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New cockroach species, redescriptions, and records, mostly from Australia, and a description of *Metanocticola christmasensis* gen. nov., sp. nov., from Christmas Island (Blattaria)

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Abstract – *Metanocticola christmasensis* gen. nov., sp. nov. from Christmas Island, is described. The genus differs from *Nocticola* Bolívar in the male having a sex gland on the metanotum, which is unique among cockroaches. *Robshelfordia fraserensis* sp. nov., *Parasigmoidella atypicalis* sp. nov., *Parasigmoidella mayriverana* sp. nov. (Blattellidae), and *Molytria vegranda* sp. nov. (Blaberidae) are described. Several species are redescribed and some new cockroach records, mostly from Australia, are presented.

INTRODUCTION

This paper is the result of a study of specimens sent to me for identification by several museums, as well as some of the material housed in the Museum of Comparative Zoology, Harvard University. Most of the material is from Australia; several Australian genera (e.g., *Ectoneura* Shelford, *Balta* Tepper, *Ellipsidion* Saussure, *Carbrunneria* Princis, etc.) are omitted because I am revising these taxa which have a large number of undescribed species. Also, non-Australian specimens (mostly Indo-Malayan) that were in the collections have been reported elsewhere (Roth, 1999: 109). Roach and Rentz (1998: 21) have given a catalogue of the cockroaches of Australia.

The following museums and individuals loaned me specimens, and the abbreviations are those used in the text to indicate the sources of the specimens examined: ANIC = Australian National Insect Collection, CSIRO, Canberra, ACT, Australia; Dr David Rentz. ANSP = Academy of Natural Sciences of Philadelphia, PA, U.S.A.; Mr Donald Azuma. BPBM = Bernice P. Bishop Museum, Honolulu, Hawaii, U.S.A.; Mr Gordon N. Nishida. DARA = Department of Agriculture, Biological and Chemical Research Institute, Rydalmere, New South Wales, Australia; Dr G. Brown. HECO = Hope Entomological Collections, University Museum, Oxford, England; Dr George C. McGavin and Mr Ivan Lansbury. MCZ = Museum of Comparative Zoology, Harvard University, Cambridge, MA, U.S.A. NHMB = Natural History Museum, Basel, Switzerland; Dr M. Brancucci. NMV = Museum of Victoria, Melbourne, Victoria, Australia; Ms Catriona McPhee. PMYU = Peabody Museum of Natural History, Yale University, New Haven, CT, U.S.A.; Dr Charles Remington. QM = Queensland Museum, Brisbane, Australia; Dr G.B. Monteith. SAM = South Australia Museum, Adelaide, South Australia; Dr G.F. Gross. UZMC = Universitets Zoologiske Museum, Copenhagen, Denmark; the late Dr S.L. Tuxen. WAM = Western Australian Museum, Perth, Australia; Dr Terry Houston and Dr William Humphreys. ZMA = Zoologisch Museum, Universiteit van Amsterdam, The Netherlands; Mr Willem Hogenes.

Dr W.F. Humphreys of the Western Australian Museum sent me some cockroaches that were collected in caves on Christmas Island; among them was a male of what appeared to be a species of *Nocticola* but which I am placing here in a new genus.

SYSTEMATICS

Family Nocticolidae Bruner

Metanocticola gen. nov.

Type Species

Metanocticola christmasensis sp. nov.

Diagnosis

Cavernicolous. *Nocticola*-like. Male: Small, pale, eyes absent. Tegmina reduced, lacking veins. Hind wings absent. Metanotum with a setose gland mesad; visible abdominal tergal glands absent. Legs long and slender, pulvilli and arolia absent, tarsal claws small, simple, symmetrical. Anteroventral margin of front femur with a row of minute, dark setae, terminating in a single large spine.

Etymology

The specific name refers to the metanotal setose

gland which is unique among cockroaches, and to the close association with *Nocticola* (see Remarks, below).

Metanocticola christmasensis sp. nov.

Figures 1A, B

Material Examined

Holotype

♂ (on slide), Christmas Island (Indian Ocean), BES 5769, Jedda Cave, Tb [troglobite] tree roots deep; Karst #Cl 5, 29.iii.1998, S.M. Eberhard (WAM).

Paratypes

Christmas Island: Jedda Cave, BES 5851, Karst #Cl 5, 1 nymph, 6.iv.1998, BES 5828, Karst #Cl 5, Jane Up Cave, upper rock pile, 1 ♀, 6.iv.1998, BES 5829, Karst #Cl 6, 1 nymph, soil, 6.iv.1998, W.F. Humphreys, BES 5846, Tb, roots mud, Karst #Cl 6, 1 nymph, 6.iv.1998, S.M. Eberhard (WAM, all in alcohol).

Description

Male

Small, eyeless. Pronotum suboval (Figure 1A). Tegmina elliptical, covered with minute setae, veins absent, length reduced reaching to about the third abdominal tergum. Hind wings absent (Figure 1A). Legs very long, slender, tibiae and tarsi similar in width, ventral margins of mid and hind femora without spines; anteroventral margin of fore femur with a row of minute dark setae (smaller than piliform sensillae), not all equal in length, terminating in a large spine (Figure 1B); genicular spines of femora, pulvilli and arolia absent, tarsal claws small, symmetrical, simple; basitarsi of all legs longer than the 4 other tarsomeres combined. Metanotum with a medial setose gland (Figure 1A); visible glands absent from all abdominal terga. Subgenital plate without styles, and genitalia *Nocticola*-like, with the genital hook on the left side (similar to those in *Nocticola adebratti* Roth; see Figures 3C and 3E in Roth and McGavin 1994). Colour, pale, whitish with a yellowish tinge.

Female

Resembles the male except for the absence of tegmina and metanotal gland.

Nymph

Resembles the wingless female.

Measurements (mm) (♀ in parentheses; N = 1 ♂, 1 ♀)

Length, 4.1 (4.4); pronotum length x width, 1.1 x 1.3 (1.1 x 1.6); tegmen length, 1.6 (absent).

Habitat

The following information concerning Christmas Island and the caves in which the specimens were collected is from a letter (1998) from Dr William F. Humphreys: "Christmas Island (ca. 10°30'S, 105°40'E) is a sea mount closely surrounded by abyssal depths; its period of surface exposure is uncertain, probably since the early or mid-Pliocene (3–5 Ma), and possibly since the late Oligocene (26 Ma) (K. Grimes, pers. comm. in Humphreys and Eberhard 1998: 199). It is situated *ca.* 350 km south of Java, the closest land mass, and separated from it by the Java Trench. The extent of biological invasion is indicated by only 3.9% of the total flora being endemic to Christmas Island (Du Puy 1993: 12). The vegetation of Christmas Island has predominantly Indo-Malaysian affinities, with many species – all tolerant of limestone and alkaline soils – having distributions extending from southeast Asia through Malaysia to Australia (northeast Queensland), New Guinea and into the Pacific Islands (Du Puy 1993)."

"Jane Up Cave (karst index number CI-6) is a plateau cave containing an active streamway, sediment banks, tree roots, and troglobitic species. The cave is easily accessible, and there is some compaction of soft floor sediments and damage to tree roots. It is *ca.* 300 m from Jedda Cave (CI-5) and on the same streamway. The nocticolids were collected associated with tree roots." Temperature, 25.5°–26.0°BOC; relative humidity, 96%; carbon dioxide, 3%; oxygen, 17–18%. The cave was very dry at the time of sampling as indicated by cracking sediments and at the end of a very dry period resulting from an El Ni=Flo Southern Oscillation event (ENSO). The cave is rated as of medium biological significance (possibly high if ENSO effect on fauna is marked) and as having medium vulnerability to caver impacts (Humphreys and Eberhard 1998).

