marks in addition to median spot (wing membrane slightly shaded apically — Figs 148, 149) ........ inconspicua

This key does not include S. sordidata Navás (see p. 32).

**Suhpalacsa flavipes** (Leach)

(Figs 102–110)

_Ascalaphus flavipes_ Leach, 1814, p. 48.
_Bubo flavipes_ (Leach). Rambur, 1842, p. 357.
_Suhpalacsa flavipes_ (Leach). van der Weele, 1909, p. 158.
_Ascalaphus importunus_ Walker, 1853, p. 427; van der Weele, 1909, p. 158.
_Suhpalacsa laeta_ Gerstaecker, 1885, p. 85; van der Weele, 1906, p. 227.

**Coloration.** Black with yellow markings. Eyes dark grey to black. Labrum, clypeus, gena and eye margin broadly to above suture pale yellow. Clypeus with lateral white tufts of hairs. Frons black, with white and grey hairs, mainly as lateral tufts. Interantennal space with white hairs. Vertex black, with black hairs. Postocciput sometimes slightly yellowed mid-dorsally. Antenna: scape black with black hairs; flagellum pale basally, then dark brown to black; club yellow basally, otherwise jet black. Thorax dark greyish brown; some specimens with pale tawny median stripe; interrupted across anterior of mesoscutellum; fairly sparse grey hairs; pleura paler ventrally, white and grey hairs. Abdomen with borders of tergites black, anterior margin black; slender orange median stripe (Fig. 106); tergites vii and beyond with pale posterior margin only; short black hairs; sternites with pale hind margin. Wing base yellow; venation greyish brown; pterostigma lemon-yellow (forewing) (sometimes very pale and scarcely defined), in hindwing often with dark basal spot; cell Sc sometimes faintly fumose. Legs mainly pale tawny-yellow; _F_ darkened ventrally and laterally over central length; _t_ segments blackened apically; spurs and claws black.

**Morphology.** Vertex about equal to eye diameter in dorsal aspect. Antenna bare, club bluntly pear-shaped. Wings as in Figs 102–105: forewing anal margin rounded or slightly angled; pterostigma short; apical fields fairly broad with cells usually in 3 rows; venation dense. Legs slender; spurs to beyond _t_1; claws very slender, longer.

Female abdominal apex as in Fig. 107: ectoproct rounded; distivalvae rounded; ventrovalvae slender; linguella well developed. FW 27–33, HW 24–30, A 20–23, B 26–30.

Male abdominal apex as in Fig. 108: ectoproct simple; sternite ix deep. Gonarcus (Figs 109, 110) moderately deep; parameres with ventral hook; pelta
slender, with apical hairs; pulvinus with posteroventral groups of gonosetae. FW 28-34, HW 25-31, A 19-23, B 25-33.

Type

♀, Australia (BMNH) (seen). Type ♂ of *Ascalaphus importunus* Walker (Moreton Bay) (BMNH) (seen).

Other Material Examined

Queensland: 4, Brisbane (1 AM, 3 NMV); 1, Carnarvon Ra. (AM); 1, Clermont (AM); 1, Highvale (AM); 1, Maroochydore (UQ); 1, Milmerran (NMV); 1, Stanthorpe (NMV); New South Wales: 1, Belmont (NMV); 1, Brummagens Ck, nr Dubbo (ANIC); 1, Brunswick Heads (ANIC); 1, 10 km NNE. Bingara (ANIC); 2, Como (NMV); 2, 19 km W. Coonabarabran (ANIC); 1, Ettalong (AM); 1, Fraser Park (NMV); 1, 8 km W. Hay (ANIC); 1, Hornsby (ANIC); 1, Hurstville (AM); 1, Kurrajong (AM); 1, Mudgee (RYD); 2, National Park (AM); 2, Sydney (AM, ANIC — det. Esben-Petersen); 1, Warrumbungles (RYD); Australian Capital Territory: 52, Canberra (ANIC); 1, Kambah (ANIC); Victoria: 1, Moorooroo (NMV); 1, Myrtleford (NMV).

Comments

In common with several other species of *Suhpalacsa*, *S. flavipes* is rather variable in intensity of body and wing coloration. Particularly, the pterostigma may be scarcely tinged in the palest specimens and the subcostal cells and/or apical field tinged with yellow in dark specimens. Wings are relatively broad, compared with many other species placed in *Suhpalacsa*, and in most specimens there are three rows of cells in the apical field. *S. flavipes* is widespread, though not common, in eastern Australia.

*Suhpalacsa dietrichiae* (Brauer)

(Figs 111-116)

*Bubo dietrichiae* Brauer, 1869, p. 15.
*Suhpalacsa dietrichiae* (Brauer). van der Weele, 1909, p. 162.

Coloration. Eyes dark greyish brown. Labrum, clypeus, gena, eye margin to above suture pale greyish yellow. Frons black with dense white hairs; interantennal area with dense white hairs. Vertex black with dense black hairs. Postocciput yellow medially. Antenna: base of flagellum yellow, remainder dark brown; club black. Thorax predominantly dark greyish brown, with sparse grey hairs; posterior margins of mesoprescutum yellow, linking with narrow median yellow streak and broad transverse yellow band across posterior of mesoscutellum; pale yellow median stripe along metanotum, sometimes obscured on prescutum; pleura mainly pale yellow ventrally, with sparse grey hairs. Abdomen: lateral borders of tergites black; tawny-orange median stripe, sometimes interrupted by narrow black bands across borders of tergites; posterior segments darker; sternites pale, blackened medially; short black hairs. Wings: venation greyish brown; apex of both wings ± shaded with greyish brown to deep brown (very variable in intensity); pterostigma pale creamy brown, often lighter than shading, rarely darker brown. Legs mainly pale yellow; *F* with white hairs; *T* pale with few black bristles; apices of tarsal segments narrowly darkened; spurs and claws black.

Morphology. Vertex less than eye diameter in dorsal aspect. Antenna bare; club bluntly pear-shaped. Wings as in Figs 111, 112: broadly rounded apically; apical
fields broad, with cells in 2-3 rows; pterostigma long, incorporating up to 6 crossveins; forewing anal margin angled, not produced. Legs slender; spurs slender, to beyond t₁; claws moderately strong.

Female abdominal apex as in Fig. 113; ectoproct deep; distivalvae broad; ventrovalvae slender; linguella well developed. FW 25-33, HW 22-29, A 18-22, B 26-31.

Abdominal apex as in Fig. 114; ectoproct large, simple; sternite ix deep. Gonarcus (Figs 115, 116) shallow, narrow; parameres with ventral hook; pelta small, with minute apical hairs; pulvinus lobes narrow, with dense gonosetae. FW 26-35, HW 24-30, A 23-26, B 25-30.

Types

3 ex. Queensland, Bowen (Hamburg Museum) (not traced), diagnosis based on ♂, Queensland, Dodd, det. van der Weele (BMNH).

Other Material Examined

Queensland: 1, Bee Ck, 25 km SW. Nebo (AM); 20, Biggenden (area) (ANIC); 3, Box Ck, 16 km N. Proserpine (AM); 17, Brisbane (3MCZ, 1UQ, 3QM, 1AM, 8NMV, 1ANIC); 9 Bundaberg (ANIC); 1, Cairo Stn (NMV); 6, Cairns (5NMV, 1ANIC); 3, Capella (AM); 6, Carnarvon Gorge (ANIC); 1, Carnarvon Ra. (AM); 5, Cape York (area) (ANIC); 6, Claudie R. (5NMV, 1ANIC); 6, Cardstone (ANIC); 4, 55 km NE. Charters Towers (AM); 1, Clermont (AM); 1, Desailly Ck (ANIC); 3, 15 km E. Duaringa (ANIC); 1, Dunk I. (NMV); 1, Edungalba (AM); 1, Ety Bay nr Innisfail (AM); 3, 10 km N. Emerald (ANIC); 1, Eubenangee (NMV); 2, Electra State Forest (ANIC); 1, 24 km W. Fairview (ANIC); 2, Freshwater (NMV); 3, Funnel Ck, 50 km S. Sarina (AM); 1, Greenbank (UQ); 1, Gatton (AM); 2, W. of Ingham (ANIC); 2, Injune (AM); 8, Kuranda (area) (3AM, 1NMV, 4ANIC); 2, Kinbombi Falls, Goomeri (AM); 1, 30 km NE. Lowmead (ANIC); 1, Maree (NMV); 1, Magnetic I. (ANIC); 3, Mackay (ANIC); 3, Mingela (ANIC); 1, Meringa (NMV); 2, Moloolah Cemetery (AM); 1, Mulgrave R. (NMV); 1, Mitchell R. (ANIC); 1, 24 km SW. Normanton (ANIC); 1, Pine Ck (ANIC); 1, Prince of Wales I. (NMV); 5, Ravenshoo, Millstream Falls (2ANIC, 2AM); Rockhampton (ANIC); 1, Repulse Ck (ANIC); 1 Springsure (ANIC); 7, Silver Plains HS. (ANIC); 4, Stradbroke I. (2AM, 2QM); 2, Toowoomba (1AM, 1UQ); 2, Townsville (UQ); 1, West Normanby R., 64 km SW. Cooktown (ANIC); 1, Yaamba (UQ); 4, Virginia (UQ); Western Australia; 3, N. end L. Argyle (AM); 1, 40 km SSE. Broome (ANIC); 1, 8 km S. Cape Bertholet (ANIC); 13, Derby (area) (WAM); 3, Dunham R., 100 km S. Wyndham (AM); 2, Forrest Mission (NMV); 6, Ivanhoe (area) (ANIC); 3, Kununurra (2WAM, 1NMV); 7, Millstream (area) (ANIC); 7, Minilya (NMV); 2, Onslow (NMV); 10, Wyndham (8ANIC, 2WAM); Northern Territory; 2, Brooks Ck (1AM, 1ANIC); 4, Black Pt, Cobourg Pen. (ANIC); 1, Birraduk Ck (ANIC); 1, 33 km SW. Borroloola (ANIC); 1, Batten Pt, 30 km NE. by E. Borroloola (ANIC); 1, 6 km W. Coolibah HS. (ANIC); 1, Cooper Ck, E. by S. Mt Borrodaile; 1, Croker I. Mission (NMV); 4, Darwin (MCZ); 5, Daly R. Mission (ANIC); 1, Howard Springs (ANIC); 5, Humphry Doo (ANIC); 1, King R., SW. Katherine (AM); 10, Larrimah (area) (AM); 4, 19 km SSE. Mataranka (ANIC); 2, McArthur R. (ANIC); 6, Mt Cahill, Cahill's Crossing (area) (ANIC); 1, Mudginberri (ANIC); 2, Mistake Ck (NMV); 1, Renner Springs (ANIC); 2, Rimbija I. (ANIC); 2, Roper R., Mataranka HS. (AM); 2, Tennant Ck (AM); South Australia; 1, Mataranka HS. (AM); New South Wales; 1, Brunswick (RYD).

