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A key to the genera of Ricaniidae (Hemiptera: Fulgoromorpha) recorded in Australia with notes on the Australian fauna, including a new species of *Epithalamium* Kirkaldy

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Abstract A key to the genera of Ricaniidae occurring in Australia is provided along with an annotated checklist of the described species in each genus. Taxonomic changes include transfer of *Privesa pronotalis* Distant to *Aprivesa* Melichar as *Aprivesa pronotalis* (Distant) *comb. nov.* and transfer of *Busas* Jacobi to the Tropiduchidae: Gaetuliini. *Ricania fusconebulosa* Lallemand and *R. pedicellata* Jacobi are both transferred to the genus *Euricania* Melichar as *Euricania fusconebulosa* (Lallemand) *comb. nov.* and *Euricania pedicellata* (Jacobi) *comb. nov. Epithalamium moirae sp. nov.* is described from Western Australia. The known Australian Ricaniidae fauna includes 29 species in 10 genera.

Key words Auchenorrhyncha, Fulgoroidea, planthopper.

INTRODUCTION

The Ricaniidae (Hemiptera: Fulgoromorpha) includes a range of broad-winged planthoppers distributed primarily around the tropics although the Australian fauna includes a number of species extending into the southern temperate parts of the continent. Most have triangular wings either opaque or with delicate lacy brown patterning. A few species have glassy-clear wings. Most of the species are of little economic importance although the best-known Australian species, *Scolypopa australis* (Walker), the passionvine hopper, is a serious pest of kiwifruit orchards in New Zealand and of lesser importance as a pest of passionvines in Australia. The passionvine hopper has a broad host range including native and exotic plant species, but the host ranges and other biological information for other species is largely unknown.

The Ricaniidae of Australia has not been comprehensively studied despite the beauty of the species included. The last comprehensive review of the Ricaniidae which included the Australian fauna was by Melichar (1923) who updated his major review of the world fauna (Melichar 1898a). The keys published by Melichar (1923) are reasonably reliable and the Australian genera can generally be identified using them. However, the inaccessibility of the journal in which this work was published and the fact that the keys were published in French makes it desirable to have a more user-friendly key to this delightful group of insects published in an Australian journal. In reviewing the genera to include in the key, however, a number of nomenclatural or taxonomic problems needed to be resolved and these changes to the Australian fauna are made below.

It should be noted that Melichar (1898a, p. 199) in the introduction to his monograph writes (translated from the original German): 'The descriptions of the new genera and species included in this work appeared and were published in a shortened way in the 6th fascicle of the Verhandlungen der k.k. zool.-bot. Gesellschaft in Wien, Jahrg. 1898, pag. 384–400, because the production of figures necessitated much time and an immediate printing of the present work was not possible'. This means that all the taxa described, as new genera and species, by Melichar (1898a) were previously described in a more preliminary, but nonetheless valid, format by Melichar (1898b) which should therefore be credited as the original publication for these names (I Malenovsky pers. comm. 2007).

The ricaniid fauna of Christmas Island is omitted from this key, because it is zoogeographically part of the oriental region. There are two species described by Kirby (1900) from Christmas Island, *Ricania flavifrontalis* Kirby and *Paurostauria delicata* Kirby. The validity of the monotypic genus *Paurostauria* Kirby needs to be confirmed while the generic placement of *R. flavifrontalis* needs to be confirmed.

In this publication, the following collection acronyms are used:

AM:	Australian Museum, Sydney, Australia;
ASCU:	NSW Agricultural Scientific Collections Unit, Orange, Australia;
BMNH:	The Natural History Museum, London, England;
BPBM:	Bishop Museum, Honolulu, Hawaii;
MHNB:	Naturhistorisches Museum, Basel, Switzerland;
MJF:	Murray J. Fletcher private collection, Orange, Australia;

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MMB: Moravian Museum, Brno, Czech Republic;
MVM: Museum Victoria, Melbourne, Australia;
MTKD: Museum für Tierkunde, Dresden, Germany;
NMW: Naturhistorisches Museum, Vienna, Austria;
NRS: Naturhistoriska Riksmuseet, Stockholm, Sweden;
RIB: Institut Royal des Sciences Naturelles de Belgique, Brussells, Belgium;
WADA: Western Australia Department of Agriculture, Perth, Australia
WAM: Western Australian Museum, Perth, Australia.

Key to genera of Australian Ricaniidae

1 Tegmen with sparse longitudinal veins and quadrate cells (e.g. Fig. 1); claval veins united just beyond apex of scutellum…… 7
Tegmen with dense longitudinal veins and narrow, elongate cells (e.g. Figs 2,3); claval veins united about midway between apex of scutellum and apex of clavus…… 2

2(1) Forewing quadrate, with costal and sutural margins subparallel (Fig. 2)…… *Aprivesa* Melichar
Forewing more or less triangular (e.g. Fig. 3)…… 3

3(2) Veins Sc and R of forewing arising from the same point on the basal cell or very close to it (Fig. 4)… 4
Veins Sc and R united for some distance from base to form a distinct common stem (Fig. 5)……. *Euricania* Melichar

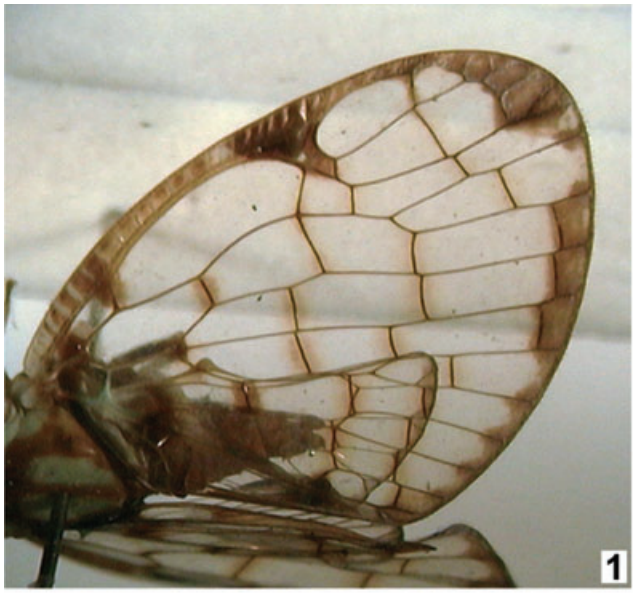
4(3) Cells on basal portion of forewing with numerous anastomosing crossveins (Fig. 6)…… 5
Cells on basal portion of forewing clear, lacking anastomosing crossveins (e.g. Fig. 3)…… 6