Remarks

The unique male was placed in 10% KOH for 2 days, washed in water, dehydrated in alcolhol, cleared in xylol, and mounted in Permount. Unfortunately the terminal segments (supra-anal and subgenital plates, and genitalia) were inadvertently lost after clearing, but I was able to note the characteristics of these structures. The description is based on the slide preparation, but the measurements were made before the specimen was cleared.

The habitus of *Metanocticola* is similar to the cavernicolous and epigean genus *Nocticola*, and cavernicolous *Spelaeoblatta* Bolívar. *Metanocticola* is the only cockroach, that I know, whose male has a sex gland on the metanotum. During courtship in Blattaria, male tergal glands attract the female to his back where she feeds or palpates the glandular region and is manoeuvred into the precopulatory position; while thus occupied, her movement is

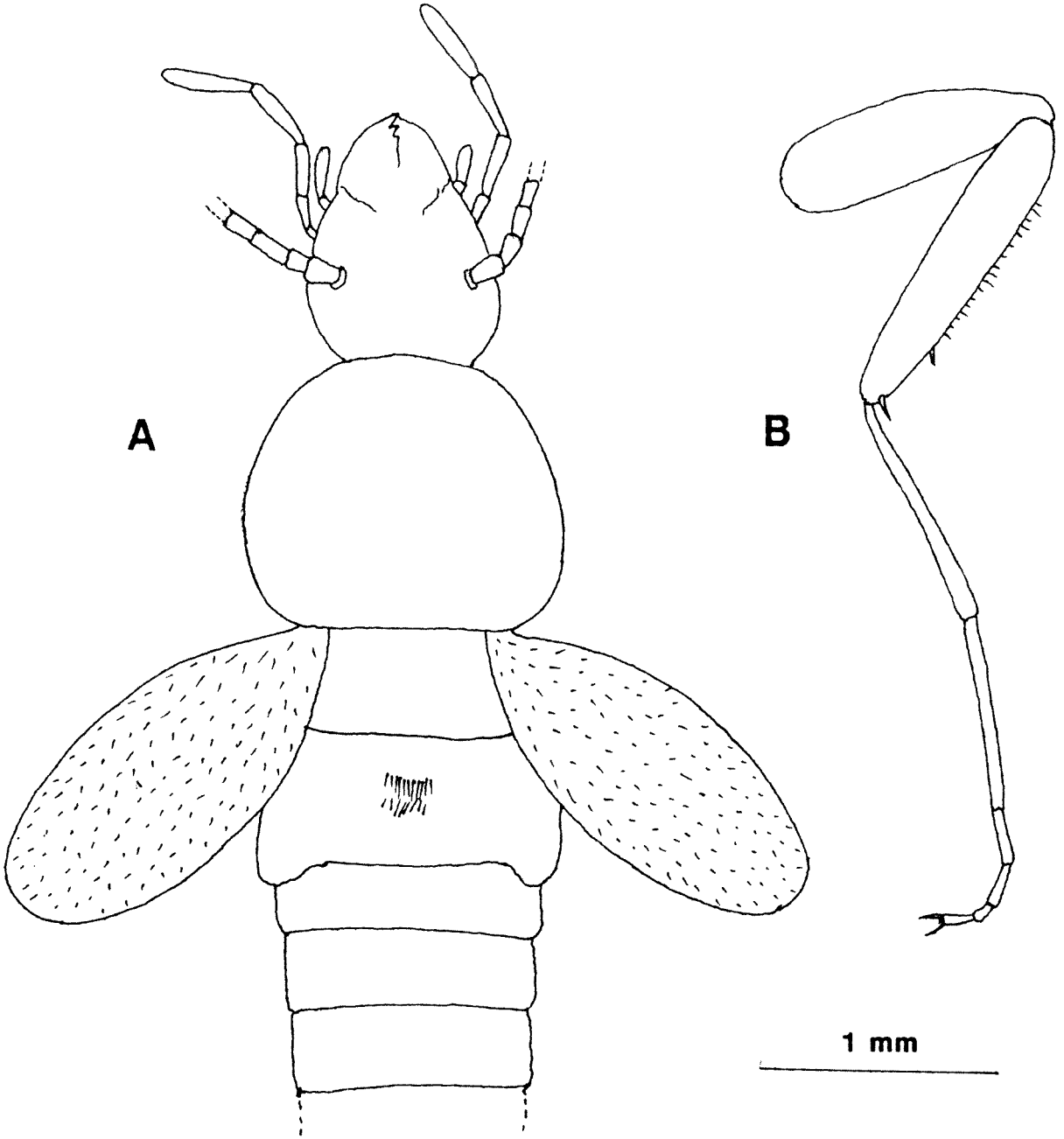

Figure 1 *Metanocticola christmasensis* sp. nov., male holotype from Christmas Island: A, head, thorax, abdominal segments 1–3, and tegmina; note the setose gland on the metanotum; B, foreleg (anterior surface).

arrested long enough for the male to grasp her genitalia. The male tergal gland(s) vary in their position, and one or more may occur on any abdominal segment and in various combinations (Roth, 1969). *Nocticola* males lack tergal glands or have them on the fourth abdominal segment only (Roth, 1988: 301). The male of *Spelaeoblatta thamfaranga* Roth, related to *Nocticola*, has visible glands on the second and third abdominal terga (Roth and McGavin, 1994, figures 2F, 2H).

Males of the cricket *Oecanthus pellucens* have a complex "alluring gland" on the metanotum similar to those on the abdomen of some male cockroaches (Engelhardt, 1914). However, no male tergal gland has previously been found on the metanotum of cockroaches and its presence in that position warrants placing the present species in a new genus.

Family Blattellidae Karny

Subfamily Pseudophyllodromiinae Vickery and Kevan

Genus *Supella* Shelford

Supella Shelford: Rehn, 1947: 59 (revision: divided *Supella* s.s. into three subgenera); Princis, 1969: 917.

Remarks

This is an African genus. Princis (1969: 917) listed four species in the subgenus *Supella*, three in *Nemosupella*, and one in *Mombuttia*.

Supella (Supella) longipalpa (Fabricius)
Figures 2A–G

Supella supellectilium Serville: Hebard, 1917: 47, pl. I, figures 24–27; Rehn, 1947: 65, figures 1–8, pl. I, figure 33; Roth, 1952: 469, figure 1; Pope, 1953, 23, 33, 37–40, 43–45, figures 1, 6d–h, 7.

Supella (Supella) longipalpa (Fabricius): Princis, 1969: 917 (literature and synonymy); Roth and Willis, 1960, pl. 25; Asahina, 1985; 25, figures 22–26 (♂ and ♀); Vickery and Kevan, 1983: 158, figures 37–39; Roach and Rentz, 1998: 141.

Material Examined

Burma: Yenangyaung, Upper Burma, 600 ft., 5 ♂, 3 ♀, 1 nymph, 27.viii.1937 (ANSP). **Australia: Western Australia:** Warburton Ranges, 1 ♂, xii.1962, 1 ♂, 23.x.1963, 1 ♀, 18.xi.1962, M. DeGraaf; Landor Stn., 2 ♂ (1 with terminalia slide 13); Perth, 1 ♀, 31.i.1975, S.M. Wade, 1 ♂, 22.v.1963, L. Smith, 2 ♂, i–ii.1975, WAM staff, 1 nymph, 16.vii.1965, G.M. Riley; Wittenoom, 1 ♀; Perth (Greenwood), 2 ♀, 25.i.1977, P.G. Kendrick; Perth (Mt. Lawley), 1 ♀, vi.1975, F.C. Blakeley; from culture, Q.I.M.R., 1 ♂, xii.1919, P. Pope (WAM); Broome, 4 ♂, 1 ♀, 1 nymph, 1.xii.1964, Monash Univ. Zool. Dept. (ANIC). **Queensland:** Hamilton, 1 ♀, 5.xii.1949, H.M. Cane (WAM); Brisbane, 10 ♂, 7 ♀; Ingham, 1 ♂, 4.vi.1958, T. Campbell (ANIC). **New South Wales:** Wollongbar, 1 ♂, 1 ♀, 5.ii.1970; Sydney University, 1 ♂, 11.viii.1964, J. Hewit; near Hillston, 4 ♂, 2 ♀, 3 nymphs, invading several station cottages close to river bank, no damage, 20.iv.1972, P.P.B. Hillston; Menindee, 2 ♂, in large numbers indoors, ii.1972; Barradine, in house, 1 ♂, vii.1954 (DARA).