Comments

S. dietrichiae is apparently the most abundant ascalaphid in Australia, and shows considerable variation in the intensity of brown shading on the wing apices. Some specimens are scarcely tinged (especially after alcohol storage) and others are intense brown. The creamy yellow pterostigma appears to be diagnostic for paler specimens, and only in a few very dark specimens is the pterostigma also brown. There is considerable variation in the cell complement of the apical fields — most specimens have three rows in the forewing and two in the hindwing, but any combination of two and three in any wing may occur. The wings are, however, always
bluntly rounded. There is also some variation in male genitalia; the gonarcus can be rather wider than that figured. It is possible that this variation could represent a small complex of species, but the overall consistency of pterostigma form and thorax coloration implies that this is not so.

**Suhpalacsa inconspicua** (McLachlan)
(Figs 117-126)

*Suhpalacsa inconspicua* McLachlan, 1871, p. 256.
*Suhpalacsa inconspicua* (McLachlan). van der Weele, 1909, p. 163.

**Coloration.** Black. Eyes dark greyish brown. Labrum, clypeus, gena and inner eye margin to above suture greyish yellow. Frons black, with dense grey hairs. Vertex dark grey to black, with dense grey hairs. Postocciput black. Antenna: base of flagellum tawny-orange dorsally, otherwise black; club with base somewhat lighter than apex. Thorax black, slightly paler in dorsal midline, with dense grey hairs; pleura similar. Abdomen black; anterior tergites with elongate median orange or yellow 'lozenge', usually with trace of intersecting black midline (Figs 121, 122) and pair of small posterior marginal orange lunules; all markings sometimes obsolete on posterior tergites. Wing bases yellow; venation wholly dark brown to black; pterostigma greyish brown to black; subcostal cell sometimes shaded behind intersections of costal crossveins, membrane otherwise hyaline. Legs dark; *T* basally yellow; *t*₁ dark brown; spurs and claws black.

**Morphology.** Vertex less than eye diameter in dorsal aspect. Antenna bare, club bluntly pear-shaped. Wings as in Figs 117-120: slender, tapered at apex; pterostigma deep; apical fields narrow, cells in 2 rows; forewing anal margin rounded. Legs short, *F* and *T* somewhat thickened; spurs to beyond end *t*₁; claws slender.

Female abdominal apex as in Fig. 123: ectoproct simple; distivalvae broad; ventrovalvae expanded posteriorly; linguella well developed. FW 24-27, HW 20-23, A 19-21, B 25-27.

Male abdominal apex as in Fig. 124: ectoproct simple; sternite ix deep. Gonarcus (Figs 125, 126) moderately deep, arms divergent anteriorly; parameres rugose, with ventrally inclined hook; pelta small, with minute apical setae; pulvinus arms large, with posterior gonosetae. FW 25-27, HW 20-23, A 19-22, B 26-32.

**Types**

♀ Victoria (BMNH) (seen). Type ♂ of *Suhpalacsa humeralis* Navás, N.S.W., Condolin (? Condobolin), 17.x.1900, Froggatt (formerly Cambridge University Museum, now BMNH) (seen).

**Other Material Examined**

South Australia: 1, Ivy Tanks (ANIC); New South Wales: 1, Great Park (ANIC); Victoria: 1, Gisborne (ANIC); 1, Lawloit (?) (NMV).

**Comments**

*S. inconspicua* appears to be relatively rare and is characterized by its abdominal pattern and very narrow, tapered wings. *S. humeralis* Navás tallies closely in both these features with the type of *inconspicua*, and is here reduced to a synonym.
Suhpalacsa subtrahens (Walker) (Figs 127–133)

Ascalaphus subtrahens Walker, 1853, p. 430.
Suhpalacsa subtrahens (Walker). van der Weele, 1909, p. 159.
Suphalasca moesta Gerstaecker, 1885, p. 87. Syn. nov.

Coloration. Dark greyish brown, with yellow markings. Eyes greyish brown. Labrum, clypeus, gena, inner eye margin broadly to above suture yellow. Frons black, with dense white hairs. Interantennal hairs grey. Vertex dark, with greyish brown hairs. Postocciput pale medially and dorsolaterally, otherwise dark. Antenna: scape black with ventral black hairs; basal 4–6 flagellar segments pale tawny, rest black; club basally pale tawny-brown, apically black. Thorax greyish brown with concolorous hairs; paler posterior border to mesoscutellum; metascutellum sometimes wholly pale; pleura dark dorsally, paler ventrally, with white hairs. Abdomen with broad orange median stripe; anterior and lateral borders to tergites black (Fig. 129); borders of median stripe converge about \( \frac{1}{4} \) length of each tergite and near posterior; posterior tergites (beyond vi or vii) with stripe obsolete, pale posterior borders; short black hairs; pleural membrane with large pale areas; sternites with pale posterior margins. Wing venation dark greyish brown; pterostigma dark brown to black, membrane otherwise hyaline. Legs dark, almost black; ventral side of \( F \), much of \( T \) (especially, sometimes, dorsal edge) paler, tawny; \( t \) dark; spurs and claws dark.

Morphology. Vertex less than eye diameter in dorsal aspect. Antenna bare; club elongate pear-shaped. Wings as in Figs 127, 128: pterostigma deep; wings slightly tapered; apical fields with cells usually in only 2 rows; forewing anal margin rounded. Legs short, slender; spurs to beyond \( t \); claws slender.

Female abdominal apex as in Fig. 130: ectoproct rounded; distivalvae and ventrovalvae slender; linguella well developed. FW 25–34, HW 22–30, A 21–28, B 25–30.

Male abdominal apex as in Fig. 131: ectoproct simple; sternite ix fairly deep. Gonarcus (Figs 132, 133) deep, arms divergent anteriorly; parameres rugose, with narrow incurved hook; pelta small; pulvinus lobes slender, with long gonosetae. FW 27–34, HW 24–30 A 22–28, B 28–35.

Type
♀ Australia (BMNH) (seen). Type ♂ of S. moesta (Greifswald) (not seen) [diagnosis of moesta based on specimen det. by van der Weele (BMNH) (seen) and photograph of (presumed type) male in van der Weele, 1909, p. 161].

Other Material Examined

Queensland: 1, Applethorpe (ANIC); 1, Bee Ck, 25 km SW. Nebo (AM); 43, Biggenden (area, stated) (ANIC); 1, Bin Bin Ra., via Didcot (ANIC); 1, Blackdown Tablelands, Expedition Ra. (AM); 14, Brisbane (IAM, 6NMV, 5MCZ, 2ANIC); 2, Burleigh Heads (NMV); 1, Burdekin R. (UQ); 2, Butcher Ck, 20 km W. Cloncurry (AM); 1, Byfield State Forest (AM); 5, Carnarvon (MCZ); 1, Carnarvon Ra. (AM); 1, Cloncurry dist. (N MV); 3, Eidsvold (ANIC); 1, Eueky Sin (NMV); 1, Mackay (ANIC); 2, Mareeba (ANIC, NMV); 1, Mitchell R. (ANIC); 1, nr Mt Garnet (AM); 4, Rockhampton (IAM, 3MCZ — 1 det. Hagen); 1, Sedan Rip, NE, Julia Ck (AM); 1, Speewah Rd, 8 km S. Kuranda (AM); 1, St George (AM); 1, Stanthorpe (NMV); 1, Stradbroke I. (ANIC); 1, Wattlegan Forest, 9 km off Rosedale Rd (ANIC); 1, Woowoonga Ra., nr Bundaberg (ANIC); Western Australia: 1, Broome (AM); 9, Millstream (area) (3ANIC, 4WAM, 2AM); Northern Territory: 1, 3 km
SSW. Katherine (ANIC); 4, Magela Ck, 9 km S. Mudginbary HS. (ANIC); 5, Tindal (ANIC); New South Wales: 1, Bumberry (AM); 2, Belmont (NMV); 2, Como (ANIC); 1, Galston (AM); 1, 16 km W. S. Grafton (AM); 1, 16 km E. Hay (AM); 3, Hornsby (ANIC); 1, Narrabeen (ANIC); 1, Queanbeyan (ANIC); 1, Sydney (ANIC); 1, Sylvania (ANIC); 1, Warrumbungles Natl Park (AM); Australian Capital Territory: 1, Black Mountain (ANIC); 15, Canberra (ANIC); Victoria: 1, Parwan (NMV).

Comments

*S. subtrahens* is widely distributed in Australia, and shows considerable variation in intensity of body and limb pigmentation. This variation has apparently been alone responsible for maintenance of *S. moesta* as a separate species until now. Van der Weele (1909) commented that the female *moesta* resembled a small *subtrahens* and may only be a race of this species; he also likened *subtrahens* to *S. flavipes*. Navás (1913) separated *subtrahens* and *moesta* on leg and pterostigma coloration, but the differences he remarked clearly intergrade and I can find no evidence that more than one species fitting the above description is present in Australia. The combination of relatively short pterostigma, rather narrow wings, and abdominal pattern is diagnostic.

*Suhpalacsa stigmata*, sp. nov.  
(Figs 134–143)

**Coloration.** Eyes black. Labrum, clypeus, frons, genae pale yellow. Frons with white hairs, clypeus with white lateral hairs. Vertex centrally black with dense black hairs, tawny posteriorly. Postocciput with broad pale tawny median stripe, pale behind lower eye margin. Antenna: base yellow, flagellum beyond about 4th segment black; club black. Thorax with broad median orange stripe from mesoscutum backwards; anterior angles of mesoscutellum dark; hairs grey; pleura dark dorsally, orange above coxae; hairs grey and white. Abdomen mainly tawny-orange; anterior border of each tergite narrowly black, and black margins converging slightly about ⅓ segment length (Fig. 138); sternites tawny laterally, black medially. Wing venation dark greyish brown; pterostigma tawny-orange; cell Sc slightly tinged with orange, membrane otherwise hyaline. Legs: F1, iii pale, ii darkened ventrally; T darkened ventrally; t yellow, apices of all segments black; F with white hairs and black bristles; T with black bristles; spurs and claws dark.

**Morphology.** Vertex less than eye diameter in dorsal aspect. Antenna bare, club bluntly pear-shaped. Wings as in Figs 134–137: relatively narrow; forewing anal margin rounded; apical fields with cells in 2 rows; pterostigma very long. Legs slender; spurs short, extend just to end of t1; claws slender.

Female abdomen as in Figs 139, 140: ectoproct simple; distivalvae broad; ventrovalvae slightly divergent; linguella prominent; sternite vii tapered. FW 31, HW 29, A 21, B 25.