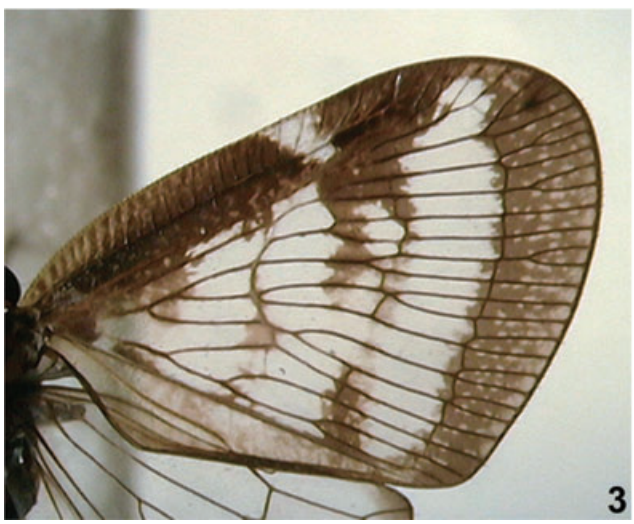
5(4) Forewing large, apical angle prominent, costal and apical margins at acute angle to each other (Fig. 7) (Australian record doubtful)……. *Pochazia* Amyot & Serville
Forewing not large, apical angle broadly rounded, costal and apical margins almost at right angles to each other (Fig. 8)…… *Ricania* Germar

6(4) Forewing narrow triangular, costal margin 1.4–1.7 times as long as apical margin (Fig. 29)… *Scolypopa* Stål
Forewing broad triangular, costal margin 1.2–1.3 times as long as apical margin (Fig. 28)…… …… *Ricanoptera* Melichar

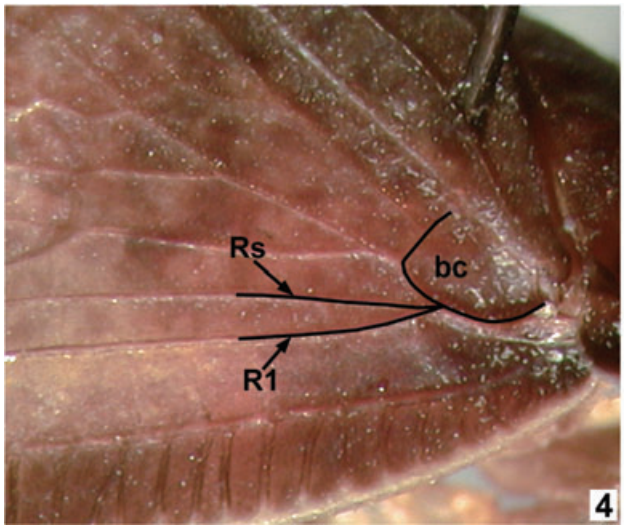
7(1) Four veins emanating from basal cell (Fig. 9)…… …… *Plestia* Stål
Three veins emanating from basal cell (Fig. 10)….. 8

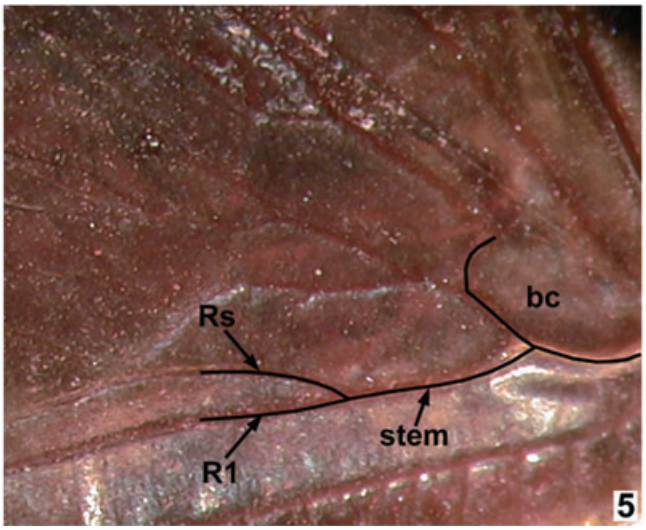
8(7) Radial vein not branching until level with pterostigma (Fig. 11); small species with broad brown margin around tegmen (Figs 19,20)…… …… *Epithalamium* Kirkaldy
Radial vein branched near base (Fig. 12) with outer branch running very close to costal vein but inner branch well separated from costal vein; medium sized species without an obvious brown margin around tegmen (Fig. 18)…… *Armacia* Stål





Figs 1–3. Forewing. (**1**) *Armacia*. (**2**) *Aprivesa*. (**3**) *Scolypopa*.





Figs 4,5. Basal venation of forewing. (**4**) *Ricania*. (**5**) *Euricania*. bc, basal cell.

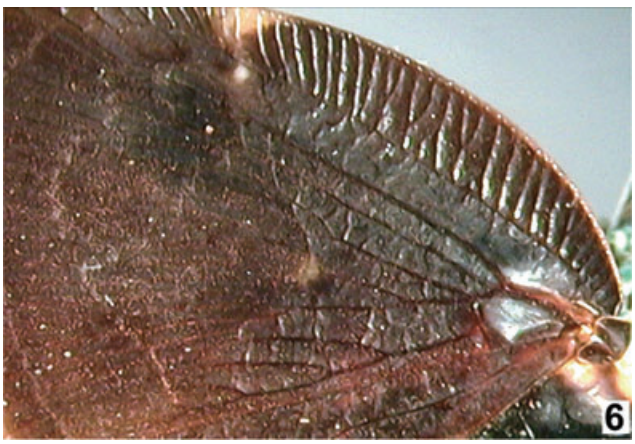
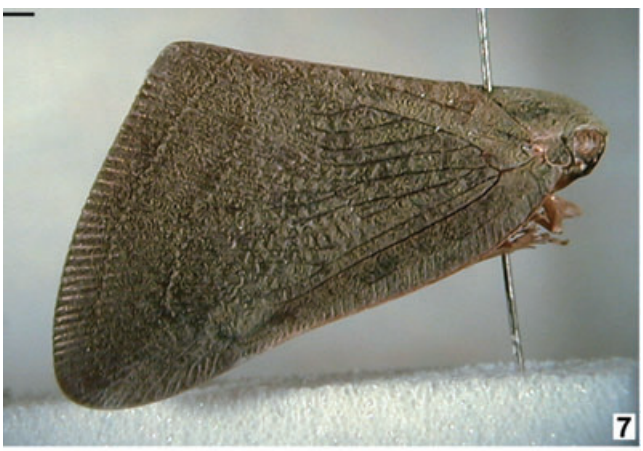


Fig. 6. *Ricania*, cells of forewing.



Figs 7,8. Forewing. (**7**) *Pochazia*. (**8**) *Ricania*.