Redescription

Male

Interocular space less than distance between antennal sockets. Tegmina and wings fully developed extending beyond end of abdomen, the former with oblique discoidal sectors (Figure 2B). Hind wing with simple radial and media veins, cubitus vein with two or three complete, and one (long) or no incomplete branches, apical triangle subobsolete (Figure 2D). Front femur Type A2; pulvilli present on four proximal tarsomeres, tarsal claws simple, symmetrical, arolia present. First abdominal tergum unspecialized. Seventh abdominal with a large oval or suboval depression bearing dense groups of setae (Figure 2C). Subgenital plate trigonal, apex shallowly incised (seen best in flattened slide preparation, Figures 2E, F); styles cylindrical, similar (Figure 2F) each lying against the margin of the plate (in pinned specimen; Figure 2E). Genitalia as in Figure G: hook on the right side, slender, elongated, hook region small, with a preapical incision; median phallomere a curved rod with a small dark sclerite at its apex; left phallomere consisting of several irregular sclerites.

Female

Differs from male as follows: Eyes wider apart, interocular space about the same as distance between antennal sockets. Tegmina and wings reduced, not reaching end of abdomen (length may vary reaching from the fourth to the ninth abdominal segment). Seventh abdominal tergum unspecialized. Apex of supraanal plate with a slightly larger excision (Figure 2A).

Colouration

Head with occiput to below antennal sockets yellowish brown, face and genae suffused with dark brown. Pronotal disk and posterior border region yellowish brown, lateral borders hyaline. Tegmina hyaline with a pair of light brown regions, one proximal in the anal vein region, the other towards the middle and more extensive (Figure B), costal vein region tinged with yellow, the remaining regions almost colourless. Abdomen and legs yellowish brown. Some specimens are darker with occiput yellowish orange, pronotal disk deep chestnut brown, and tegminal markings a darker brown and more distinct. The colour markings on the pronotum and tegmina vary (in specimens from the same locality), from very faint or absent, to very dark.

Measurements (mm) (♀ in parentheses)

Length, 10.2–13.1 (9.7–13.5); pronotum length x width, 2.6–3.1 x 3.5–3.9 (2.9–3.3 x 4.0–4.3); tegmen length, 9.8–12.8 (6.8–8.1).

Remarks

This is an important, widely distributed, circumtropical, domiciliary pest. The oviposition behavior and site preference of this species has been studied by Benson and Huber (1989). The adult female produces a sex pheromone, principally in the fourth and fifth abdominal terga, released during calling behavior (Schal *et al.*, 1992).

Genus *Mediastinea* Hebard

Mediastinea Hebard, 1943: 9.

Type Species

Anaplecta platycephala Rehn, by original designation (Roach and Rentz, 1998: 159).

Remarks

Three species of *Mediastinea* have been

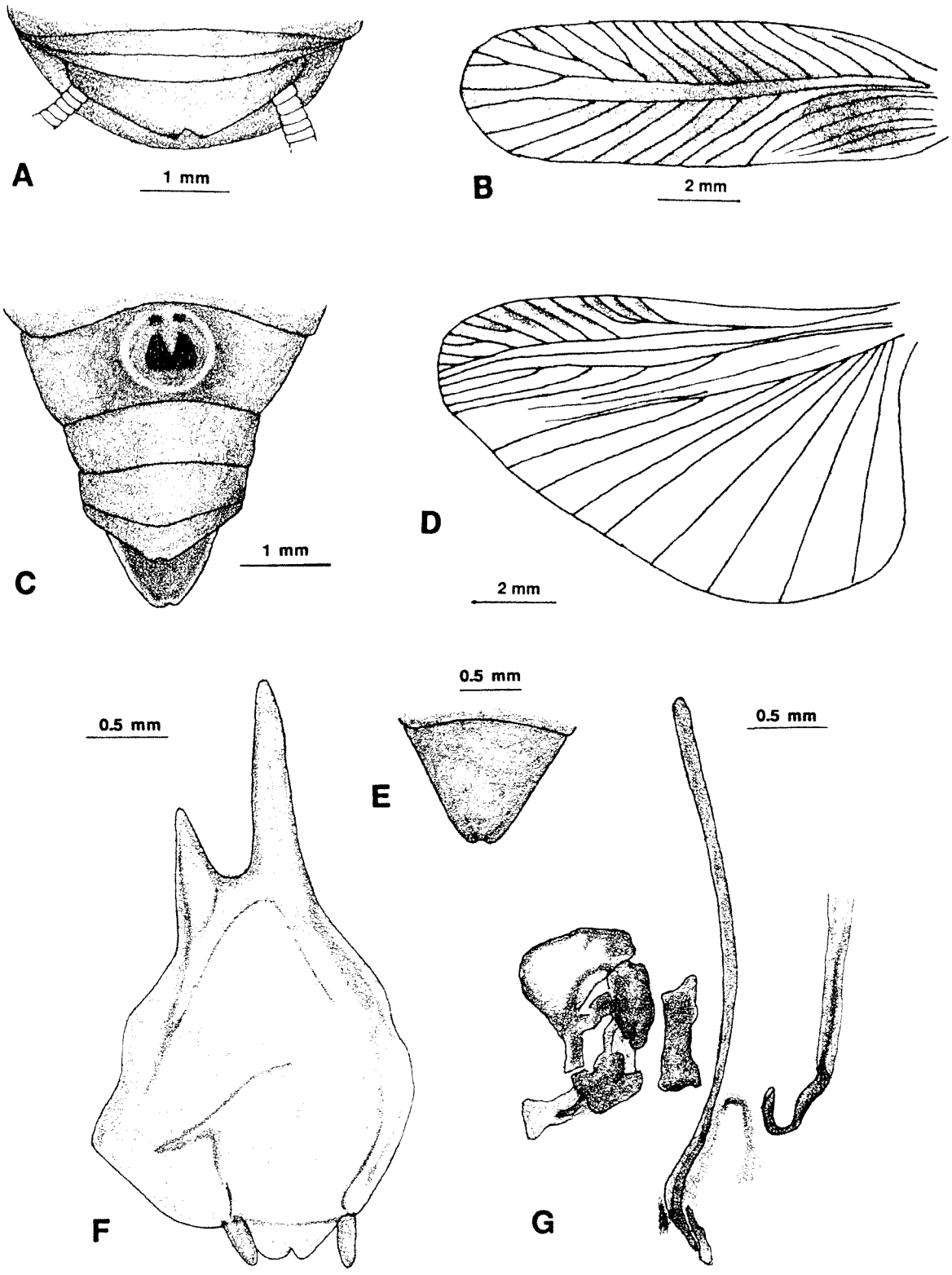

Figure 2 *Supella longipalpa* (Fabricius), from Western Australia: A, female, terminal segments; B–G, males: B, tegmen; C, abdominal terga 7 (note tergal gland) to 10 and subgenital plate; D, hind wing; E, subgenital plate (ventral; pinned specimen); F, subgenital plate (ventral; slide preparation); G, genitalia (dorsal).

reported from Australia (Hebard, 1943). They are volant, foliage frequenters (Roach and Rentz, 1998: 160). The genus was revised by Mr John Strazanac (unpublished Master's thesis at the University of Hawaii at Manoa). According to Strazanac, additional undescribed species occur outside of Australia, including New Guinea, Guam, Guadacanal, and Micronesia; he described at least seven new species in his thesis.