Male abdominal apex as in Fig. 141: ectoproct deep, simple; sternite ix tapered posteriorly. Gonarcus (Figs 142, 143) shallow, lateral arms slightly divergent anteriorly; parameres hooked, slightly spiculate; pulvinus lobes narrow, with long dark gonosetae. FW 25, HW 22, A 16, B 25.

**Types**

Other Material Examined

Queensland: 1, Townsville (ANIC).

Comments

On wing shape and a strongly contrasted (centrally yellow) abdominal pattern, this species is rather similar to *S. subtrahens*. It differs distinctively in the very long tawny-orange pterostigma.

*Suhpalacsa nigrescens*, sp. nov.
(Figs 144–147)

Female

Coloration. Black. Eyes black. Labrum, clypeus, genae, inner eye margin to just above antennal socket lemon-yellow. Frons black with dense white hairs, including lateral tufts. Vertex black with black hairs. Postocciput with 2 yellow streaks each side of neck. Antennal socket with yellow ventral arc and black hairs; interantennal space with white hairs. Antenna: flagellum very dark brown, club black dorsally, cream ventrally. Thorax dorsally black, with grey hairs; apices of scutella dark tawny; abdominal tergites: i with median pale streak except at posterior; iii–vii with pale posterior border (Fig. 146); sternites with posterior border pale; pleural membrane with 4 ivory spots on each segment. Wing venation dark brown; pterostigma almost black, membrane otherwise hyaline. Legs: F dark, but i rather paler than others; Ti pale, Tii and iii darkened ventrally; apices of all tarsal segments darkened; F with black bristles; spurs and claws dark.

Morphology. Vertex less than eye diameter in dorsal aspect. Antennae bare, club large, almost globular. Wings as in Figs 144, 145: relatively broad; forewing anal margin slightly angled, not produced; apical field moderately broad, with cells in 2–3 rows; pterostigma slightly longer than deep. Legs short and stout; spurs to end of t; claws longer. Abdominal apex as in Fig. 137: ectoproct simple; distivalvae small; ventrovalvae shallow; sternite viii tapered; linguella moderately pronounced. FW 32, HW 28, A 23, B 24.

Male

Unknown.

Types

Holotype, ♀. Queensland, Merluna Station, SE. of Weipa, 25.xi.1974, M.S. Moulds (AM). Paratype ♀, same data as holotype (AM).

Comments

This broad-winged species is distinct on abdominal pigmentation from most others here included in *Suhpalacsa*. In many respects, the wings are connectant between *Suhpalacsa* and *Suhpalomitus*; it is placed in the former genus as the hindwing is relatively long. See also comment under *Suhpalomitus difformis* (p. 34).
Suhpalacsa umbrata, sp. nov.  
(Figs 148–157)

Coloration. Dark brown. Eyes greyish brown. Labrum and clypeus pale, ventral part of genae tawny. Frons dark brown to black with white hairs and dense lateral tufts. Vertex black with white hairs. Antennal scape with ventral fringe of black hairs; flagellum dark brown; club with ventral side ivory, except anterior edge. Thorax dark greyish brown, paler (creamy brown) patches flanking mesoprescutum and in midline of mesoscutum; grey hairs; pleura greyish brown with white and grey hairs. Abdomen with dense black hairs; mainly black but with tawny markings on most segments: broad anterior lateral patches flanking narrow black midline, slight paired posterior marginal lunules, indistinct median lozenge just anterior to these (Fig. 152). Wing venation brown with longitudinal veins generally paler and many crossveins almost black; pterostigma scarcely indicated, pale greyish brown; apical part of apical field and many posterior hindwing veins shaded with greyish brown; slight shading in apical ½ of cell Sc; membrane otherwise hyaline. Legs greyish brown, T slightly darkened laterally, apices of t segments darkened; F with white hairs and black bristles; T with black bristles, some long; spurs and claws dark brown.

Morphology. Vertex less than eye diameter in dorsal aspect. Antennae bare, club globular. Wings as in Figs 148–151; broad, rounded; forewing anal margin rounded; apical field rather broad, with cells in 2 rows; pterostigma deeper than wide. Legs slender; spurs slender, to apex t; claws about equal to spurs in length; T > t.

Female abdominal apex as in Fig. 153: ectoproct large, rounded; tergite ix large; distivalvae shallow; ventrovalvae deeper; linguella scarcely developed. FW 28, HW 26, A 22, B 21.

Male abdominal apex as in Figs 154, 155: ectoproct small, simple; sternite ix broad, bluntly rounded. Gonarcus (Figs 156, 157) with strong dorsal rim, sides slightly divergent, posterior border transverse; parameres hooked, with narrow pointed apical process; pelta short, with median posterior setae; pulvinus lobes relatively small, with dense short gonostaeae. FW 26, HW 24, A 20, B 24.

Types
Holotype, ♂, Northern Territory, 12°52'S., 132°47'E., Nourlangie Ck, 8 km E. Mt Cahill, 17–18.ix.1972, J. C. Cardale (ANIC). Paratypes: 1 ♀, Northern Territory, 12°50'S., 132°51'E., 16 km E. by N. Mt Cahill, 20.x.1972, M. S. Upton (ANIC); 1 ♀, Northern Territory, 12°23'S., 132°57'E., 5 km NNW. Cahill’s Crossing (E. Alligator R.), 5.ix.1972, M. S. Upton (ANIC).

Comments
This species shares the features of a short pterostigma and apical wing shading with S. sordidata, but differs markedly in other features from this (p. 32) and from other described species.

Suhpalacsa fuscostriata, sp. nov.  
(Figs 158–162)

Female
Unknown.
Male

Coloration. Very dark brownish grey to black. Eyes dark brownish grey. Labrum, clypeus, gena and inner eye margin to above suture pale yellow. Frons dark greyish brown with dark hairs concentrated in lateral tufts. Vertex and postocciput dark; vertex with dense dark hairs. Antenna black. Thorax wholly dark, pleura with white hairs, dorsum with greyish brown hairs. Abdomen dark: very slight pale posterior bands to all tergites. Venation wholly dark; pterostigma pale greyish brown; central region of forewing (except cell Sc) with broad pale greyish brown band. Legs black, spurs and claws black.

Morphology. Antenna bare, club elongate pear-shaped. Wings (Figs 158, 159): forewing fairly broad; apices rounded; apical fields broad, with cells in 2–3 rows; pterostigma short, incorporating 2 or 3 incrassate crossveins; forewing anal margin angled. Legs short and slender; spurs extend beyond $t_1$. Abdominal apex as in Fig. 160: ectoproct deep, with about 8 long black ventral setae; sternite ix very deep. Gonarcus (Figs 161, 162) shallow, arms divergent anteriorly; parameres hook-like; pelta small; pulvinar lobes small, with few long black gonosetae and more numerous shorter pale gonosetae. FW 23, HW 20, A 19, B 24.

Type


Comments

The distinctive brown forewing band of this individual is symmetrical in both wings and does not appear to be an artefact. That, together with the very dark abdomen, renders the species easily separable from other Australian Suhpalacsa.

Suhpalacsa sagittaria, sp. nov.

(Figs 163–169)

Coloration. Greyish brown. Eyes grey, with slight greenish iridescence. Labrum, clypeus, genae and eye border to above antennal socket yellow. Frons anteriorly pale, otherwise black, with dense white hairs and few black lateral hairs. Vertex dark, with very dense white hairs: few hairs grey ($\varphi$), many dark-tipped ($\varphi$). Postocciput paler, with 2 yellow streaks. Antenna: flagellum basally yellow, darker brown dorsally and apically; club mainly pale but with dense black vestiture giving it dark appearance. Thorax greyish brown, unmarked; dorsal hairs grey, some pleural hairs white. Abdomen mainly dark greyish brown; tergites beyond ii with narrow pale median stripe ending in incipiently divided chocolate brown posterior spot (Fig. 165); sternites dark. Wing venation dark brown; pterostigma pale greyish brown, with crossveins incrassate; membrane otherwise hyaline. Legs: $F$ dark brown except for pale extremities; $T$ darkened ventrally and in central band; tarsal segments black at apices; $F$ bristles mainly white, $T$ bristles mainly black; spurs and claws dark brown.

Morphology. Vertex width less than eye diameter in dorsal aspect. Antenna: small verticils on distal flagellar segments; club bluntly pear-shaped. Wings as in Figs 163, 164: relatively broad, venation dense; forewing anal margin scarcely angled; apical fields broad, with cells mainly in 3 rows; pterostigma very deep in forewing, relatively longer in hindwing. Legs slender; spurs slender, to beyond apex of $t_1$; claws about same length as spurs.
Female abdominal apex as in Fig. 166: ectoproct simple; distivalvae large with slight basal lobe; ventrovalvae large; linguella small. FW 29, HW 27, A 24, B 22.

Male abdominal apex as in Fig. 167: ectoproct small, simple; sternite ix large, bluntly rounded. Gonarcus (Figs 168, 169) deep, arms divergent anteriorly; parameres hooked, slightly convergent; pelta small, with long lateral arms; pulvinus lobes slender, with dense short gonosetae. FW 22, HW 20, A 20, B 23.

Types

Holotype ♂, Queensland, Archer R. Crossing, Coen-Cape York Rd, 29.ix.1974, M. S. Moulds (AM). Paratypes: 2 ♀, 2 ♂, same data as holotype (AM); 1 ♂, ♂, same locality (given as N. of Coen, Archer R. Crossing), 7.x.1979, M. S. & B. J. Moulds (AM).

Other Material Examined

Northern Territory: 9, Mt Cahill area (stated) (ANIC); 4, Cape Crawford area (stated) (ANIC); 1, Berry Springs, 32 km SSE. Darwin (ANIC); 3, Nimbuiwah Rock area (stated) (ANIC).

Comments

The abdominal pattern readily differentiates this species from other described Suhpalacsa.

Suhpalacsa trimaculata sp. nov.
(Figs 170–176)

Coloration. Dark brown to black. Eyes dark brown. Labrum, clypeus, genae, inner eye margin to just above antennal sockets ivory. Frons black with white hairs. Vertex dark, with dark greyish brown hairs. Postocciput mainly dark brown, single large ivory-yellow spot behind each eye. Antennal socket subtended by pale arc, hairs pale grey. Antenna: flagellum dark brown to black; club ivory except black apical $\frac{1}{4}$ (dorsal) to $\frac{1}{2}$ (ventral). Thorax dark brown, hairs greyish brown; pleural hairs grey; scutellum with pale apices. Abdomen dark brown; tergites iii–viii each with 3 pairs of tawny-yellow spots (Fig. 172), posterior pair abutting hind border; sternites with pale hind margin; pleural membrane with pale spots. Wing venation dark brown to black; pterostigma very dark brown; much of anterior of wings and apical fields tinged with greyish brown; membrane otherwise slightly fumose. Legs: F and T dark brown except for pale ‘knees’; all tarsal segments darkened at apex; some F bristles white; T bristles black; spurs and claws dark.