Genus *Aprivesa* Melichar

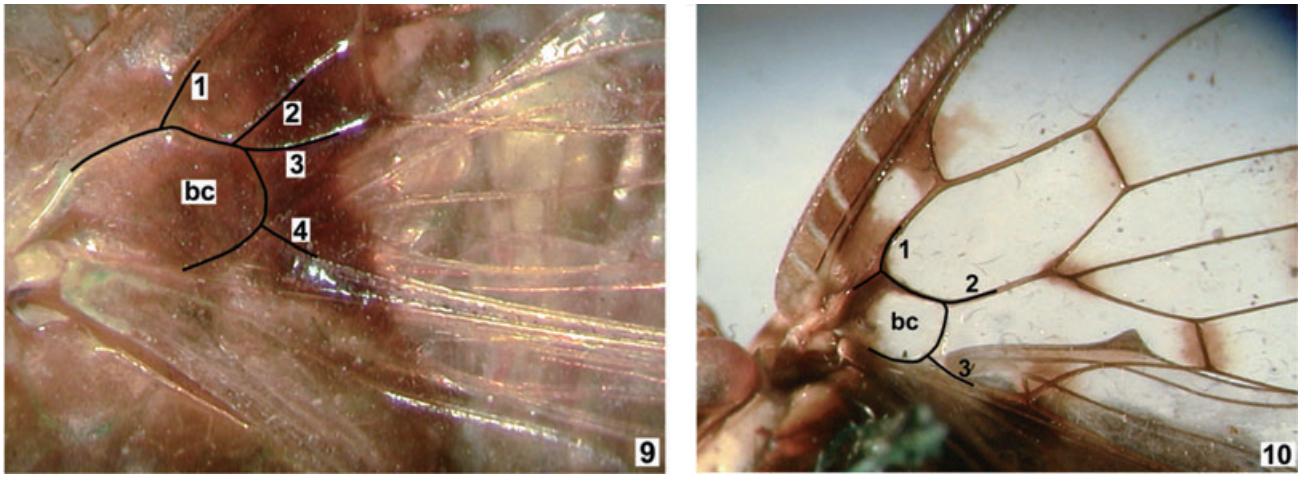
Aprivesa Melichar 1923: 144.
Type species. *Privesa exuta* Melichar 1898b, designated by Melichar 1898a: 284.

Notes

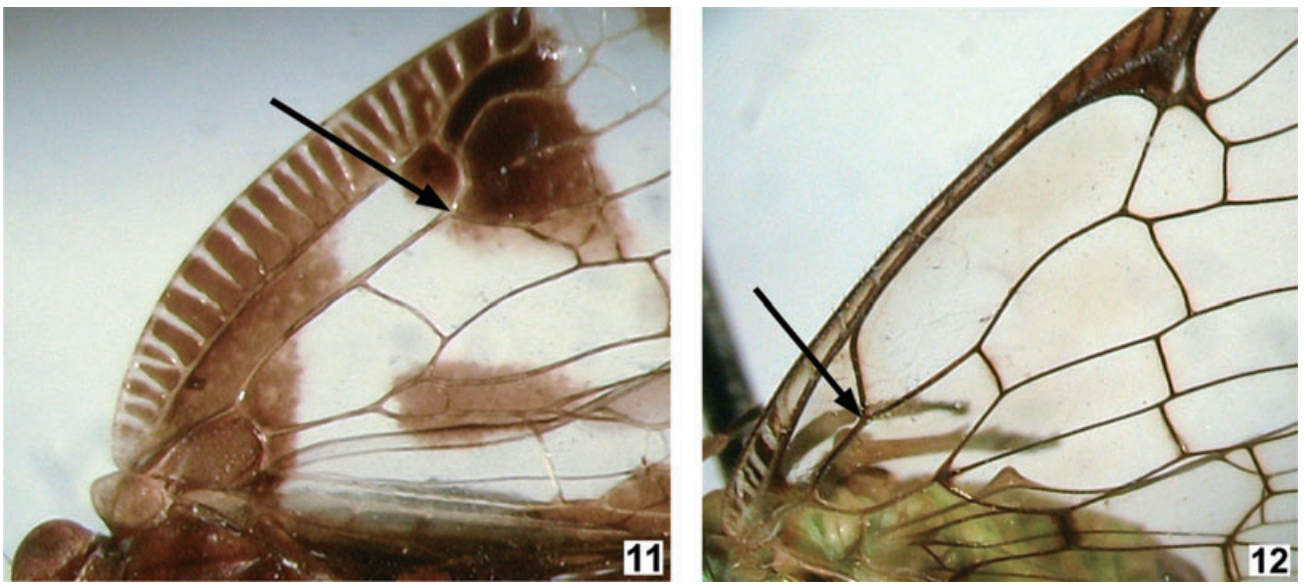
This endemic genus (Qld, NSW, WA, SA) differs from all other Australian genera by the narrow elongate forewings in which the costal and sutural cells are almost parallel throughout. In size, wing shape and colouration, the species resemble those of the flatid genus *Jamella* Kirkaldy (see Medler 1990).

Aprivesa exuta (Melichar) (Figs 13,17)

Privesa exuta Melichar 1898b: 396. Syntypes (not examined): 2 females, 'Gayndak/Australia' (presumably Gayndah, Qld., 25°38′S 151°36′E), one with 'exuta m (handwritten)/det. Melichar//Aprivesa (handwritten)' and the other with 'Privesa/exuta (handwritten)' (MMB); Melichar 1898b also cites syntypes from Moreton Bay and Cape York (NRS) and Gayndak [*sic.*] (coll. Distant).
Privesa exuta Melichar 1898a: 284.
Aprivesa exuta (Melichar), Melichar 1923: 144.



Figs 9,10. Basal venation of forewing. (**9**) *Plestia*. (**10**) *Armacia*.



Figs 11,12. Forewing venation, first branch of R arrowed. (**11**) *Epithalamium*. (**12**) *Armacia*.

Fig. 13. *Aprivesa exuta, habitus*.

Material examined

QUEENSLAND. 1 male, Saunders Beach, 25 km NE of Townsville, 19°09′5″S 146°36′0″E, 6.v.1995, D.W. Burrows, on *Avicennia marina;* 1 female, same data as preceding but 16.xi.1994; 1 male, Pease St Park, 4.2 km WNW of Cairns, 16°54′6″E 145°44′4″E, 10.i.1993, J.K. Balciunas, on *Melaleuca quinquenervia*; 1 male, Woodward Park, 4.2 km WNW of Cairns, 16°54′6″S 145°44′4″E, 14.viii.1994, P. Geyson, on *M. quinquenervia*; 1 male, Maryborough, 12.x.1901, W.W.F[roggatt]; 1 male, Springsure, 27.viii.1970, F. McDonald; 1 male, Speewah Ganyan Drive, Kuranda, 21.ix.2003, P. Erbe; 1 female, Corinda, 10 km SSW of Brisbane, 27°32′8S 152°58′3″E, 3.ii.1992, M. Purcell, on *M. quinquenervia*.

NEW SOUTH WALES. 1 male, 2 nymphs, Lighthouse Beach, S of Port Macquarie, 14.xii.1989, M.J., J.J. and S.G. Fletcher, on *M. quinquenervia*; 1 male same data as preceding but 20.i.2000, M.J. Fletcher; 2 males, Corndale, North Coast, 28°41′19″S 153°21′42″E, 28.xii.2005–4.i.2006, A. Mitchell, m.v. lamp; 1 male, Tweed River, 20.x.1901, W.W. F[roggatt]; 1 male, Mootwingee National Park, Mootwingee Homestead,

Fig. 14. *Aprivesa varipennis, habitus.*

8.xi.1984, G.R. Brown and H.M. Holmes, m.v. lamp; 1 female, Mootwingee Historic Site, near visitors centre, 7.xi.1984, G.R. Brown and H.M. Holmes, m.v. lamp; 1 female, Cobar, 3.xi.1984, G.R. Brown and H.M. Holmes, m.v lamp; 1 female, Cobar, 8.xi.1984, G.R. Brown, m.v. lamp (all in ASCU).