Mediastinea delicatula (Shelford)

Mediastinea delicatula (Shelford): Hebard, 1943: 11, pl. I, figure 2; Roach and Rentz, 1998: 160.

Material Examined

Australia: Queensland: Mt. Moffat, C. Qld., Top Moffat Camp, 1 ♂, 13–15.xii.1987, Monteith, Thompson, Yeates (QM, retained in MCZ).

Mediastinea platycephala (Rehn)

Mediastinea platycephala (Rehn): Hebard, 1943: 6, 10, pl. 1, figure 1; Roach and Rentz, 1998: 160.

Material Examined

Australia: Queensland: Central Station, Fraser Island, S.E. Qld., 1 ♂, 14–15.x.1978, G.B. Monteith (QM, retained in MCZ).

Remarks

The species is found in coastal northeast and southeast Queensland and New South Wales.

Genus *Pseudobalta* Roth

Pseudobalta Roth, 1997a: 101.

Type Species

Balta pusilla Hebard, by original designation (Roach and Rentz, 1998: 160).

Remarks

I recently erected this Australian genus to include three species, namely *Balta pusilla* Hebard, *Balta cinctella* Hebard, and *Pseudobalta queenslandica* Roth. The genus differs from its close relative *Balta*, by being ovoviviparous, and the males having a gland on the first abdominal tergum.

Pseudobalta cinctella (Hebard)

Balta cinctella Hebard, 1943: 58, pl. VIII, figure 2, pl. X, figure 8, pl. XII, figure 3 (♂ and ♀); Princis, 1969: 971.

Pseudobalta cinctella (Hebard): Roth, 1997a: 104, figures 10–20, 25 (redescriptions: ♂ and ♀); Roach and Rentz, 1998: 160.

Material Examined

Australia: Queensland: Massy Ck. [13°55'S, 143°36'E], Silver Plains [14°04'S, 143°41'E] Sta., Cape York Pen. 1 ♂ (carrying an ootheca internally), 24.vii.1965, J.L. Wassell; 12 miles NE. of Atherton [17°16'S, 145°29'E], 21.vi.1951, Wetherly and Ross (ANIC).

Remarks

The female from Massy Ck. has tegmina and wings that do not quite reach the supraanal plate; the other female has similar tegmina but the wings are vestigial.

The species is found in Queensland, Northern Territory, Western Australia, and possibly South Australia and New South Wales.

Pseudobalta queenslandica Roth

Pseudobalta queenslandica Roth, 1997a: 106, figures 21–25 (♀); Roach and Rentz, 1998: 160.

Material Examined

Australia: Queensland: 11 km ENE. of Mt. Tozer, nr. Iron Range Nat. Park, 12°43'S, 143°18'E, 2 ♀ (1 with internal ootheca), pyrethrum fog, 11.vii.1986, D.C.F. Rentz, Stop I–20 (ANIC; 1 retained in MCZ).

Remarks

The only previous record was the West Claudie River, Queensland. The male is unknown. According to Dr Rentz's notes, the species was taken in a rainforest with rather dense cover of trees on sandy soil in hilly terrain. The cockroaches probably were on low vegetation at night.

Genus *Parectoneura* Roth

Parectoneura Roth, 1990a: 652.

Type Species

Parectoneura bivittata Roth, by original designation (Roach and Rentz, 1998: 137, *Paraectoneura*).

Remarks

Parectoneura is an Australian genus containing one species. Superficially it resembles *Ectoneura* (Ectobiinae), but belongs in the Blattellinae (Roth, 1990a: 661).

Parectoneura bivittata Roth
Figures 3A–E

Parectoneura bivittata Roth, 1990a: 652, figures 35A–F (♂ and ♀); Roach and Rentz, 1998: 137 (*Paraectoneura*).

Material Examined

Australia: Northern Territory: 2 ♂ (1 with terminalia slide 600), Goose Lagoon, 11 km SW. by S. of Boroloola, 16°10'S, 136°15'E, 18.iv.1976, Key, Balderson et. al., Key's Field Notes – Trip 191, Stop 3614.8, 1 ♀, 31.x.1975, M.S. Upton (ANIC). I have also reexamined all the types from Northern Territory and Western Australia.

Description

The bands on the pronotum vary in intensity and

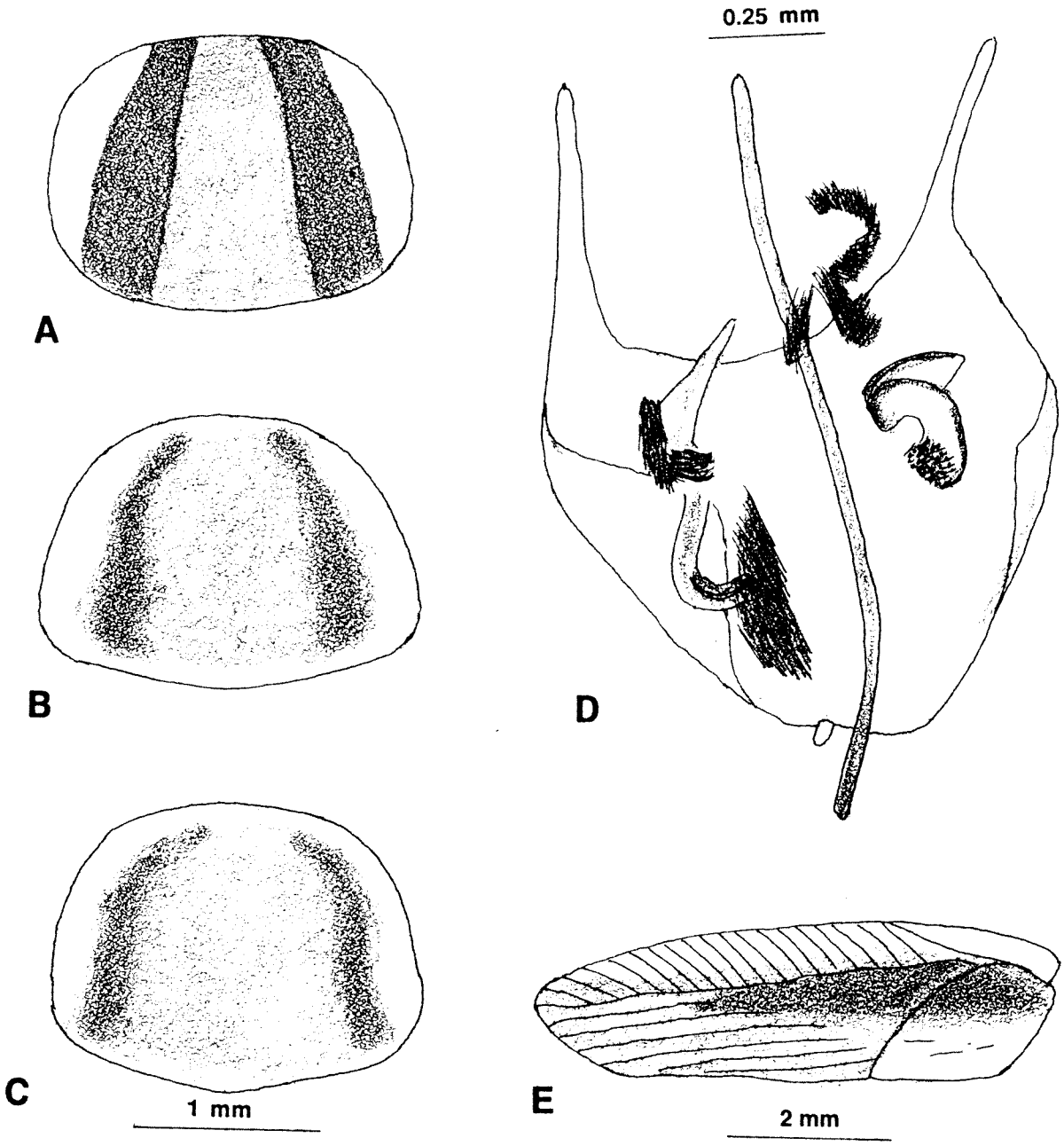

Figure 3 *Parectoneura bivittata* Roth from Goose Lagoon, Northern Territory: A–C, pronota: A, B, males, C, female; D, male subgenital plate and genitalia (dorsal; the right style was probably broken off and lost during the slide preparation; E, male, left tegmen. Scale of A and B as in Figure C.