Morphology. Vertex less than eye diameter in dorsal aspect. Antenna: small verticils on apical flagellar segments; club broad, bluntly pear-shaped. Wings as in Figs 170, 171: tapered, venation dense; forewing anal margin rounded; apical field relatively broad in forewing, narrow in hindwing, cells mainly in 2 rows; pterostigma large, enclosing about 4 crossveins. Legs relatively short and stout; spurs slender, to end $t$; claws longer and stouter; $T \approx t$.

Female abdominal apex as in Fig. 173: tergite viii long; distivalvae convex, ventrovalvae relatively slender: linguella moderately developed. FW 33, HW 28, A 19, B 27.

Male abdominal apex as in Fig. 174: ectoproct simple; sternite ix broad, tapered posteriorly. Gonarcus (Figs 175, 176) deep and hood-like, arms strongly divergent anteriorly; parameres slender, diagonally aligned; pelta small, with minute ventral hairs; pulvinus lobes small with short pale gonosetae. FW 31, HW 27, A 19, B 28.
Types


Other Material Examined

Western Australia: 1, Lyndon R., N. of Carnarvon (ANIC).

Comments

This species is very distinctive in the genus on its dense wing venation and on abdominal pattern. The hooded gonarcus form is atypical for *Suhpalacsa*, and *trimaculata* is placed there tentatively, on balance of other features.

*Suhpalacsa striata*, sp. nov.
(Figs 177-180)

Female

Coloration. Eyes dark brownish grey with black mottling. Face and genae pale yellow. Frons slightly browned medially and with sparse white hairs. Vertex almost black, with relatively sparse grey hairs. Postocciput mainly pale yellow, darkened mid-dorsally and near cervix. Antenna: scape dark brown; flagellum mainly dark brown to black; basal ½ of club ivory. Thorax pruinose, with grey hairs; very dark brown, with broad median pale yellow stripe and small yellow marks above wing bases. Pleura pruinose grey, mainly dark but ventral yellow streak. Abdomen with broad median dark brown stripe, obscured on more posterior tergites; this flanked by yellow stripes before black marks, and black marks narrowly linked near anterior (Fig. 179); sternites with pale posterior margins. Wing venation pale brown basally, darker apically; pterostigma pale yellow, membrane otherwise hyaline. Legs: Fi pale dorsally, ii, iii pale ventrally, all with intermingled black and white bristles; T pale dorsally, dark brown ventrally, with black bristles; t with all segments blackened apically and ventrally; spurs and claws dark.

Morphology. Vertex less than eye diameter in dorsal aspect. Antenna bare, club globular. Wing venation as in Figs 177, 178: wings relatively narrow and tapered; forewing anal margin not angled; apical fields narrow, with few cells in 2 rows; pterostigma longer than deep, incorporating about 4 crossveins. Legs moderately short and stout; spurs weak, in iii scarcely as long as t; claws longer, < t. Abdominal apex as in Fig. 180: ectoproct simple; distivalvae deeply rounded; ventrovalvae blunt; linguella scarcely evident. FW 22, HW 20, A 15, B 24.

Male

Unknown.

Type

Holotype, ♀, Queensland, 6 km SE. by E. of Bundeena HS., 29.ix.1973, R. C. Lewis (ANIC).

Comments

This small narrow-winged species is very distinctive on abdominal pattern.
**Suhpalacsa pequena**, sp. nov.  
(Figs 181-183)

**Female**  
*Coloration.* Dark brownish grey. Eyes black. Labrum, clypeus, genae and eye margins to considerably above suture ivory. Clypeus with small white lateral hair tufts. Frons black with white hairs, relatively sparse across central region. Vertex dark, with sparse intermingled black and white hairs. Postocciput with broad V-shaped pale area each side of neck. Antenna: scape black, with long white hairs; flagellum ventrally black, basal 1/2 paler dorsally; club mainly white, slightly blackened ventrally over apical 1/3. Thorax dorsally wholly brownish grey, with grey hairs; pleura dark grey, with white hairs. Abdomen dark grey; tergites from iii each with brown velvety band or paired spots anteriorly and longitudinal streak each side of midline, these darkened and slightly convergent posteriorly; slight paired pale posterior lunules. Wing venation dark brown except paler at wing base and proximal 1/3 of C; pterostigma greyish brown, membrane otherwise hyaline. Legs: F tawny dorsally, darker ventrally, T similar, both with black bristles; t dark tawny; spurs and claws dark.  
*Morphology.* Vertex less than eye diameter in dorsal aspect. Antennae bare, club bluntly pear-shaped. Wings as in Figs 181, 182: relatively narrow; apical field narrow, with few cells in 2 rows; forewing anal margin rounded; pterostigma long. Legs relatively long, T slightly >F; t>T; spurs slender, rather sinuous, extend to beyond apex of t; claws about same length as spurs, about equal to t. Abdominal apex (Fig. 183): ectoprocts simple, distivalvae deep and rounded, tergite ix small, ventrovalvae shallow, sternite viii shallow and bluntly rounded; linguella prominent, membranous. FW 21, HW 18, A 13, B 19.

**Male**  
Unknown.

**Types**  
Holotype, ♀, Western Australia, 18.5 km ENE. Yuinnery HS., 28°34'S., 119°01'E., 11-19.ii.1980, T. F. Houston et al. 310-1. (WAM). Paratype, ♀, same data as holotype (WAM).

**Comments**  
This species is most similar to the following one in general appearance. It differs in having a much longer pterostigma and in the overall less distinct abdominal pattern. The distivalvae are also considerably more convex.

**Suhpalacsa lyriformis**, sp. nov.  
(Figs 184-191)

*Coloration.* Dark greyish brown. Eyes greyish brown. Labrum; clypeus, gena and inner eye margin to antennal socket pale yellow. Frons black with white hairs and lateral tufts. Vertex dark grey with grey and black hairs. Postocciput mainly black, small pale marks on ventral 1/3. Antennal socket with ventral black hairs; flagellum dark greyish brown; club with dorsal cream patch on posterior 1/3, more conspicuous in ♀. Thorax dark greyish brown with grey hairs; pleura slightly paler.
with white hairs. Abdomen dark grey with velvety chocolate brown anterior band and posterior lyriform mark (Fig. 186) on each tergite, markings less distinct from vi backwards and more pronounced in ♀. Wing venation dark brown, basal parts of C and Sc paler; pterostigma very dark brown, membrane otherwise hyaline. Legs very dark brown; F somewhat paler ventrally with white hairs and black bristles; t uniformly dark; spurs and claws dark.

Morphology. Vertex less than eye diameter in dorsal aspect. Antenna bare, club bluntly pear-shaped. Wings as in Figs 184, 185: slightly tapered at apex; forewing anal margin smoothly curved; apical field narrow, with cells in 2 rows; pterostigma, particularly in forewing, deep, incorporating 2 incrassate crossveins. Legs slender; spurs to end t.; claws longer.

Female abdominal apex as in Fig. 187: ectoproct simple; distivalvae small; ventrovalvae large, expanded posteriorly; linguella moderately developed. FW 26, HW 24, A 21, B 22.

Male abdominal apex as in Fig. 188: ectoproct simple; sternite ix (Fig. 189) broad, tapered to narrow apex. Gonarcus (Figs 190, 191) shallow, arms slightly divergent anteriorly; parameres slightly convergent, ventral hook produced; pelta apical, with relatively short lateral arms; pulvinus lobes slender with dark gonosetae. FW 25, HW 22, A 19, B 25.

Types
Holotype, ♀, Western Australia, Ivanhoe, 7.iv.1972, I. F. B. Common (ANIC). Paratype, ♀, same data as holotype (ANIC).

Other Material Examined
Northern Territory: Cobourg Peninsula: 9, Black Pt (ANIC); 6, Smith Pt (ANIC); 1, Daly R. (ANIC); 1, 6 km SW. by S. Oenpilli (ANIC); Western Australia: 1, 8 km S. Cape Bertholet (ANIC); Queensland: 2, Mitchell R. Settlement (ANIC).

Comments
The general coloration of this species, especially the pattern of velvety marks on the abdominal tergites, suggest that it may be closely related to S. caledon McLachlan (type in BMNH, seen) from New Caledonia. S. caledon is substantially larger (FW 33), the anterior abdominal bands are medially divided, and the apical field (of the type) has three rows of cells in the forewing. Some mature specimens of lyriformis have the abdominal marks scarcely evident, and the abdomen then appears glossy black.

Suhpalacsa barrowensis, sp. nov.
(Figs 192–199)

Coloration. Eyes black. Labrum, clypeus and genae pale yellow. Frons dark brown with dense white hairs, concentrated laterally. Vertex black with black hairs. Postocciput dark. Antenna brown, club pale basally and anteriorly. Thorax wholly dark greyish brown; hairs dark greyish brown, some pleural hairs pale grey. Abdomen mainly dark brown; trace of median pale mark of tergites i and ii in some specimens; tergites and sternites iii and beyond with narrow pale posterior margins. Wing venation dark brown, slightly paler at wing base; pterostigma tawny-brown; cell Sc slightly browned; hindwing apex (♀) slightly browned (Fig. 193). Legs mainly dark brown to black; ‘knees’ and dorsal edge of T partly yelowed; t, spurs, claws dark.
**Morphology.** Vertex less than eye diameter in dorsal aspect. Antenna bare, club bluntly pear-shaped. Wings as in Figs 192, 193: relatively narrow; apical fields with cells mainly in 2 rows, basal cells long; pterostigma long. Legs moderately slender; spurs extend to beyond apex of t₄.

Female abdominal apex as in Fig. 194: distivalvae broad; ventrovalvae deep and broad; linguella well developed. FW 29, HW 27, A 19, B 27.

Male abdominal apex as in Figs 195–197: ectoprocts elongate, divergent and ventrally setose; no abdominal prominence. Gonarcus (Figs 198, 199) shallow, arms slightly divergent anteriorly; parameres hooked, slightly rugose; pelta small; pulvinal lobes transverse, with dense pale gonosetae. FW 24, HW 22, A 18, B 30.

**Types**

Holotype, ♂, Western Australia, Barrow I., II. 1977, H. Heatwole, W. H. Butler (WAM); paratypes, 3 ♀, same data as holotype; 1 ♀, same locality, 6.v.1982, C. N. Smithers (all WAM).

**Comments**

On superficial appearance this species resembles a dark form of *S. subtrahens,* but differs considerably on structural features. The male ectoproct excludes *barrowensis* from a strict definition of *Suhpalacsa,* and it is here retained in this genus mainly on lacking a male abdominal prominence. On the form of the ectoproct and the shape of the basal apical field cells, *barrowensis* resembles *Dentalacsa,* gen. nov. and may represent a transitional form between the two genera.