Notes

This species is widespread in Queensland and NSW and has been collected on *Melaleuca quinquenervia* in both states on more than one occasion implying an association with this species.

Aprivesa varipennis Muir (Fig. 14)

Aprivesa varipennis Muir 1931: 83. Holotype male, Carnarvon, WA, E.L. Grant-Watson (BMNH).

Material examined

One male, Mootwingee homestead, Mootwingee National Park, NSW 8.xi.1984, G.R. Brown & H.M. Holmes, at mercury vapour lamp, 1 male, Cobar, NSW, 3.xi.1984, G.R. Brown, 1 female, near Ceduna, SA, L. Queale (ASCU).

Notes

Muir (1931) indicated that the type series comprised one male and three females with the 'type' (= holotype) deposited in the BMNH and the 'paratype' in the AM. He did not indicate the sex of the various specimens, nor the disposition of the remaining two paratype specimens. The type series is from the western coastline of WA and the single female from near Ceduna is from the southern coastline of SA. The two NSW specimens match the original description in every detail although the male genitalia have not been compared with those of the male type. The species may have a wide distribution across the drier regions of Australia.

Aprivesa pronotalis (Distant), *comb. nov.* (Figs 15,16)

Privesa pronotalis Distant 1917: 187. Syntypes (sex unknown), Hay, NSW, J. Little, on saltbush (BMNH).

Material examined

Two males, 2 females (one of each mounted together), Hay, NSW, 31.x.1910, J. Little; 12 males, 5 females, Balranald, 30.xi.1977, D.R. McCoy; 1 male, Balranald, NSW, 9.xi.1977, R. Street; 1 male, Menindee, near Broken Hill, NSW, 11.xi.1971, A.D. Clift (all in ASCU).

Notes

The material from Hay, NSW, in ASCU is part of the collection from which the type series was designated. Melichar (1923) notes that *Aprivesa* differs from *Privesa* by having the lateral margins of the frons angulate at mid-length, then straight to the clypeus rather than rounded. However, in his key to genera published in the same work, he separates the two genera on the basis that the two radial veins are fused for a short or long distance from the basal cell in *Privesa* but originating from a common point on the basal cell in *Aprivesa*. The specimens in ASCU have the radial veins originating from a common point on the basal cell and shape of the frons in *A. pronotalis* (Fig. 16) is identical to that of *A. exuta* (Fig. 17). In addition, the genus *Privesa* is distributed primarily in the Afrotropical/Ethiopian region and the presence of a single species of such a genus on saltbush in inland parts of NSW is unlikely. Clearly Melichar knew the genus *Privesa* when he created *Aprivesa* but did not examine specimens of this species which clearly belongs in *Aprivesa*.

Genus *Armacia* Stål

Armacia Stål 1862: 70.
Type species. *Ricania clara* Stål (Caroline Islands), by original designation.

Notes

Only one species of this genus is recorded from Australia, the widely distributed *A. hyalinata* (Donovan), although 11 other species have been described, primarily from Indonesia, Papua and the Solomon Islands.

Armacia hyalinata (Donovan) (Fig. 18)

Cicada hyalinata Donovan 1805: Pl.1.
Ricania hyalinata (Donovan), Guérin-Méneville 1834: 466.
Ricania donovanii Spinola 1839, unnecessary *nom. nov.* for *Cicada hyalinata* Donovan.
Armacia hyalinata (Donovan), Melichar 1898a: 287.

Material examined

Two males, Mossman Gorge, Daintree Nat. Pk, Qld 16°28′30″S 145°5′30″E, 29.iv.1998, G. Cassis [Q98-23] ex light (AM, ASCU); 1 female, Iron Range, N. Qld, v.1966, J. Kerr (ASCU).

Notes

This species was originally described from 'Botany Bay' by Donovan (1805). Melichar (1898a) listed 'Port Jackson', presumably based on Donovan's record. Kirkaldy (1913) and Melichar (1923) listed 'New South Wales', again presumably based on Donovan's record. However, as discussed by Fletcher *et al*. (2003), Donovan's records for some of the species he

Figs 15,16. *Aprivesa pronotalis*. (**15**) *Habitus*. (**16**) Facial view of head.

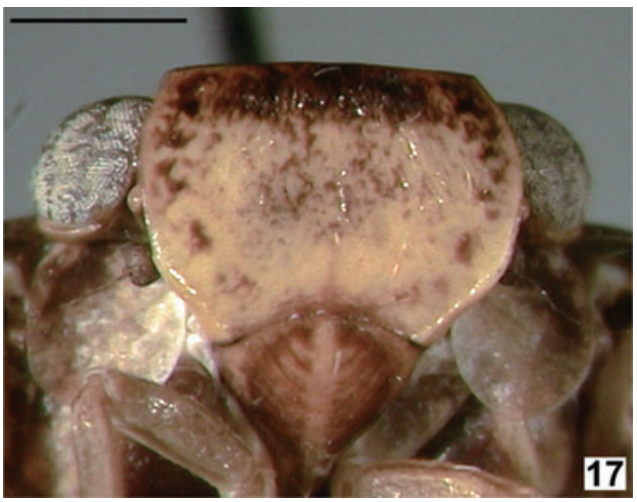


Fig. 17. *Aprivesa exuta*, facial view of head.

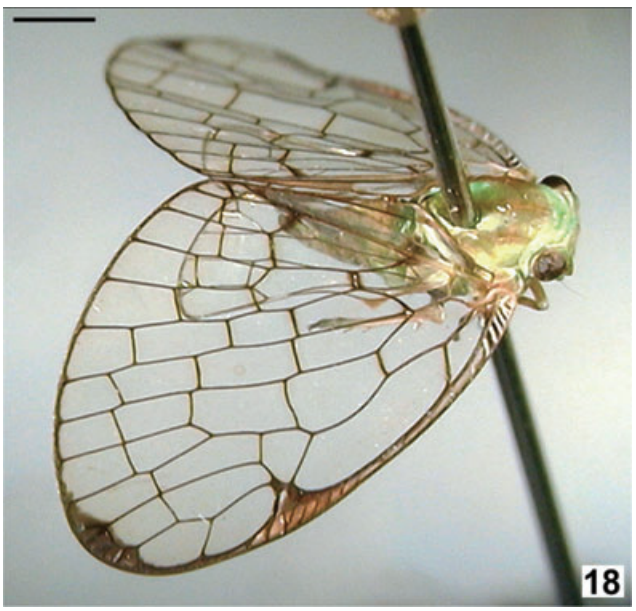


Fig. 18. *Armacia hyalinata, habitus*.

described were not accurate since the specimens on which they were based were either mislabelled or not labelled at all. Donovan's type material was not found in the Macleay Museum collection despite the discovery of other Donovan (1805) type specimens in that collection (Fletcher *et al*. 2003).

In addition to the records of the species from N. Qld, the species was reported from Dorre Island, WA, by Guérin-Méneville (1834) in his redescription of the species (Melichar 1898a). Such disjunct distributions are commonly reported in Australian Auchenorrhyncha because of a paucity of material in collections, particularly of uncommon species. However, single records of species of such age as that reported by Guérin-Méneville (1834) need to be validated by more recent material.