width and their margins may be sharply defined or diffuse (Figures 3A–C). The bands on the tegmina may be very dark and broad extending the full length of the forewing (Figure 35A in Roth, 1990a) or are lighter and variably reduced in length (Figure 3E). The male subgenital plate and genitalia of the Goose Lagoon specimens (Figure 3D) differ slightly from those of a male from Tindal, Northern Territory (see Figure 35D in Roth, 1990a).

Measurements (mm) (♀ in parentheses; N= 2 ♂, 1 ♀) Length, 5.7 (7.0); pronotum length x width, 1.5 x 2.0–2.1 (1.5 x 2.2); tegmen length, 6.0–6.2 (5.8); interocular width, 0.5 (0.4); interantennal socket width, 0.5 (0.5).

Remarks

According to Dr Key's notes, the cockroaches were collected in a variety of habitats adjacent to a lagoon, with *Eucalyptus papuana*, *Erythrina vespertilis*, and others. Other habitats were sandy ridges with Bloodwoods and *Eucalyptus dichromophloea*, *Atalaya*, *Erythrophloeum*, and *Acacia*.

Genus *Balta* Tepper

Balta Tepper, 1893: 39; Roach and Rentz, 1998: 147.

Type Species
Balta epilamproides Tepper, by monotypy.

Remarks
This is a very large genus in need of revision. There are a number of generic synonyms and whether *Balta* is the valid name is debatable; it may prove to be a junior synonym of *Lupparia*.

Balta notulata (Stål)

Balta notulata (Stål): Roth, 1990c: 366, figures 6, 7 (redescriptions: ♂ and ♀, synonymy, and distribution).

Lupparia notulata (Stål): Princis, 1969: 958 (literature, synonymy, distribution).

Material Examined
Australia: Christmas Island (Indian Ocean): Pinkhouse, 1 ♀, iv.1998, W. Humphreys (WAM); although previously never recorded from Christmas Island, the species has been collected in the Chagos Islands in the Indian Ocean (Roth, 1990c: 366). **Papua New Guinea:** The following were collected by G. W. Beccaloni: Usini Village [5°32'S, 145°24'E], nr. Usino, Madang Prov., in house, 1 ♂, 1 ♀, 25. viii.1990; Awar nr. Laing Island [4°10'S, 144°52'E], Hansa Bay, Madang Prov., in bunch of bananas, 1 ♂ nymph (MCZ). **Solomon Islands:** Eiland Florida (= Small Gela = Nggela) [9°05'S, 160°50'E], Dorp Belaga [9°04'S, 160°20'E], 1 ♂, xi.1963, rond dorp Belaga, 5 ♂, 4 ♀, 3 nymphs, 1963/1964, 1 ♀, 1966, 1 nymph, M.J.A. de Koster (ZMA), two specimens retained in (MCZ). **Philippine Islands:** Trinidad [12°05'N 124°32'E], Benguet, Luzon, 1 ♂, 17.x.1914, W. Boettcher (ANSP). **Malaysia:** Kota Tinggi, Johore, 1 ♀, viii.1917 (HECO).

Remarks
This is a very widespread and common species with distinctive facial markings and male genitalia (Roth, 1990c: Figures 6A, 7F). The tegmina have longitudinal discoidal sectors which bear nodes distally, and the spaces between the veins and cross veinlets are darkened giving a checkered appearance. The nymph has facial markings like the adult, but its pronotum has a solid dark brown macula on the anterior half of the disk, whereas the adult has a symmetrical pattern of dots, lines and small spots. I described the nymph (from Krakatau) as *Balta* sp. (Roth, 1990c: 371, Figure 8I), but based on the present material I now conclude that it is the immature of *notulata*.

Beccaloni (1991: 507) trapped *Balta notulata* in houses in Papua New Guinea. He (1991), and Kevan and Kevan (1995: 227) claimed that the wide distribution of this species was due to their association with humans since individuals and oothecae could be disseminated between islands in the Pacific and Indian Oceans in various crafts.

Subfamily Blattellinae Karny

Genus *Neotemnopteryx* Princis

Neotemnopteryx Princis: Roth, 1990b: 535 (revision); Roach and Rentz, 1998: 118.

Type Species
Temnopteryx ferruginea Tepper (= *Ischnoptera fulva* Saussure) by monotypy.

Remarks
There are 11 species of *Neotemnopteryx*, a genus restricted to Australia. One of these, *N. wynnei* Roth from Western Australia, is the second cavernicolous species known in this genus (Roth, 1995: 158).

Neotemnopteryx concava Roth

Neotemnopteryx concava Roth, 1990b: 552, figures 10, 34 (♂ and ♀); Roach and Rentz, 1998: 119.

Material Examined
Australia: New South Wales: 1 ♂, 12.xi.1956, G.A. Mulder (ZMA).

Remarks
This species also is known from Queensland and Western Australia, and is found under bark and litter.

Neotemnopteryx australis (Saussure)

Neotemnopteryx australis (Saussure): Roth, 1990b: 545, figures 6A–E, 34 (redescriptions: ♂ and ♀); Roach and Rentz, 1998: 118.

Material Examined
Australia: Australian Capital Territory: Canberra, 1 ♂, 12.i.1959, W.J.M. Vestjens (ANSP).

Remarks
This species also has been taken in New South Wales, and occurs under bark and litter.

Genus *Paratemnopteryx* Saussure

Paratemnopteryx Saussure: Roth, 1990b: 560 (revision); Roach and Rentz, 1998: 120.

Type Species
Paratemnopteryx australis Saussure, by monotypy.

Remarks

There are 10 named species in this Australian genus.

Paratemnopteryx sp. 1

Paratemnopteryx sp. 1 Roth, 1990b: 580, figures 26A–C (♂ and ♀).

Material Examined

Australia: Western Australia: Eneabba region, Cave E22, 1 ♀, 1.vi.1991, C. Rippon; N-W Cape Penin., Cave C79, 22.06S 14.00E, 1 ♂, 27.vi.1989, W.F. Humphreys and R. Wood, CR '89 #3205 (WAM).

Remarks

This unnamed species combines characters of *P. australis* Saussure and *P. rufa* (Tepper). It was previously reported from Queensland (pitfall traps) and Northern Territory (bat caves). Its eyes are fairly well developed.

Paratemnopteryx centralensis (Roth)

Symploce centralensis Roth, 1985: 322, figures 18A–G, 19A–I (♂ and ♀).

Paratemnopteryx centralensis (Roth), 1990b: 584, figures 29A, B, 35; Roach and Rentz, 1998: 121.

Material Examined

Papua New Guinea: Wau, 1200 m, 1 ♂, 1 ♀, 21–25.xii.1965, J. Sedlacek, 1350 m, 1 ♂, 26.ix.1981, J.L. Gressitt; Morobe District, Mt. Amingwiwa, 1000–2300 m, 1 ♀, 12–13.iv.1970, J.L. Gressitt (BPBM). Two specimens retained in (MCZ).