*Suhpalacsa sordidata* Navás

*Suhpalacsa sordidata* Navás, 1931, p. 61.

**Type**

♀, designated from the collections of the Zoological Museum, Hamburg: not traced and believed destroyed. Not in Navás collection, Barcelona.

**Comments**

This species was likened by Navás (1931) to *S. inconspicua.* The single recorded specimen (Queensland, Bowen) was originally labelled as *S. subtrahens,* but was recognized as a new species by van der Weele, and labelled as such in 1906. I have not seen any further individuals that correspond to Navás' figures of the wing apices: the wings are somewhat tapered, with apical fields predominantly having two rows of cells only and the basal row cells longer than deep; pterostigma short and yellow; many veins at hindwing apex lightly shaded with brown. Details of any abdominal markings are not given, the abdomen being described as 'fusco-ferrugineum'.

The wing shading and pale pterostigma are reminiscent of *S. dietrichiae,* from which *sordidata* clearly differs in wing shape and pterostigma size. The pterostigma is similar to that of *S. flavipes,* but the latter does not have shaded wings except for occasional yellowing of the subcostal area. Wing shading is similar to that of *S. umbrata,* sp. nov., which has a darker pterostigma, as do most of the other species discussed here. *S. sordidata* cannot, therefore, be clearly allocated as a synonym, and the species is regarded as incertae sedis.
Genus *Suphalomitus* van der Weele

*Suphalomitus* van der Weele, 1909, p. 181.

Type-species: *Suphalasca difformis* McLachlan.

Belonging to the Ascalaphinae. Wings rather broad; hindwing noticeably shorter than forewing, extending about to base of forewing pterostigma. Forewing anal margin rounded or slightly angled, not produced. Pterostigma short. Apical fields with few cells in 2 rows, rarely 1 or 2 cells forming partial 3rd row. Antennae straight, unornamented, club pear-shaped; shorter than forewing. Legs very short and slender. Male without dorsal abdominal prominence; ectoprocts simple, not enlarged or ornamented; gonarcus hoodlike, parameres not protuberant, or more shallow with parameres slightly protuberant. Male abdomen slender, as long as, or somewhat longer than, hindwing; female abdomen broad, shorter than hindwing. Eye regions of similar size.

This genus was raised to contain a number of Asian, African and Australian species that van der Weele considered to be intermediate between *Helicomitus* and *Suhpalacsa*. It is distinct on the short broad wings and lack of a male abdominal prominence. The following new genus is clearly very similar, but males of the two known species possess an abdominal prominence: I currently accept this feature to be of generic value within this group of taxa.

**Key to Species of Suphalomitus**

1. Antennal club black (very small, FW c. 16) .................................................. *pygmaeus*
   Antennal club ivory at base (larger, FW at least 20) .................................. *difformis*

*Suphalomitus difformis* (McLachlan) (Figs 200-212)

*Suphalasca difformis* McLachlan, 1871, p. 257.

*Suphalomitus difformis* (McLachlan). van der Weele, 1909, p. 182.

**Coloration.** Black. Eyes greyish black, sometimes with brown sheen. Labrum and clypeus pale yellow; genae pale ventrally, and narrow yellow line along inner eye margin to just above suture. Frons black, white hairs anteriorly and laterally. Vertex black, with black setae. Postocciput black, sometimes with small ivory opposed 'C' marks. Antenna: flagellum dark brown; club basally ivory, apically black. Thorax dorsally dark grey to black, with grey hairs; pleura dark greyish brown, with dense white hairs. Abdomen black, with small paired white or cream posterior marginal lunules to each tergite (Fig. 206); short black spicules, few longer dark hairs. Wing base tawny; venation otherwise dark brown to black; pterostigma very dark brown to black, membrane otherwise hyaline. Legs dark: $T_1$, $T_2$ yellowed dorsally; $T_3$ segments black apically; $F$ hairs white; $T$ bristles black; spurs and claws dark.

**Morphology.** Vertex less than eye diameter in dorsal aspect. Antenna bare, club globular. Wings as in Figs 200-205: broad, slightly tapered at apex; forewing anal margin rounded; apical field with few cells in 2 rows; pterostigma very short, incorporating about 2 crossveins. Legs fairly slender; spurs very slender, to end $t_3$; claws longer.

Female abdominal apex as in Fig. 207: ectoproct deep, simple; distivalvae arched dorsally; ventrovalvae slender; linguella moderately developed. FW 20–24, HW 14–20, A 16–18, B 23–28.
Male abdominal apex as in Fig. 208: ectoproct simple; tergite ix rounded; sternite ix broadened preapically, then tapered (Fig. 209). Gonarcus (Figs 210–212) deep and hoodlike; arms slightly divergent anteriorly; parameres cylindrical, vertically aligned; pelta small; pulvinus lobes fairly small with long gonosetae. FW 21–25, HW 16–20, A 16–18, B 23–27.

Type

♂, S. Australia, Wilson (BMNH) (seen).

Other Material Examined

Queensland: 1, Bee Ck, 25 km SW. Nebo (AM); 1, Biggenden (ANIC); 1, Butcher Ck, 20 km W. Cloncurry (AM); 1, Carnarvon Ra. (AM); 1, Clermont (AM); 1, Cooktown, Mt Cook Natl Park (ANIC); 1, Lloyd Bay, 5 km N. Claudie R. mouth (AM); 1, Middle Ra. (UQ); Western Australia: 1, Gooseberry Hill (WAM); 2, Millstream (2) (ANIC); 1, Nicol Bay dist.: (det. van der Weele) (BMNH); 1, Perth (ANIC); 1, 26 km SE. Roebourne (ANIC); 1, Waroona (BMNH); 2, 7.5 km E. Yuimery HS. (28°34'S., 119°01'E.) (WAM); Northern Territory: 1, Butterfly Gorge, Katherine Gorge Natl Park (AM); 4, Cobourg Peninsula, Black Pt (ANIC); 1, 15 km SW. Nimbuwah Rd (ANIC); South Australia: 2, 41 km S. Mt Willoughby HS. (ANIC); 3, Mataranka HS. (AM); New South Wales: 1, 65 km W. Cobar (AM).

Comments

See under next species.

S. difformis appears to be widely distributed, although not common. However, it may be more variable than implied above, as I have seen a series of specimens that structurally resemble difformis but have a larger pterostigma and more conspicuous posterior abdominal markings than usual in this species. Some are also considerably larger (FW to 30). These specimens are listed below, and appear to link difformis with Suhpalacsa nigrescens. More material is needed to clarify this possible relationship, and I prefer to regard these individuals as incertae sedis for the present:

Queensland: 2, 16 km W. Mt Isa (ANIC); 1, Mt Walsh Natl Park, Biggenden (ANIC); Western Australia: 1, 8 km S. Cape Bertholet, W. Kimberley (ANIC); 1, Dampier (ANIC); 1, Kalgoorlie (NMV); 2, Marble Bar (NMV); 1, 1 km N. Millstream HS (ANIC); 1, Mt Yokine (NMV); 1, 30 km ENE. Perth (ANIC); Northern Territory: 1, 39 km E. Alice Springs (ANIC); 1, 24 km N. Tennant Ck (ANIC); South Australia: 1, Leigh Ck (ANIC).

Suhpalacsa nigrescens

(Figs 213–217)

Female

Unknown.

Male

Coloration. Black. Eyes black. Labrum and clypeus pale yellow. Genae ventrally pale, narrow ivory band along inner eye margin to top of vertex. Frons black with white hairs, mainly laterally and anteriorly; clypeus with sparse white hairs. Vertex black, with black hairs. Postocciput mainly black with opposed pale grey 'C' each side of neck. Antennal base black with black hairs; flagellum and club wholly dark brown to black. Thorax dark brown to black, with grey hairs.
Abdomen predominantly black; slight traces of paired white posterior lunules (iv, v) or band (vi). Wing venation dark brown; pterostigma greyish brown, membrane otherwise hyaline. Legs: F dark brown; T darkened laterally and (parts) ventrally; t pale, but segments narrowly dark at apex; spurs and claws dark.

Morphology. Vertex width about equal to eye diameter in dorsal aspect. Antennae bare, club globular. Wings as in Figs 213, 214, relatively broad; forewing anal margin smoothly curved; apical field with few cells, in 2 rows; pterostigma longer than deep, occupying 3 or 4 costal cells. Legs short, slender; spurs slender, small, scarcely to end t.; claws slightly longer; T=t. Abdominal apex as in Fig. 215: ectoproct deep and narrow; tergite ix large; sternite ix broadly rounded. Gonarcus (Figs 216, 217) deep; parameres deep, not markedly hooked, somewhat rugose; pelta small, arched; pulvinus lobes relatively large, with short pale brown gonosetae. FW 16, HW 12, A 11, B 17.

Type

♂, Western Australia, 26°03'S., 127°14'E., 66 km E. by N. Warburton, 15.xi.1977, M. S. Upton (ANIC).

Comments

This very small individual is clearly similar to S. dfformis in many features. The legs are proportionately much more slender and shorter than in 'typical' dfformis, and the yellow streak along the inner eye margin extends more dorsally. The most conspicuous difference between the two species is in the male genitalia: parameres of dfformis are enclosed, whereas those of pygmaeus are exposed.

Genus Parasuphalomitus, gen. nov.

Type-species: Parasuphalomitus macinnesi, sp. nov.

Belonging to the Ascalaphinae. Very similar to Suphalomitus in most features (p. 33). Differs as follows:

(i) Forewing anal margin may be more distinctly angled, though not produced.
(ii) Pterostigma longer: at least twice as long as deep.
(iii) Male with simple, anteriorly inclined prominence on abdominal tergite ii. Gonarcus of both known species as in S. dfformis.

Key to Species of Parasuphalomitus

1. Tergite iii of abdomen with broad median stripe (Fig. 230), margins tawny-brown (male sternite ix broad, prominence at anterior of tergite ii) ........................................... houstoni
   Tergite iii of abdomen without broad median stripe, dark grey to black (male sternite ix narrow, prominence near posterior of tergite ii) ........................................... macinnesi

Parasuphalomitus macinnesi, sp. nov.

(Figs 218–227)

Coloration. Eyes dark grey. Face yellow; genae pale with narrow yellow streak along eye margin to dorsad of antennae, bare. Frons jet black with very dense white hairs; clypeus with sparse black hairs, no lateral tufts; antennal region with dense white hairs; vertex dark grey with black hairs. Antennae: flagellum dark brown, club dorsally black, ventrally ivory; very broad, almost circular. Thorax
dark grey, pleura grey with dense pale grey hairs. Abdomen dark greyish black; prominence with long black hairs and few (anterior) white hairs; tergites beyond ii with indication of paired dark velvety-brown lozenge-shaped spots on posterior \( \frac{1}{3} \); (♀) paired ivory posterior marginal lunules. Wing venation dark greyish brown; yellow at wing bases; pterostigma dark grey; subcostal cell strongly greyed over apical \( \frac{1}{3} \); membrane otherwise pale. Legs black, extremities of \( T \), bases of tarsal segments paler; \( F \) and \( T \) with most bristles black, few white; spurs and claws very dark, almost black.