The creation of a new name for the species by Spinola (1839) appears to have been a mistake. Spinola's (1839) name is listed as a synonym by Walker (1851) and Melichar (1898a, 1923) although Metcalf (1955) indicates it was a *nom. nov.* It should be noted that Melichar (1898a, 1923) incorrectly dated Spinola (1839) as 1862.

Genus *Epithalamium* Kirkaldy

Epithalamium Kirkaldy 1906: 451.
Type species. *Epithalamium aziola* Kirkaldy 1906; by monotypy.

Epithalamium aziola Kirkaldy (Fig. 19)

Epithalamium aziola Kirkaldy 1906: 451.
Holotype. Female (by monotypy, stylopized), Sydney, NSW, coll: Koebele (BPBM).

Material examined

One male, 2 females, Mt White, N of Sydney, NSW, 29.xii.1977, M.J. Fletcher (MJF), 2 females (mounted together), Tahmoor, NSW, 22.i.1966, C.E. Chadwick (ASCU);

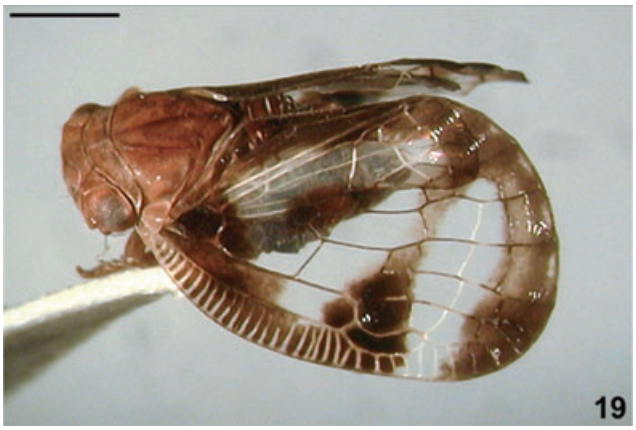


Fig. 19. *Epithalamium aziola, habitus.*

2 males, 7 females, Jarrahdale, WA, ii.2001, M. Moir, variously from *Acacia, Mirbelia dilatata, Bossiaea* and *Hakea lissocarpha* (WADA).

Notes

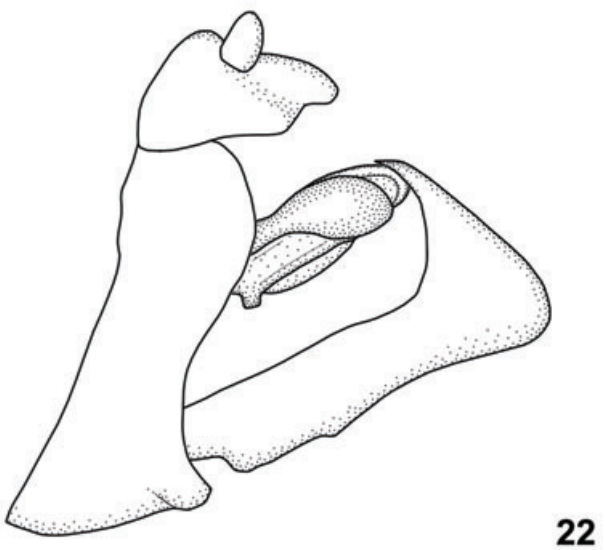
This pretty little species of ricaniid is rarely collected despite its type locality being a major centre of population in NSW. Kirkaldy's labelling techniques, as discussed by Medler (1987), probably mean that the type specimen was collected somewhere in the broader region around Sydney and not necessarily in Sydney. The species has been collected at Mount White which is near Gosford, north of Sydney, and from Tahmoor which is about 20 km beyond the SW margin of the greater Sydney metropolitan area. The material from WA is part of the material reported by Moir *et al*. (2003) as the first record from WA. This apparently disjunct distribution is reasonably common in certain Auchenorrhyncha and may reflect a lack of collecting in intervening regions. It is, however, also possible that the species is a more recent introduction to WA.

Epithalamium moirae sp. *nov.* (Figs 20–22)

Holotype. Male, Darling Range, WA, 26 i.1957 (MVM).
Paratypes. Five females, same data as holotype; 4 females, 1 unknown (abdomen missing) Collie, WA, 1000', 14.ii.1957, A. Snell (two females, one from each locality, are deposited in each of WAM and ASCU; the others are in MVM).

Description

Small delicate insects (Fig. 20). Size, male ($n = 1$) length of body 2.25 mm, wingspan 6.9 mm; female ($n = 9$) length of body 2.5–3.0 mm (mean = 2.79 mm), wingspan 7.3–8.0 mm (mean = 7.66 mm). Head, thorax and abdomen pale brown. Face (Fig. 21) with clypeus convex, separated from frons by transverse crevice along frontoclypeal suture; frons short, broad with well-defined median longitudinal carina and arcuate lateral carinae which unite with apical marginal carina. Lateral portions of frons bearing short transverse carinae to margin. Tegmen (Fig. 20) ovate, broadly margined with dark brown with hyaline central area reaching margin at apex of



Figs 20–22. *Epithalamium moirae*. (**20**) *Habitus*. (**21**) Facial view of head. (**22**) Male terminalia.

costal cell and also, occasionally, near mid-length of costal membrane. Apical cells in M and Cu with small hyaline spot in centre of apical margin. Costal margin evenly convex, hind margin more strongly convex and continuous with apical margin. Clavus short, terminating at less than half length of

tegmen. Costal membrane with 14–18 crossveins, as wide as costal cell. Hind wings whitish on basal portion, brown distally.

Genitalia. Male pygofer (Fig. 22) short, unadorned. Anal segment short, broad with sinuate hind margin. Parameres narrow, divergent from each other from near base to near apex, then convergent so that apices are adjacent, apically truncate with dorsal apical corner produced to triangular point. Aedeagus with spatulate lateral conjunctival lobes, apically acutely rounded with two appendages derived from dorsal margin at about mid-length and directed towards base before curving laterally to acute apices. Female valves broad triangular with ventral margin serrulated.

Notes

This species is most easily distinguished from *E. aziola* by the narrow ovate tegmina broadly margined with brown. It is named in honour of Melinda Moir who collected the first specimens of *E. aziola* in Western Australia and who has highlighted some of the rich diversity of Fulgoromorpha in the SW corner of Australia.

Genus *Euricania* Melichar

Euricania Melichar 1898b: 393.
Euricania Melichar 1898a: 258.
Type species. *Pochazia ocellus* Walker 1851 (China), designated by Distant 1906: 385.