Remarks

This is an aberrant species whose styli are greatly reduced. It is also found in northern coastal Queensland and northeast coastal Northern Territory.

Genus *Beybienkoa* Roth

Beybienkoa Roth, 1991a: 650.

Type Species

Symploce oriomoensis Roth, by original designation; Roach and Rentz, 1998: 123.

Remarks

There are 34 species of *Beybienkoa*, of which 24 occur in Australia, 10 are found in New Guinea (all of the New Guinea species were originally in *Symploce* and two of these also occur in Australia). The genus was rediagnosed (Roth, 1999: 126) and a number of Australian species were transferred to *Carbrunneria* Princis (see below).

Beybienkoa kurandanensis Roth

Beybienkoa kurandanensis Roth, 1991a: 690, figures 84A–G, 85; Roach and Rentz, 1998: 125.

Material Examined

Australia: Queensland: Julatten, N. Qld., edge of rainforest along creek, ex intercept trap, 1 ♂, 20–29.x.1987, A. Walford Huggins (ANIC).

Beybienkoa ilukanensis Roth

Beybienkoa ilukanensis Roth, 1991a: 695, figure 88 (♂ and ♀); Roach and Rentz, 1998: 125.

Material Examined

Australia: New South Wales: The Oaks, Blue Mtns Nat. Park, 33°49'S, 150°34'E, 280 m, 1 ♂, at mercury vapour lamp, 5.i.1988, G. R. Brown and J.A. Macdonald (DARA).

Genus *Carbrunneria* Princis

Carbrunneria Princis, 1954: 36.

Type Species

Carbrunneria waringi Princis, by original designation (Roach and Rentz, 1998: 128).

Remarks

After I rediagnosed *Beybienkoa* (Roth, 1999: 126), the following Australian species described by me, were transferred to the genus *Carbrunneria*: *barrinensis, bicaudata, eachamensis, finniganensis, guttifera (= papuensis), lewisensis, marci, maxi, nettae, paramaxi, webbana,* and *windsorana.*

The principal diagnostic character separating three closely related genera are the presence and location of the male tergal gland, or their absence. *Beybienkoa* has a gland on the first abdominal tergum, *Carbrunneria* has one on the seventh segment, and the gland is absent in *Johnrehnia.*

The gland in *Carbrunneria* consists of a fossa with or without setae. Those with setae are easy to distinguish. However, some of the species that lack setae may be difficult to place if the fossa is very shallow or hidden under the overlapping sixth tergum, and it may be necessary to make a slide preparation of the segment to determine its presence or absence.

I have almost completed my revision of *Carbrunneria* and *Johnrehnia* and find more than 40 species in the former and about 25 taxa in the latter.

Carbrunneria barrinensis (Roth)

Beybienkoa barrinensis Roth, 1991a: 659, figures 65A–F (♂ and ♀); Roach and Rentz, 1998: 124.

Carbrunneria barrinensis (Roth): Roth, 1999: 126.

Material Examined

Australia: Queensland: Millaa Millaa (17°31'S, 145°37'E), Atherton Tableland, 2500 ft., 2 ♀, 1.iv.1932, Darlington, Australia/Harvard Exp. (MCZ).

Carbrunneria guttifera (Walker)

Blatta guttifera Walker, 1868: 230 (♂).

Phyllodromia guttifera (Walker): Kirby, 1904: 93; Shelford, 1907b: 493; 1908a: 14.

Haplosymploce guttifera (Walker): Princis, 1969: 875.

Beybienkoa guttifera (Walker): Roth, 1997c: 102, figures 102–104.

Symploce papuensis Roth, 1985: 300, figures 1A–J.

Beybienkoa papuensis (Roth), 1991a: 656, figures 61, 64A–C; Roach and Rentz, 1998: 126.

Carbrunneria papuensis (Roth), 1999: 126.

Remarks

The species has been collected in Papua New Guinea, Queensland (Moa and Murray Islands), and the Moluccas (Aru Island). This volant taxon is found in litter and has been taken in closed forest, rainforest margins, mixed open low forest, in Malaise pan and pitfall traps, also by sweeping, and at light (Roach and Rentz, 1998: 126).

Genus *Robshelfordia* Princis

Robshelfordia Princis, 1954: 37; Roth, 1991a: 555 (revision); Roach and Rentz, 1998: 138.

Type Species

Robshelfordia simplex Princis, 1954, by original designation.

Diagnosis

Male

Fully winged, tegmina with longitudinal or sublongitudinal discoidal sectors. Hind wings with simple radial, media, and cubitus veins, apical triangle present. Fore femur variable: Type A, Type B, or intermediate between Types A and B; tarsal claws symmetrical or asymmetrical. First abdominal tergum specialised; seventh abdominal tergum unspecialised. Hooklike genital phallomere on the left side.

Female

Tegmina and wings fully developed or tegmina reduced to lateral pads, hind wings absent.

Remarks

This Australian genus contains 12 species. The females of only five were known when the taxon was revised (Roth, 1991a) and these had small tegminal pads and lacked hind wings, whereas the males were fully winged. In a new species described below both sexes have completely developed wings and their habitus is similar.

Robshelfordia fraserensis sp. nov.

Figures 4A–E

Material Examined

Holotype

♂, Fraser Island (25°15'S, 153°10'E), Central Station, Queensland, Australia, 19.xii.1979, at light, K.J. Lambkin (QM).

Paratypes

Australia: Queensland: same data as holotype, 2 ♂ (1 with terminalia slide 105), 4 ♀ (QM, 1 ♀ retained in the MCZ).

Description

Male

Interocular space about the same as the distance between ocellar spots, less than the distance between antennal sockets (Figure 4A); fifth maxillary palpomere longer than the fourth. Tegmina and wings fully developed extending beyond end of abdomen, the former with longitudinal or sublongitudinal discoidal sectors. Hind wing with simple radial, media, and cubitus veins, the latter without incomplete branches, apical triangle small (Figure 4E). Fore femur Type A3, B2, or intermediate between A and B; pulvilli on 4 proximal tarsomeres, tarsal claws simple, symmetrical, arolia present. First abdominal tergum with a pair of shallow nonsetose fossae. Seventh abdominal tergum unspecialized. Supra-anal plate hind margin convex, shallowly indented medially; paraprocts dissimilar, the left one with 2 spinelike sclerites, the right one a single spine structure (Figure 4C). Subgenital plate with a pair of dissimilar, widely separated styles, the left one conical, the right one small, stouter, subtrigonal, with a few small spines, interstylar margin straight (Figure 4D); in the pinned specimen, the right style is upturned and largely hidden under the supra-anal plate. Genitalia as in Figure 4D: hook on the left side, without a preapical incision; median phallomere slender, simple, apically acute; right