**Morphology.** Interocular vertex less than eye width in dorsal aspect. Wings as in Figs 218–221; forewing anal margin rounded; apical fields narrow, with few cells in 2 rows; both wings relatively broad; pterostigma wide and shallow. Legs moderately slender; spurs slender, extending to apex of \( t \); claws slightly longer.

Female abdominal apex as in Fig. 223: ectoproct slender; distivalvae broad; ventrovalvae shallow; linguella moderately developed. FW 23, HW 19, A 16, B 18.

Male abdomen with raised lobate prominence on 2nd tergite (Fig. 222) slightly inclined anteriorly and densely setose. Abdomen apex as in Fig. 224; ectoproct broad, unornamented; sternite ix (Fig. 225) tapered; gonarcus deep (Figs 226, 227), parameres vertical, unornamented; pelta small, tapered, with few ventral spicules; pulvinus lobed, each side with about 30 long pale slender setae arising from small bases. FW 23, HW 19\( \frac{1}{2} \), A 17, B 21.

**Types**

Holotype, ♂, Queensland, Eromanga, Nov. 1967, R. McInnes (ANIC). Paratype, ♀, same data as holotype (ANIC).

**Comments**

The two species in this genus are clearly rather similar in overall wing and genitalic form. They differ on the form of the male abdominal prominence, on the shape of the male sternite ix, and on details of abdominal and other patterning.

**Parasuphalomitus houstoni**, sp. nov.

(Figs 228–236)

**Female**

Unknown.

**Male**

**Coloration.** Black. Eyes dark brown to black. Labrum and clypeus tawny-brown. Gena and inner eye margin narrowly to above suture pale yellow. Frons black, with white hairs concentrated laterally. Vertex black, with dense grey and black hairs. Postocciput black. Antenna: flagellum black except apical few segments slightly paler (dark brown); club tawny-brown basally, apical \( \frac{1}{2} \) (dorsally) to \( \frac{1}{2} \) (ventrally) black. Thorax black, nota with grey hairs; pleura with dense pale grey hairs. Abdomen dark; dense black spicules from tergite iii backwards, longer black hairs on tergite ii; centre of lobe pale, ivory; tergite iii and others with broad median black stripe (Fig. 230), pigmentation most intense (deep chocolate brown) laterally and posteriorly; margins tawny-brown; posterior tergites darker. Wing
bases yellow; venation otherwise dark brown to black; pterostigma black; apex of wing slightly fumose; cell 5c and distal costal crossveins brown shaded. Legs predominantly black, 'knees' and t dark tawny-brown; F with few white hairs and black bristles; T with black bristles; spurs and claws black.

Morphology. Vertex slightly less than eye diameter in dorsal aspect. Antenna bare; club bluntly pear-shaped. Wings as in Figs 228, 229: broad, tapered at apex; forewing anal margin angled; apical fields narrow, few cells in 2 rows; pterostigma long, incorporating 3 or 4 crossveins. Legs short and stout; spurs to end t; claws strong. 2nd abdominal tergite with anterior simply domed prominence bearing long black hairs (Figs 231, 232). Abdominal apex as in Fig. 233: ectoproct simple, but with group of about 6 long ventral bristles; sternite ix bluntly tapered (Fig. 234). Gonarcus (Figs 235, 236) deep and hood-like, arms slightly divergent anteriorly; parameres slender, vertically aligned; pelta small; pulvinus lobes with dense group of dark gonosetae. FW 27, HW 22, A 19, B 27.

Type

Holotype, ♂, Western Australia, 46 km ENE. Norseman, 19-20.i.1982, B. Hanich and T. F. Houston 431-3. (WAM).

Comments

See under preceding species.

Genus Lobalacsa, gen. nov.

Type-species: Lobalacsa norsemanensis, sp. nov.

Belonging to the Ascalaphinae. Wings elongate and narrow; hindwing noticeably shorter than forewing. Forewing anal margin somewhat angled, not markedly produced. Apical fields moderately broad, with cells mainly in 2 rows; pterostigma moderate to long. Antennae shorter than forewing, bare; club broadly pear-shaped. Legs short and stout. Male with incipient or defined domed prominence near anterior of abdominal tergite ii; gonarcus hooded, parameres not protuberant. Eye regions of similar size.

This genus appears to be related to both Suphalomitus and Parasuphalomitus and is separated from both mainly on the much narrower, strap-like wings. The male abdominal structure is similar to that of Parasuphalomitus, and the gonarcus and paramere form are common to the three genera.

Key to Species of Lobalacsa

1. Central abdominal tergites black posteriorly; male abdominal prominence very slight; forewing pterostigma long ................................................................. Lobalacsa norsemanensis
   Central abdominal tergites pale posteriorly; male abdominal prominence well developed; forewing pterostigma short ........................................... Lobalacsa collessi

Lobalacsa norsemanensis, sp. nov.
(Figs 237–243)

Female

Unknown.
**Male**

**Coloration.** Dark grey to black. Labrum, clypeus and inner eye margin to slightly dorsad of suture pale yellow. Clypeus with few long lateral white hairs. Frons jet black, central hairs dense, white, lateral tufts black. Vertex and postocciput black, intermingled black and white hairs. Antennal scape black; basal 4–5 flagellar segments pale yellow, remainder black; club with posterior dorsal ¼ white. Thorax dorsally very dark grey, with relatively sparse grey hairs. Pleura pruinose grey, with dense white/silver hairs. Abdominal tergites ii–iv with irregular yellow dorsal stripe; iii (Fig. 239) with posterior yellow lunules; iv with posterior narrow yellow band; posterior segments black; all tergites with long black hairs. Sternites iii, iv with paired posterior yellow lunules. Wing bases yellow, venation (except for C, yellow basally) black; pterostigma very dark brown, almost black, membrane otherwise hyaline. Legs: F black, T black over apical t, mainly yellow except slight darkening at apices of all segments; spurs and claws dark brown to black.

**Morphology.** Vertex less than eye diameter in dorsal aspect. Distal flagellar segments with minute verticils; club of about 12 segments, broad, almost circular. Wings as in Figs 237, 238; relatively narrow; apical field narrow, with few cells in 2 rows; anal margin angled and very slightly produced; pterostigma longer than deep. Legs relatively short and stout; T > T; spurs slender, extending about to apex of t, (i, ii) or beyond apex of t, (iii); claws slightly stouter and shorter than spurs. Abdomen with slight raised anterior prominence (Fig. 240) on tergite ii, with dense black hairs. Abdominal apex (Figs 240, 241): ectoproct deep, tapered ventrally and with group of ventral black hairs on very slight lobe; tergite ix triangular; sternite ix deep. Gonarcus (Figs 242, 243) deep and hood-like, tapered and with arms divergent anteriorly; parameres slender, vertical; pelta small, vertical; pulvinus with lobes small, each with group of short dark gonosetae arising from prominent bases. FW 23, HW 20, A 17, B 27.

**Type**

Holotype, ♂, Western Australia, 70–75 km ENE. Norseman, 10–16.xi.1978, T. F. Houston et al. 221-5, resting on low scrub (WAM).

**Comments**

This, as with the next species, is clearly closely related to *Suphalomitus*, and differs by having much narrower wings and an incipient anterior prominence on male tergite ii. The abdominal pattern should also prove distinctive.

**Lobalacsa collessi**, sp. nov.  
(Figs 244–257)

**Coloration.** Eyes dark brownish grey. Labrum and clypeus yellow. Gena tawny-yellow; broad tawny band along inner eye margin to above antennal socket. Frons dark brown to black, with white hairs. Vertex dark, with dense grey hairs. Postocciput with narrow black median stripe, with prominent lateral orange opposed ‘C’ marks. Antenna basally tawny, most of flagellum very dark brown to black; club black. Thorax dark greyish brown, with grey and brown hairs; scutella paler along posterior margins; pleura ventrally pruinose silver. Abdomen: tergite ii with orange prominence and black margins; ♂ iii (Fig. 249), iv with broad
orange stripe except at narrow black anterior border, edges of stripe somewhat sinuous, short black hairs and spicules; prominence with longer black hairs; posterior tergites almost wholly black, some with traces of pale posterior margin; sternites black; pleural membrane pale; ♀ anterior tergites darker (Fig. 250). Wing venation very dark brown; pterostigma similar; cells C and Sc slightly shaded in forewing, more intensely so (castaneous) in hindwing, in which parts of apical and apical radial field also brown. Legs: Fi, ii dark ventrally, iii more completely dark; T dark ventrally and (except i) at apex; t with apices of all segments dark; spurs and claws dark.

Morphology. Vertex slightly less than eye diameter in dorsal aspect. Antenna bare, club bluntly pear-shaped. Wings as in Figs 244–248, apex rounded; anal margin of forewing angled, not produced; apical fields moderately broad, with cells mainly in 2 rows; pterostigma deep. Legs short and stout; spurs slender, to beyond t.; claws longer.

Female abdominal apex as in Fig. 253: distivalvae broad; ventrovalvae angled, broad; linguella well developed. FW 26, HW 23, A 16, B 18.

Male abdomen: tergite ii with simple anterior domed prominence (Figs 251, 252). Abdominal apex as in Fig. 254: ectoproct large, simple; sternite ix (Fig. 225) bluntly angled. Gonarcus (Figs 256, 257) deep and hood-like, arms slightly divergent anteriorly; parameres slender, not hooked, vertically aligned; pelta small; pulvinus with relatively narrow lobes each with group of long dark gonosetae. FW 25, HW 21, A 17, B 23.

Types


Comments

See also comment under the preceding species. The relatively longer hindwing, with rather more complex posterior venation, and the much more pronounced abdominal prominence afford ready separation from other taxa noted here.
**Angustacsa lobata**, sp. nov.  
(Figs 258–267)

**Female**

Unknown.

**Male**

**Coloration.** Dark grey. Eyes brownish grey. Labrum, clypeus, genae, eye margin to dorsad of antennae lemon-yellow. Frons black with white hairs, including lateral tufts. Antennal sockets black, with anterior black hairs; interantennal space with dense white hairs. Vertex black, with white to pale grey hairs. Antennal flagellum very dark brown to black; club dorsally with black annuli, apex of each segment ivory, anterior edge and whole of ventral surface ivory. Thorax grey, dorsal hairs dark grey to black; pleura slightly paler, with white hairs concentrated ventrally. Abdomen mainly glossy black; prominence with narrow ivory median posterior stripe and most tergites with large anterior pair of ivory spots and pair of posterior marginal ivory lunules; these marks less distinct beyond segment v. Wing venation almost black; pterostigma very dark, membrane otherwise unmarked. Legs black except for pale 'knees'; spurs and claws very dark; bristles black.