Notes

This genus is recorded from the southeastern Palaearctic (China, Japan), Oriental region (India, Bangladesh, Indonesia, Malaysia, Taiwan), New Guinea, Solomon Islands, Vanuatu, Fiji and 'North Australia'. It is identified, within the Australian fauna, by the common stem uniting R1 and Rs well beyond the basal cell. This feature was used by Melichar (1923) in the second couplet of his key to world genera, in which he termed the veins R1 and R2. However, there are a number of species currently placed in other genera which also have this feature. In the Australian fauna, *Ricania pedicellata* Jacobi from WA and *R. fusconebulosa* Lallemand from NT both have R1 and Rs united well beyond the basal cell and these species are transferred to *Euricania* below. Jacobi (1928) states that *R. detersa* Melichar from Africa (now in *Ricanula*) and *R. tenebrosa* Walker from SE Asia, listed by Metcalf (1955) as a variety of *Ricania speculum* (Walker), also share this feature and may therefore also belong to *Euricania.*

Euricania discigutta (Walker)

Flatoides discigutta Walker 1862: 310.
Ricania bimaculata Walker 1870: 149, synonymised by Melichar 1898a: 261.
Ricania cyanescens Le Guillou 1841: 261, synonymised by Melichar 1898a: 261.
Euricania discigutta (Walker), Melichar 1898a: 261.

Notes

The only Australian record of this species is a single record, as *E. cyanescens* (Le Guillou 1841), from 'North Australia' collected during a circumnavigation of the world. Locality records of this age from such excursions are notably unreliable. No further specimens of the species have been found in Australia although the presence of the species in New Guinea and neighbouring parts of Indonesia and the Pacific indicates that more intensive surveys of northern Australia may confirm its presence here.

Melichar's (1898a) proposed synonymy of *R. cyanescens* with *E. discigutta* was accompanied by a query mark both in that work and in his subsequent work on the family (Melichar 1923). Metcalf (1955) listed the two species separately (the latter as *E. disciguttata*) although acknowledging Melichar's (1898a, 1923) equivocal proposal. If the synonymy is valid, Le Guillou's (1841) name *cyanescens* has priority but the lack of any type material makes it impossible to confirm. Further specimens of the genus from northern Australia may provide some evidence of what Le Guillou's species may have been but, until such material comes to light, the Australian record remains doubtful and unidentifiable.

Euricania pedicellata (Jacobi), *comb. nov.* (Fig. 23)

Ricania pedicellata Jacobi 1928: 16.
Type material. 11 male, 8 female syntypes, WA, Kimberley district, coll: April (NRS).

Notes

Jacobi (1928) illustrates the tegmen and draws attention to the fact that R1 and Rs are united to form a common stem. A female syntype in Stockholm (Fig. 23) confirms this attribute. As this is a diagnostic feature of *Euricania,* this species is transferred to *Euricania*.

Euricania fusconebulosa (Lallemand), *comb. nov.* (Fig. 24)

Ricania fusconebulosa Lallemand 1935: 669.
Syntype material. One female, Darwin, NT, vi.1934, Handschin (bearing identification label in Lallemand's hand and

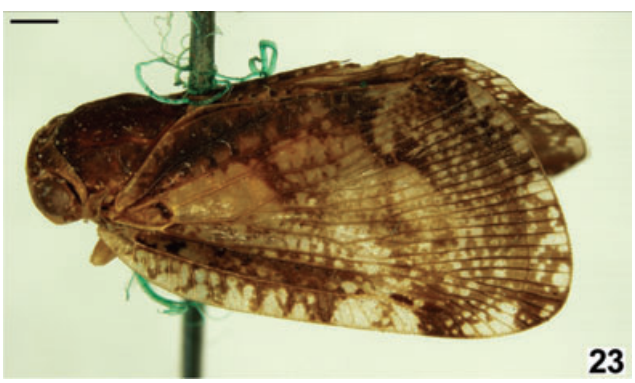


Fig. 23. *Euricania pedicellata* syntype, *habitus*.

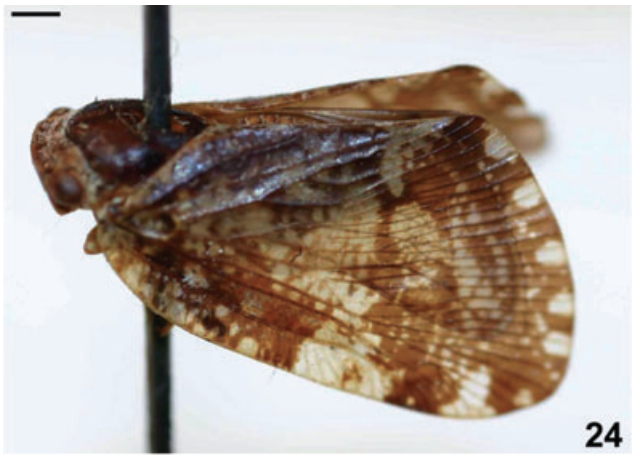


Fig. 24. *Euricania fusconebulosa* syntype, *habitus*.

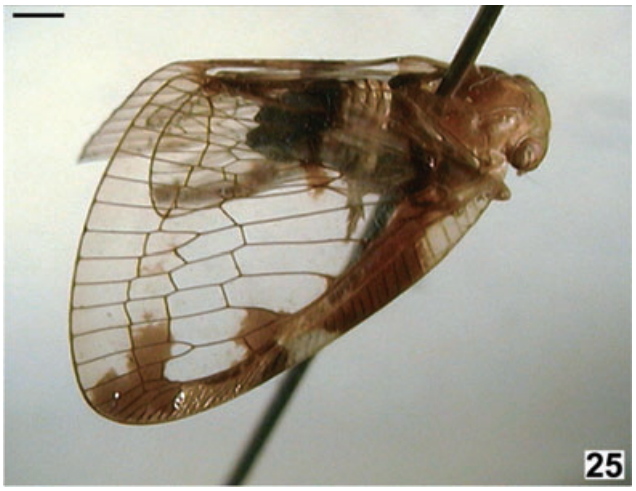


Fig. 25. *Plestia marginata, habitus*, specimen in ASCU.

'type' indication; 1 male, Marrakai, NT, v.1934, Handschin (wings detached, glued to locality label); 1 male, Burrell's Creek, NT, iv.1934, Handschin (all in MHNB).

Notes

The three syntypes in MHNB listed above cover all three localities listed by Lallemand (1935), but that publication states that there are five syntypes. The remaining two syntypes were probably retained in Lallemand's private collection which is now in Gembloux, Belgium (J Constant pers. comm. 2007).

Lallemand's (1935) figure of the tegmen, and photographic images of the syntypes from Darwin (Fig. 24) and Burrell's Creek, have R1 and Rs united to form a common stem, a diagnostic character for *Euricania*. This feature is also mentioned in the text. Some specimens of *Scolypopa* and *Ricania* have the two veins united for a very short distance (such as illustrated by Lallemand for *R. fusca* and *R. limbata*) although Lallemand's (1935) figure indicates that the common stem is considerably longer and this species clearly belongs in *Euricania*. The syntypes of *E. fusconebulosa* look remarkably similar to the syntype of *E. pedicellata* (Jacobi), but an examination of the male genitalia for both species is needed before any synonymy can be proposed. Revisions are needed for both *Euricania* and *Ricania* to determine how many valid species are included in each genus.

Fig. 26. *Plestia marginata, habitus*, specimen in Belgium.

Genus *Plestia* Stål

Armacia (Plestia) Stål 1870: 768.
Plestia Stål, Melichar 1898a: 294.
Type species. *Ricania marginata* Montrouzier, designated by Stål 1870: 768.