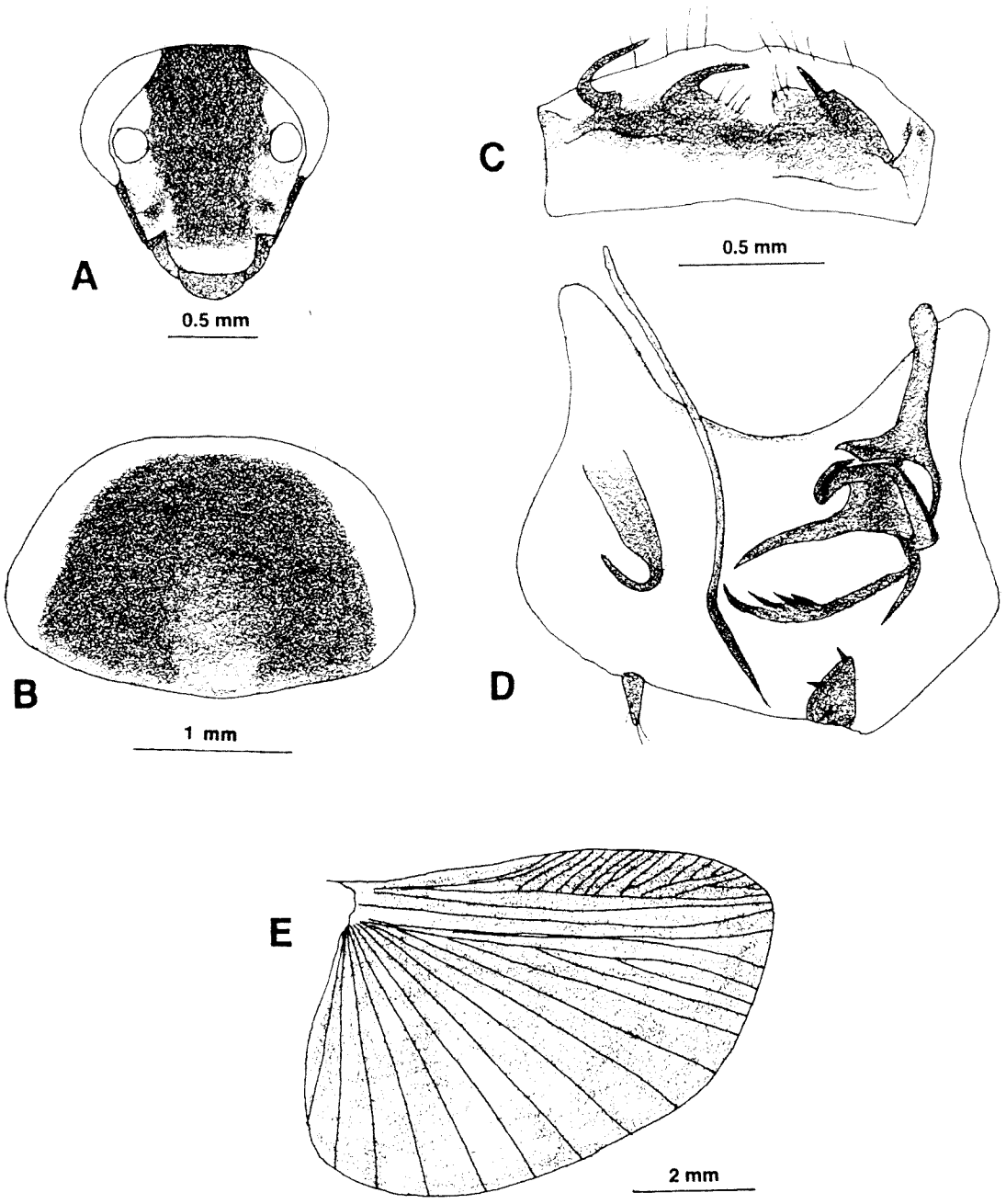

Figure 4 *Robshelfordia fraserensis* sp. nov., males: B from holotype, all others from a paratype: A, head; B, pronotum; C, hind wing; D, supra-anal plate and paraprocts (ventral).

phallomere consisting of 4 sclerites, one a cleft and another with 4 large spines. Colour: Head dark brown, occiput, vertex, cheeks, and postclypeus may be lighter (Figure 4A); maxillary palpomeres 4 and 5 dark, segment 3 lighter; antennae light brown. Pronotum dark brown with a pale spot posteromedially, lateral and anterior borders opaque white (Figure 4B). Tegmina light brown, hyaline, humeral vein dark. Hind wing infuscated. Proximal abdominal terga pale, segments 7 to 9 dark, lateral borders and supra-anal plate pale. Abdominal sterna pale. Legs pale. Cerci pale dorsally, dark ventrally.

Female

Habitus similar to male. Tegmina and wings completely developed, venation as in male. Hind margin of supra-anal plate with oblique sides, the medial region weakly indented. Front femoral armament variable as in the male. The female abdominal tergum is darker and the lighter sternum has a large brown macula on the subgenital plate.

Measurements (♀ in parentheses; N= 3 ♂, 4 ♀; averages in brackets)

Length, 7.0–8.0 [7.5] (8.0–8.5) [8.2]; pronotum length x width, 1.6–1.7 x 2.5–2.6 [1.6 x 2.6] (1.7–2.0 x

2.6–2.9) [1.8 x 2.8]; tegmen length, 8.0–8.3 [8.2] (8.0–8.7) [8.3]; interocular width, 0.5 [0.5] (0.6–0.7) [0.65].

Robshelfordia circumducta (Walker)

Robshelfordia circumducta Walker: Roth, 1991a: 557, figures 2–4 (♂ and ♀); Roach and Rentz, 1998: 139.

Material Examined

Australia: Australian Capital Territory: Black Mt., 35°16'S, 149°06'E, flight intercept window/trough trap, 600 m, 1 ♀, vii. 1987, 1 ♀, ix.1987, Weir, Lawrence, Dressler (ANIC). **New South Wales:** Yennora, 3 ♀, 21.viii.1965, M.I. Nikitin (PMYU).

Remarks

The species is found in Queensland, New South Wales, Australian Capital Territory, Victoria and South Australia.

The male is winged and the female has reduced tegmina and lacks hind wings. The species is found in dry sclerophyll forest, under bark.

Genus *Parasigmoidella* Hanitsch

Parasigmoidella Hanitsch, 1931: 46; Roth, 1991a: 700 (revision); 1997b: 150; Roach and Rentz, 1998: 137.

Papuablatta Bruijning, 1947: 221; Roth, 1991a: 700.

Type Species

Parasigmoidella marginalis Hanitsch, by monotypy.

Remarks

There are 35 described species of *Parasigmoidella*, 28 of which are found in New Guinea. Only one species, namely *P. debilis* (Hanitsch) is known from Australia (Marrakai, Northern Territory). The following new species is the second of the genus known to occur in Australia (Queensland).

Parasigmoidella atypicalis sp. nov.

Figures 5A–F

Material Examined

Holotype

♂, Davies Ck. (10.6 road km from Kennedy Hwy.), 17 km E. by S. of Mareeba, Queensland, Australia, 17°01'S, 145°35'E, 2.ii.1988, D.C.F. Rentz, Stop A–13 (ANIC).

Paratypes

Australia: Queensland: same data as holotype, 3 ♂ (2 with terminalia slides 655 and 669; first abdominal tergum slide 671) (ANIC).

Description

Male

Interocular space slightly less than the distance between antennal sockets (Figure 5A); fifth maxillary palpomere larger than the fourth. Pronotum subelliptical (Figure 5B). Tegmina and wings fully developed extending beyond end of abdomen, the latter with longitudinal discoidal sectors. Hind wing with radial and all costal veins simple, median vein curved, simple, cubitus vein curved, with one complete and 0 or 1 incomplete branches, apical triangle distinct (Figure 5D). Fore femur Type B2; pulvilli on 4 proximal tarsomeres, tarsal claws simple, symmetrical, arolia present. First abdominal tergum with a deep oval fossa containing 2 groups of dense agglutinated setae; in the pinned specimen the fossa appears to be nonsetose, but the setal nature of the dark spots is revealed when the first segment is cleared and mounted on a slide (Figure 5C). Supra-anal plate symmetrical, trapezoidal, paraprocts dissimilar, the left one with 2 spinelike processes, the right one with 3 processes (Figure 5F). Subgenital plate almost symmetrical, with one left cylindrical style, and two right dissimilar styles, one tapering, apically acute, the other almost contiguous, broad with 2 setae and a lateral projection, interstylar margin straight, greater than the length of the style (Figure 5E). Genitalia as in Figure 5E: hook on the left side, without a preapical incision, median phallomere curved distally, apex pick-axe-like, right phallomere consisting of about 4 sclerites, one a cleft, and 2 with one and 3 spines. Colouration: Head (including occiput, vertex, and cheeks black, anteclypeus and ocellar spots pale (Figure 5A); maxillary palpomeres mostly dark; antennae dark. Pronotal disk black, completely surrounded by a white, opaque border (Figure 5B). Tegmina reddish brown, darker basad, anterior margin pale (a contiuation of the pale pronotal border). Hind wing with anterior field and region behind the apical triangle weakly darkened (Figure 5D). Abdominal terga brown, lateral edges whitish. Abdominal sternal light brown medially with broad, dark brown lateral bands. Legs light brown, coxae with outer margins narrowly darkened; femora with dorsal and ventral margins dark. Cerci dorsally with proximal segments dark, remainder lighter, ventrally completely dark.