**Morphology.** Vertex less than eye diameter in dorsal aspect. Antenna bare; club broad, bluntly pear-shaped. Wings (Figs 258–261) narrow, tapered to relatively slender apex; anal margin of forewing not produced; apical field with few cells in 2–3 rows; pterostigma as in Figs 260, 261. Legs moderately stout; spurs slender, extend to end of t.; claws longer, thicker. Domed elongate lobate prominence on tergite ii (Figs 262, 263) expanded apically and inclined anteriorly and with numerous black hairs on posterior surface; not divided. Abdominal apex as in Fig. 264; ectoprocts large, simple; sternite ix shallow, broadly rounded. Gonarcus (Figs 265–267) broad, with sides almost parallel; parameres strongly hooked, discrete, apically bilobed, spiculate; pelta small, with few minute hairs; pulvinar lobes large, with group of about 40 pale slender gonosetae. FW 30, HW 28, A 21, B 29, prominence almost 4.

**Types**


**Comments**

The very tapered wings of this species are diagnostic. The male abdominal prominence is of a highly unusual form, which has not been described in any other ascalaphid.

**Genus Pictacsa, gen. nov.**

Type-species: Pictacsa trimaculata, sp. nov.

Belonging to the Ascalaphinae. Wings long and narrow, apices slightly tapered; hindwing slightly shorter than forewing. Forewing anal margin angled, not produced. Apical fields broad, with cells in 2–3 rows; pterostigma long. Antennae shorter than forewing, bare, club broad and pear-shaped. Legs moderately short
and stout. Male with long bifid dorsal prominence on abdominal tergite ii; ectoprocts simple; gonarcus deep, parameres exposed and hooked. Brightly coloured species. Upper region of eye considerably larger than lower region.

This genus is raised for a group of three rather similar species associated on the above characters. It is superficially rather similar to *Megacmonotus* in having a very conspicuous male abdominal projection, but differs clearly in lacking a fore-wing anal lobe and in the relatively simple form of the male abdominal apex.

**Key to Species of *Pictacsa***

1. Both wings with 3 greyish brown spots (Figs 268, 269) (male, parameres bilobed, prominence broad and narrowed abruptly near tip in lateral aspect) ........................................... *trimaculata*
   Hind wing with more extensive apical suffusion (Figs 278, 290) (male, parameres not bilobed, prominence tapered gradually towards tip in lateral aspect) ........................................... 2

2.(1) Male sternite ix broad and spatulate (Fig. 286); dorsal prominence very long with anterior face rather sinuous; female ectoproct narrow ................................................... *cruciformis*
   Male sternite ix with sides parallel basally, tapered to narrow rounded point (Fig. 296); dorsal prominence with anterior face distinctly concave in lateral aspect; female ectoproct broad

**Pictacsa trimaculata**, sp. nov. (Figs 268–276)

*Coloration.* Dark brown to black with conspicuous tawny-yellow markings. Eyes black. Labrum, clypeus and frons yellow. Frons with sparse white hairs. Vertex with very dense black hairs, apparently yellow. Postocciput tawny-yellow, except dark brown along lateral cervical margins. Antenna: base tawny, most of flagellum dark brown to black; club black. Thorax dark brown, with greyish brown hairs, slightly paler near midline: mainly on metanotum (♂) or scutella (♀); pleura with white hairs. Abdominal tergites with short thickened black spicules, darkened laterally (Fig. 270) except at anterior, in ♀ anterior tergites with discrete median anterior yellow spot, and dark midline delimiting 2 elongate posterior streaks before pale posterior border. Wing bases yellow; most venation very dark brown, *C* rather paler; pterostigma dark greyish brown basally, paler tawny-grey apically; both wings with apical and 2 posterior greyish brown patches (Figs 268, 269). Legs: *F* black except yellow apex; *T* partially yellow dorsally; *t* dark; *F* with some white bristles; *T* with black bristles; spurs and claws black.

*Morphology.* Vertex about ⅓ eye diameter in dorsal aspect. Antenna bare, club bluntly pear-shaped. Wings as in Figs 268, 269: relatively slender and tapered apically; forewing anal margin slightly angled; pterostigma large, incorporating 3 or 4 crossveins. Legs relatively stout; spurs slender, to beyond *t*; claws long, strong.

Female abdominal apex as in Fig. 273: ectoproct small; distivalvae fairly broad; ventrovalvae slender; linguella small. FW 35, HW 31, A 20, B 29.

Male with pronounced slender prominence on tergite ii (Figs 271, 272); this inclined anteriorly and with narrow bifid apex. Abdominal apex as in Fig. 274; ectoproct very small, simple; sternite ix rounded. Gonarcus (Figs 275, 276) deep and broad, lateral arms divergent anteriorly; parameres relatively small, with 2 hooks; pelta small; pulvinus lobes short, rounded, with short gonosetae. FW 30, HW 26, A 20, B 30, prominence 5.
Types

Holotype, ♀, Queensland, Butcher Ck, 20 km W. of Cloncurry, 21.i.1977, M. S. & B. J. Moulds (AM). Paratypes: 2 ♂, same data as holotype (AM).

Other Material Examined

Queensland: 1, Cloncurry (ANIC); New South Wales: 1, 1 km W. Warri Gate (ANIC).

Comments

This, and the next two species, which form a closely related complex, are separated by relatively minor characters in the above key. Apparent differences include size and shape of the male prominence, details of parameres, and coloration of wings and abdomen, but these may prove to be little more than local differences when more material becomes available for examination. Abdominal patterns appear to differ consistently but in this species the posterior median abdominal spots sometimes link with the black tergite margins.

Pictacsa cruciformis, sp. nov.
(Figs 277–288)

Coloration. Black, with conspicuous yellow patches. Eyes black, sometimes marbled with brown. Labrum, clypeus and frons yellow. Frons with dense white hairs. Vertex dark with very dense black hairs. Postocciput yellow. Basal flagellar segments yellow; remainder and club black. Thorax dark, hairs grey; if pruinescent, lateral metascalatal lobes usually ‘polished’ by forewing base; scutella yellow medially; pleura grey to black, with white and pale grey hairs. Abdomen with black spicules: ♀ each tergite with anterior broad yellow spot, paired elongate yellow (or silver) posterior streaks and pale posterior border; anterior markings more obscure from about tergite vii backwards; ♂ similar, but anterior spot sometimes divided (Fig. 281) and posterior border dark. Wing venation mainly dark brown; C paler (yellow), especially basally; pterostigma dark greyish brown basally, white apically, enclosed crossveins white; other wing markings greyish brown, as in Figs 277, 278. Legs: Fi basally black, other F yellow dorsally and at apex; Ti yellow except at apex; Tii, iii yellow dorsally; t black; spurs and claws black.

Morphology. Vertex about ½ eye diameter in dorsal aspect. Antenna bare; club bluntly pear-shaped. Wings as in Figs 277, 278, very similar to those of preceding species. Legs moderately stout; spurs to beyond t.; claws long, strong.

Female abdominal apex as in Fig. 284: ectoproct slender, simple; distivalvae rounded; ventrovalvae expanded posteriorly; linguella moderately developed. FW 33, H 31, A 21, B 31.

Male with pronounced slender dorsal prominence (Figs 282, 283) on tergite ii, inclined anteriorly and with narrow bifid apex. Abdominal apex as in Fig. 285: ectoproct simple elongate; sternite ix long (Fig. 286) expanded preapically. Gonarcus (Figs 287, 288) deep, lateral arms divergent over anterior ½; parameres sturdy, convergent, with strong ventral hook; pelta small; pulvinus lobes large, with dense long gonosetae. FW 30, HW 29, A 20, B 40, prominence 6.

Types

Holotype, ♂, New South Wales, 18 km NNW. Narrabri, 16.iii.1974, R. C. Lewis (ANIC). Paratypes: 1 ♂, 1 ♀, same data as holotype (ANIC); Queensland:

Other Material Examined

Northern Territory: 1, 27 km NNE. Newcastle Waters (ANIC); Queensland: 1, 6 km SE. by E. Bundeena; 1, 7 km NW. Cunnamulla; 1, 14 km NW. Longreach (all ANIC); New South Wales: 12, 2.4 km W. Coonamble (ANIC); 1, Narrabri (RYD).

Comments

See under P. trimaculata. Several of the Darr River specimens have the wings largely tawny-brown rather than hyaline. There is also variation in intensity of wing markings, which disappear after alcohol preservation.

**Pictacsa commoni**, sp. nov.  
(Figs 289-298)

Coloration. Dark brown with yellow markings. Eyes dark brown to black. Labrum, clypeus, frons yellow or slightly browned. Frons and interantennal space with white hairs. Vertex dark, with dense black hairs. Postocciput yellow. Antennae basally tawny, otherwise black. Thorax dark brown, with grey hairs; scutellar borders (♀) yellow; pleura mainly brown, with white hairs. Abdomen with conspicuous yellow markings: much of dorsal surface of iii pale (Fig. 291), yellow streak extends to posterior margin; short black spicules, long hairs absent; sternites more conspicuously yellow; pleural membrane with broad yellow band. Wing venation dark brown; pterostigma almost black basally, cream apically (crosseins cream); other greyish brown markings as in Figs 289, 290. Legs: Fi yellow; Fii, Fiii brown ventrally, except at apex; Ti yellow; Tii, Tiii brown ventrally and at apex; ti all segments dark at apices; tii, tiii, darker: spurs and claws dark brown to black.

Morphology. Vertex about ½ eye diameter in dorsal aspect. Antenna bare, club bluntly pear-shaped. Wings as in Figs 289, 290, very similar to those of last species. Legs relatively short and stout; spurs to beyond ti.; claws long, strong.

Female abdominal apex as in Fig. 294: ectoproct broad; distivalvae regularly rounded; ventrovalvae broadened posteriorly; linguella moderately developed. FW 33, HW 29, A 21, B 25.

Male with pronounced dorsal prominence on tergite ii (Figs 292, 293); this smoothly arched anteriorly and with narrow bifid apex. Abdominal apex as in Fig. 295: ectoproct slender, simple; sternite ix (Fig. 296) strongly tapered. Gonarcus (Figs 297, 298) deep posteriorly, tapered anteriorly; lateral arms divergent; parameres vertically aligned, with strong ventral hook; pelta small; pulvinus lobes broad, rounded, with dense gonosetae. FW 29, HW 25, A 21, B 30, prominence 5.