Notes

This genus comprises 27 described species from Fiji, Samoa, New Caledonia and Vanuatu with Melichar (1898a) recording *P. marginata* from Australia (see note under *P. marginata* below). A single specimen of this genus is present in the ASCU collection (Fig. 25). Collection details are: female, Iron Range, N. Qld, 27.xii.1983, M.S. & B.J. Moulds. This specimen does not match Melichar's specimens of *Plestia marginata* in RIB (Fig. 26).

Plestia marginata (Montrouzier)

Ricania marginata Montrouzier 1861: 73.
Armacia marginata (Montrouzier), Stål 1865: 164.
Armacia (Plestia) marginata (Montrouzier), Stål 1870: 768.
Plestia marginata (Montrouzier), Melichar 1898a: 294.
Types. Syntypes (sex, quantity unknown), Lifu Island, Fiji (NRS).

Notes

The original description (Montrouzier 1861) and that of Stål (1865) list only the type localities as given above but Melichar

(1898a) lists 'Neu-Holland' and indicates that specimens are in Museums in Dresden, Budapest and Brussels. In his key to the two species of *Plestia*, however, Melichar (1898a) gives New Caledonia for *Plestia inornata* Melichar and Lifu and Fiji Islands for *P. marginata*, with no indication of Australia. This raised doubts about the authenticity of the Australian record but enquiries to RIB and MTKD have located specimens identified as this species by Melichar. The specimen in RIB (Fig. 26) has the following label data: 'Coll. Camille Van Volxem/5342/Plestia/marginata Mon. det. Melichar./M. R. Belg'. There is no mention of Australia. On the other hand, the single (partly damaged) female specimen in MTKD is labelled 'Nov Holl.' (very small violet label), and 'marginata Montr./ det. Melichar' (white label, in Melichar's handscript).

Genus *Pochazia* Amyot & Serville

Pochazia Amyot and Serville 1843: 528.

Notes

The Australian record of this genus is doubtful. It was based on a record of *P. inclyta* Walker (1870) made by Schmidt (1905) and reported by Melichar (1923). The genus is included in the key because of the presence of numerous species in Indonesia and New Guinea and the possibility that occasional specimens may be found in northern Australia.

Genus *Ricania* Germar

Ricania Germar 1818: 221.
Type species: *Cercopis fenestrata* Fabricius 1775; designated by Stål 1869: 106.
Distribution: North Africa, across the Oriental region, to Japan.
The following species have been described from Australia. A revision of the genus is needed to determine whether they are all congeneric with the type. The distinction between *Ricania* and *Scolypopa* used by Melichar (1923) seems inadequate for the Australian species.

Ricania aurora Distant

Ricania aurora Distant 1909: 325.
Distribution: Qld.

Ricania binotata Walker

Ricania binotata Walker 1870: 149.
Distribution: Qld, New Guinea, Timor, Borneo, Taiwan, Japan.

Ricania caliginosa Walker

Ricania caliginosa Walker 1870: 144.
Distribution: Indonesia, Qld?
New Australian Record?

Fig. 27. *Ricania caliginosa, habitus.*

Fig. 28. *Ricanoptera extensa, habitus.*

Notes

The Australian record is based on a specimen in ASCU identified by M.S.K. Ghauri of the then Commonwealth Institute of Entomology, London in 1962 (Fig. 27). Specimen details are female, Cairns, N. Qld, ii.1960, E. Harris. ex J.W. Evans collection donated 1985. The tegmen venation indicates that this specimen might be better placed in *Scolypopa* which indicates either that the species may actually belong in *Scolypopa* or that the determination of this species as *R. caliginosa* may be incorrect. The record from Queensland is therefore regarded as unconfirmed.

Ricania confusa Melichar

Ricania confusa Melichar 1898b: 386.
Ricania confusa Melichar 1898a: 227.
Distribution: Qld.

Fig. 29. *Scolypopa australis, habitus*.

Ricania consanguinea Distant

Ricania consanguinea Distant 1909: 323.
Distribution: Qld.

Notes

Distant (1909) also recognised a variety of this species which he simply identified as 'Var.'. This was differentiated from the typical form by being paler in colour.

Ricania fusca Lallemand

Ricania fusca Lallemand 1935: 668.
Distribution: NT.

Ricania limbata Lallemand

Ricania limbata Lallemand 1935: 668.
Distribution: NT.

Ricania malandae Jacobi

Ricania malandae Jacobi 1928: 15.
Distribution: Qld.

Ricania nigrita Jacobi

Ricania nigrita Jacobi 1928: 15.
Distribution: Qld.

Ricania protea Distant

Ricania protea Distant 1909: 324.
Distribution: Qld.

Notes

Distant (1909) also recognised two varieties which he identified as 'var. a' and 'var. b', also from Queensland, both varying in minor colour variation from the typical form.

Genus *Ricanoptera* Melichar

Ricanoptera Melichar 1898b: 391.
Ricanoptera Melichar 1898a: 253.

Type species. *Ricanoptera inculta* Melichar 1898b, designated by Distant 1906: 382.

Notes

Melichar (1923) listed *Ricania mellerborgi* Stål as the type of the genus but Distant (1906) had already designated *R. inculta*. Melichar (1923) uses the presence of three hind tibial spines in his key to differentiate this genus but in the description he notes that the hind tibiae may have two or three spines. The two syntypes of *R. extensa* Melichar and the type of *R. inculta* (all in NMW) have been examined and all have only two spines on the hind tibia. There is an indication of a minute third spine towards the base of the tibia but this is also found in some specimens of *Scolypopa.* This feature cannot be used to differentiate between *Ricanoptera* and *Scolypopa.* The key provided by Melichar (1898a) does not use this feature but differentiates *Ricanoptera* and *Scolypopa* using the shape of the tegmen, that of *Scolypopa* being narrower than that of *Ricanoptera*. Measurements of the length of the costal and apical margins of available type specimens of *Ricanoptera extensa* and *R. inculta* gave a range of 1.21–1.31 ($n = 3$) whereas measurements of *Scolypopa* (three species combined) gave a range of 1.43–1.69 ($n = 9$). This indicates that the apical margin is generally shorter relative to the costal margin in species of *Scolypopa* than it is in species of *Ricanoptera*.

The following species have been described from Australia.

Ricanoptera extensa Melichar

Ricanoptera extensa Melichar 1898b: 392.
Ricanoptera extensa Melichar 1898a: 255 (Fig. 28).
Type specimens examined: One female syntype (lacking head) 'Australien' [hand written] 'coll. Signoret'. Second label is 'extensa' [hand written] 'det. Melichar'; 1 syntype (lacking abdomen, left wings, left foreleg, both midlegs) 'extensa' [hand written] 'det. Melichar' (both in NMW).
Distribution: Australia.

Notes

It has not been possible to match the two syntypes examined with other specimens in collections examined. It is possible that the specimen labelled 'Australien' may not have originated in Australia.

Ricanoptera patricia Melichar

Ricanoptera patricia Melichar 1898b: 392.
Ricanoptera patricia Melichar 1898a: 257.
Distribution: Qld.

Notes

Melichar (1923) gives the page number in Melichar (1898a) as page 287 when the species description is actually on page 257. There is a single male specimen of this species in MMB, labelled '18' and 'Ricanoptera patricia m.' (both handwritten) but Melichar (1898a) states that the type is in Stuttgart.

Ricanoptera prominula Schmidt

Ricanoptera prominula Schmidt 1905: 180.
Distribution: Qld.

Genus *Scolypopa* Stål

Scolypopa Stål 1859: 325. Type species: *Pochazia australis* Walker 1851, designated by Jacobi 1916: 306.
Dechitus Walker 1862: 311. Type species: *Dechitus aphrophoroides* Walker 1862; designated by Metcalf 1955: 165, synonymised by Metcalf 1955: 165.

Notes

The genus *Scolypopa* comprises eight described species from India, Pakistan, Australia (NSW, Qld), New Zealand & Fiji. Melichar (1923) listed the type species of *Dechitus* as a species of *Scolypopa* without formally synonymising the genera.

The following species have been described from Australia.

Scolypopa aphrophoroides Walker

Dechitus aphrophoroides Walker 1862: 311.
Scolypopa aphrophoroides (Walker), Melichar 1923: 142.
Distribution: Qld.

Scolypopa australis (Walker), the passionvine hopper (Fig. 29)

Pochazia australis Walker 1851: 430.
Flatoides australis Walker 1858: 102, synonymised by Melichar 1898a: 278.
Scolypopa urbana Stål 1859: 325, synonymised by Melichar 1898a: 278.
Scolypopa australis (Walker), Melichar 1898a: 278.
Distribution: NSW, Qld, New Zealand, Fiji.

Notes

This is one of the most familiar planthoppers in eastern Australia. In sheltered places, it can build up into very high numbers producing large quantities of honeydew which coats the stems and leaves of the bushes on which it feeds. It has been accidentally introduced into New Zealand where it is regarded as a serious pest of kiwifruit plantations because of the sooty moulds which develop on the fruit covered in honeydew. The species has been introduced also into Fiji. It has a wide host range on both native and exotic plants in Australia. Details of the life stages were provided by Fletcher (1979a) and on egg-laying behaviour by Fletcher (1979b).

Scolypopa australis cognata Melichar (Fig. 30)

Scolypopa australis var. *cognata* Melichar 1898b: 396.
Scolypopa australis var. *cognata* Melichar 1898a: 279.
Scolypopa australis cognata Melichar, Fletcher and Larivière 2001.

Material examined

Four males, 1 female, Sydney, NSW, 12.i.1919, damaging staghorn ferns (ASCU).

Fig. 30. *Scolypopa australis cognata, habitus.*

Distribution: NSW.
Known host: *Platycerium* (Pteridophyte).

Notes

This subspecies was described as a variety of *S. australis* by Melichar (1898a,b) on the basis of its paler colouration. Article 45.6.1 of ICZN (1999) states that a name published before 1961 as a variety is recognised as a subspecies unless the original author expressly gave it infrasubspecific rank, which he did not.

The male genitalia are similar but not identical to those of *S. australis* (figured by Fletcher 1979a). In particular, the preapical processes of the aedeagus, which are long and narrow in *S. australis* and reach to the base of the aedeagal shaft, are much shorter and broader in *S. a. cognata.* In addition, the pair of shorter basal processes on *S. australis* are missing from *S. a. cognata*. The shape of the aedeagal shaft itself is also more parallel-sided in *S. australis* whereas in *S. a. cognata* the aedeagus is broader apically and narrows towards the base. These differences are relatively small and may not justify recognising the two taxa as separate species once the species limits within the genus *Scolypopa* have been adequately examined. *Scolypopa australis* has also been collected on staghorn ferns.

Melichar (1898a) notes that neither of the two specimens in NMV are labelled with locality details and the country of origin was therefore unknown to him. The distribution of the genus *Scolypopa* indicates that they almost certainly came from Australia. This is supported by the material examined above.

Scolypopa kurandae Kirkaldy (Fig. 31)

Scolypopa kurandae Kirkaldy 1906: 450.
Distribution: Qld.

Scolypopa scutata Stål

Scolypopa scutata Stål 1859: 326.
Distribution: Australia.

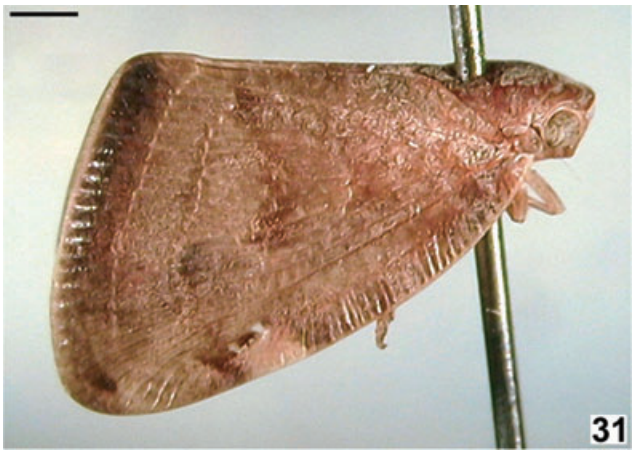


Fig. 31. *Scolypopa kurandae, habitus.*

Fig. 32. *Scolypopa stipata, habitus.*

Scolypopa stipata (Walker) (Fig. 32)

Flatoides stipata Walker 1851: 411.
Scolypopa stipata (Walker), Melichar 1923: 142.
Distribution: Australia.

Notes

Specimens which match the description of this species are known from the Narrabri region of northern NSW. Comparison with Walker's type (in BMNH) indicates that the material is conspecific although the type is in very poor condition (M Webb pers. comm. 2006).

Genus *Busas* Jacobi

Busas Jacobi 1909: 343. Type species *Busas dissolutus* Jacobi 1909; by monotypy.

Notes

The only described species of this genus has distinctive wing venation that matches that of *Paralasonia australis* Muir (Gaetuliini, transferred to the family Tropiduchidae from the family Nogodinidae by Gnezdilov (2007)) and a number of undescribed species of that genus. The lack of a costal membrane and reticulate venation is not found in the family Ricaniidae. In his key to the genera of Ricaniidae, Melichar (1923) uses the lack of a costal membrane to distinguish this genus from other genera he included in Ricaniidae. *Busas* specimens in collections have two spines on the second segment of the hind tarsus and this excludes the genus from the Ricaniidae which have no spines on this tarsal segment. The head is also typical of a gaetuliine and *Busas* is consequently here transferred to the Tropiduchidae: Gaetuliini.

DISCUSSION

The Australian Ricaniidae, as reviewed here, comprises 29 species in 10 genera. Of these, *Scolypopa* (five species), *Epithalamium* (two species) and *Aprivesa* (three species) are endemic Australian (although *S. australis* has been introduced into New Zealand and Fiji) whereas single species of *Armacia, Plestia* and possibly *Pochazia* are recent occurrences of Oriental genera in northern Australia. The true generic affinities of Australian species currently placed in the genera *Ricania* and *Ricanoptera* need to be assessed.

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