Types

Holotype, ♂, Western Australia, Ivanhoe via Wyndham, 13.iv. 1959, I. F. B. Common. Paratype, ♀, same data as holotype (ANIC).
Other Material Examined

Northern Territory: 1, Elsey Ck, 19 km SSE. Mataranka (ANIC); Western Australia: 1, Wyndham (ANIC).

Comments

See under P. trimaculata.

Genus Forcepaca, gen. nov.

Type-species: Forcepaca rieki, sp. nov.

Belonging to the Ascalaphinae. Wings elongate and moderately broad, venation dense; hindwing shorter than forewing. Forewing anal margin angled, not produced. Apical fields broad, cells in 2–3 rows. Pterostigma long. Antennae shorter than forewing, large; club pear-shaped. Legs fairly slender. Abdomen long and slender; male with erect bifid prominence on 2nd abdominal tergite; ectoprocts elongate and divergent, with ventral setose field; gonarcus shallow, parameres exposed and hooklike. Upper region of eye larger than lower region.

See comments following description of type-species. This genus is distinctive on the form of wings, abdominal prominence and genitalia from all other Suhpalacsini.

Forcepaca rieki, sp. nov.

(Figs 299–308)

Female

Unknown.

Male

Coloration. Tawny-brown. Eyes dark brown. Face generally pale, with white hairs, dense on frons and slight lateral tufts on clypeus. Vertex dark brown to black, with black hairs. Antennae pale yellow, most flagellar segments browned basally; club black anteriorly and dorsally, pale ventrally. Thorax very dark brown, without pale markings; hairs black dorsally, white laterally. Abdomen dark tawny with black hairs; sides of tergites somewhat darkened; sternites dark. Wing venation very dark brown; pterostigma greyish brown; C, Sc, apical field and general wing apex shaded with tawny-brown, more pronounced in hindwing; membrane otherwise hyaline. Legs: F dark brown; T dark ventrally, pale dorsally; tarsal segments browned at apices; bristles black, spurs and claws dark brown.

Morphology. Intercocular vertex less than eye width in dorsal aspect. Antennae: distal flagellar segments with minute verticils; club well defined, pear-shaped. Wing venation as in Figs 299, 300; wings relatively broad, and slightly tapered; forewing anal margin rounded; pterostigma incorporating about 5 crossveins (Figs 301, 302). Legs fairly slender, pronounced brush on T1; spurs slender, extend to just beyond t1; claws longer, slender; T > t. Tergite ii with elongate bifid vertical prominence (Figs 303, 304), bare anteriorly, black hairs on posterior face. Abdominal apex as in Figs 305, 306: ectoprocts slender and strongly produced ventrally and outwardly, with about 60 dorsally directed thickened setae; sternite ix deep, tapered; segment viii long, simple. Gonarcus (Figs 307, 308) broad. Parameres long, hooked, spiculate. Pelta anteriorly bifid, with minute median apical setae. Pulvinus lobes
small; group of long black ventral gonosetae, and shorter pale posterior dorsal
gonosetae. FW 31, HW 27, A 21, B 38, prominence 5.

Type

Holotype, ♂, Western Australia, 22°07′S., 115°33′E., 8 km SW. by W. of Cane

Comments

This species is generally rather similar to species placed in *Megacmonotus* (in
which the forewing anal margin is produced) and in *Pictacsa* (which are much more
conspicuously patterned and differ in many details of male genitalia). The very long
and ornamented ectoprocts and very long pterostigma afford ready separation from
other taxa recorded here.

Genus *Umbracsa*, sp. nov.

Type-species: *Umbracsa amarilla*, sp. nov.

Belonging to the Ascalaphinae. Wings long and moderately broad, tapered
apically; hindwing slightly shorter than forewing. Forewing anal margin gradually
rounded, not produced. Apical fields moderately broad, cells in 2 rows; many
veins in apical fields forked near margin. Pterostigma long. Antenna shorter than
wings, large; club pear-shaped. Legs slender. Upper eye region slightly larger than
lower region.

Although no males of this genus are available, and the diagnosis must therefore
be incomplete, the wing features listed above — especially the forking of veins in
the apical field — appear to be of generic value. The single available female is
otherwise similar to those of many other ascalaphine genera.

*Umbracsa amarilla*, sp. nov.

(Figs 309-311)

Female

Coloration. Brown. Eyes brown with irregular black maculation. Labrum and
clypeus tawny. Frons dark greyish brown with white lateral hair tufts; black hairs
below antennal sockets. Vertex dark tawny, with dense white hairs. Antennae
tawny-orange, club somewhat blackened anteriorly. Thorax greyish brown with
grey hairs dorsally, pleura with white hairs. Abdomen (discoloured) with posterior
margins of anterior tergites black. Wings: longitudinal veins castaneous, most
crossveins (except between R₁ and Rs and in apical field) black or dark brown,
shaded with greyish brown; pterostigma castaneous; whole of rest of membrane
pale lemon-yellow. Legs: F pale tawny, T and segments of t darkened apically;
bristles black: spurs and claws very dark brown.

Morphology. Vertex less than eye diameter in dorsal aspect. Antenna large,
club elongate pear-shaped. Wings as in Figs 309, 310: broad, tapered apically;
forewing posterior margin somewhat sinuous; anal area rounded, not produced;
apical field narrow, with few cells in 2 rows, many veins forked near margin;
hindwing with 2 presectoral veins; pterostigma deep, incorporating 4 crossveins.
Legs slender; spurs slender, extend to just beyond t₁; claws longer and thicker.
Abdominal apex as in Fig. 31; ectoprocts and distivalvae small; ventrovalvae relatively shallow; linguella a prominent membranous lobe. FW 32, HW 30, A 23, B 24.

Male
Unknown.

Type
Holotype, ♀, Western Australia, Wittenoom Gorge, Hamersley Ra., 20.ii.1977, M. S. & B. J. Moulds (AM).

Comments
This brightly coloured species is very distinctive. Although the female is grossly similar in form to those of some species of Suhpalacsa, the unusual form of the apical field affords simple separation.

Genus Dentalacsa, gen. nov.

Type-species: Dentalacsa uptoni, sp. nov.

Belonging to the Ascalaphinae. Wings long and broad, somewhat tapered apically. Hindwing slightly shorter than forewing. Forewing anal margin angled, not produced. Apical fields broad, with cells in 3-4 rows. Pterostigma large. Antenna shorter than forewing; club fusiform. Legs fairly slender. Male with slight domed prominence anteriorly on abdominal tergite ii; ectoprocts enlarged ventrally; gonarcus shallow; parameres exposed and hooked. Abdomen very long. Eye regions of similar size.

The single species included in this genus is distinctive. Although several other genera discussed here have a short prominence on the male second tergite, they differ substantially in wing and genitalic features from Dentalacsa.

Dentalacsa uptoni, sp. nov.
(Figs 312–322)

Female
Unknown.

Male

Coloration. Tawny-brown. Eyes greyish brown. Face pale tawny-yellow. Frons brown, with dense white hairs; clypeus with lateral tufts of white hairs. Antennal sockets with tuft of black hairs on anterior outer side; interantennal space with dense white hairs. Vertex with white hairs anteriorly, grey hairs posteriorly. Antennal flagellum dark brown, club black. Thorax dark brownish grey, with paler median stripe; pleura grading to grey ventrally; hairs grey. Abdomen dark brown or black laterally, pale medially, but median stripe narrowed near posterior of each tergite; hairs black, dense, long; sternites pale laterally. Wing venation dark brown; pterostigma light greyish brown, membrane otherwise hyaline. Legs: F dark brown except for pale apex; T yellow, slightly browned ventrally; t dark
brown, but apices of all segments blackened; spurs and claws black; bristles: $T$ black, $F$ (especially iii) some white.

**Morphology.** Vertex width about equal to eye diameter in dorsal aspect. Antenna: minute verticils on most flagellar segments; club distinctly fusiform. Wings as in Figs 312, 313: broad, hind wing distinctly tapered; forewing anal margin angled, not produced; apical field broad, with cells in 3–4 rows; pterostigma (Figs 314, 315) deep, incorporating about 4 crossveins. Slight domed anterior prominence on abdominal tergite ii (Figs 316, 317), apex with dorsolateral tufts of long black hairs. Legs fairly slender; spurs slender, to end $t_1$; claws slightly longer. Abdominal apex as in Figs 318, 319; ectoprocts sinuous, produced into narrow ventral lobe bearing few slightly thickened black bristles. Tergite ix small, almost circular; sternite ix broad (Fig. 320); segment viii very long. Gonarcus (Figs 321, 322) arms divergent anteriorly, apex transverse; parameres hooked, convergent apically, dorsal edge serrate; pelta small, with long anterior arms: pulvinar lobes rounded, each with 4 or 5 long black ventral bristles, and group of shorter pale posterior gonosetae, these spatulate preapically. Body slender. FW 27, HW 25, A 20, B 36.

**Type**

Holotype, ♂, Northern Territory, 12°23'S., 132°57'E., 5 km NNW. Cahill’s Crossing (E. Alligator R.), 5.ix.1972, M. S. Upton (ANIC).

**Comments**

The ornamented parameres and ectoprocts and the incipient male prominence is a character combination not found in other Australian ascalaphids.

**Acknowledgments**

I am very grateful to the museum curators who have facilitated this study: Dr P. C. Barnard (BMNH), Ms M. Thayer (MCZ), Miss J. C. Cardale (ANIC), Dr A. Neboiss and Mr K. Walker (NMV), Dr T. F. Houston (WAM), Dr C. N. Smithers (AM), Mr G. R. Brown (RYD), Miss M. A. Schneider (UQ), Mr E. C. Dahms (QM). Dr F. Españaol (Barcelona) kindly allowed me to examine the Navás collection there in 1979. Financial support from the Australian Biological Resources Study in 1982 enabled me to visit many of the Australian collections to complete this project.

I thank Dr Bo Tjeder (Lund) for his detailed and perceptive comments on this paper.

**References**


Appendix 1

Checklist of Australian Ascalaphidae, with Distributional Summary

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Index to Genera and Species

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Figs 1–10. Explanatory diagrams: 1, forewing; 2, hindwing to indicate venation (a, apical field; veins: Sc, subcosta; R1, radius; Rs, radial sector; MA, anterior media; MP, posterior media, with branches indicated by numerals; CuA, anterior cubitus; CuP, posterior cubitus; 1A, first anal vein); 3, 4, female, terminal region of abdomen in (3) lateral and (4) ventral (part) aspects (vii, viii, ix, segment numbers; ect, ectoproct; dv, distivalvae; vv, ventrovalvae; li, linguella); 5, male, terminal region of abdomen in lateral aspect; 6, male genitalia (go, gonarcus; pa, paramere; pe, pelta; pv, pulvinus; g, gonocceli); 7–10, antennal clubs, to indicate shapes in Australian taxa (7, orbicular; 8, pear-shaped; 9, bluntly pear-shaped; 10, fusiform).
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