Female

Unknown.

Measurements (mm) (N= 2 ♂)

Length, 7.7–8.0; pronotum length x width, 1.8 x 2.7; tegmen length, 8.2–8.5; interocular width, 0.5.

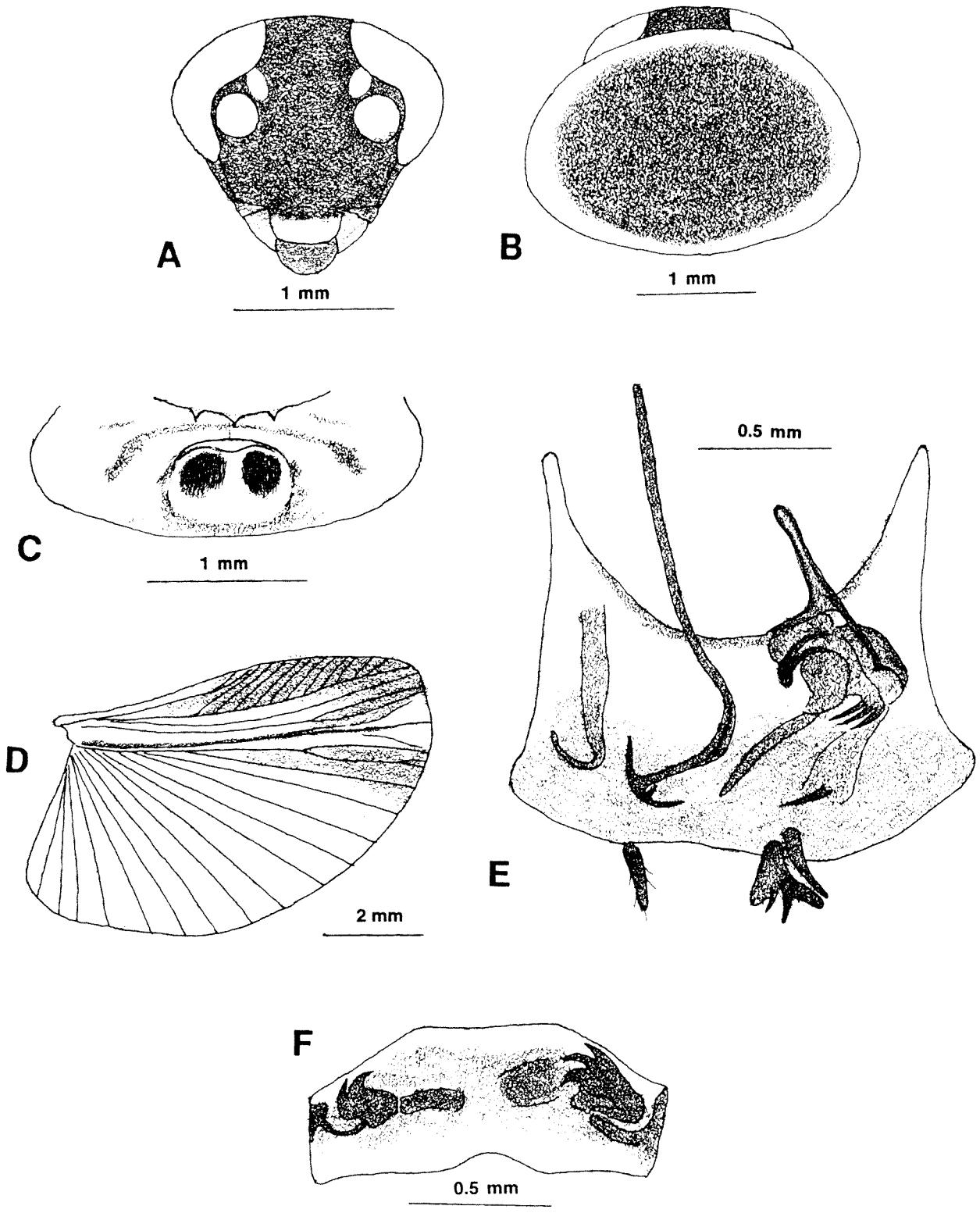

Figure 5 *Parasigmoidella atypicalis* sp. nov., male paratype: A, head; B, pronotum; C, first abdominal tergum; D, hind wing; E, subgenital plate and genitalia (dorsal); F, supra-anal plate and paraprocts (ventral).

Remarks

Hind wing venation and the sexual gland on the first abdominal tergum places this species in *Parasigmoidella*, and its symmetrical supra-anal plate assigns it to the spinifera species-group (Roth, 1997b: 151). However this taxon is atypical of the genus because its two right styles, paraprocts, and right genital phallomere resemble those found in some species of *Carbrunneria* Princis. Its habitus also resembles *Carbrunneria jocosa* (Shelford) and *Johnrehnia concisa* (Walker).

Etymology

The specific name refers to the fact that the species is atypical for the genus; see **Remarks.**

Parasigmoidella mayriverana sp. nov.

Figures 6A–C

Material Examined

Holotype

♂ (terminalia and first abdominal tergum slide 578), May River, NE. New Guinea [Papua New Guinea], 100 m, light trap, 8.vi.1963, R. Straatman (BPBM).

Description

Male

Interocular space slightly less than the distance between antennal sockets; maxillary palpomeres 4 and 5 about equal in length. Pronotum suboval. Tegmina and wings fully developed extending beyond end of abdomen, the former with longitudinal discoidal sectors. Hind wings with simple costal veins, radial vein straight, simple, median vein curved, simple, cubitus vein curved, with 1 complete and 1 incomplete branches, apical triangle distinct. Fore femur Type B2, with 3 large proximal spines and a long row of piliform spinules; pulvilli apparently absent, tarsal claws simple, symmetrical, arolia present. First abdominal tergum with a medial setose gland (Figure 6A). Supra-anal plate transverse, hind margin with a broad excavation; paraprocts dissimilar, elongated, the right one very slender (Figure 6B). Subgenital plate asymmetrical. Styles small, cylindrical, with a few small spines, widely separated, interstylar margin without a process and shallowly indented near the left style (Figure 6C). Genitalia as in Figure 6C: hook on the left side, without a preapical incision, hook portion elongated, slender; median phallomere simple, apex acute; right phallomere a long slender rod and at least 2 setose sclerites.

Female

Unknown.

Measurements (mm) (N= 1 ♂)

Length, ca 8.0; pronotum length x width, 2.1 x 2.9; tegmen length, 7.5; interocular width, 0.5.

Remarks

The species belongs in the *spinifera* species-group. The shapes of the supra-anal plate and paraprocts are similar to those of *Parasigmoidella stylisimila* Roth (cf. Figure 6B with Roth, 1997b, Figure 10C). However, their subgenital plates and genitalia differ (cf. Figure 6C with Roth, 1997b, Figure 10D).

Parasigmoidella milleri Roth

Figures 6D, E

Parasigmoidella milleri Roth, 1997b: 155, Figures 1A–G, 21E, 22.

Material Examined

Papua New Guinea: Chimbu Province, Haia, 6°41'S, 141°00'10"W, 1 ♂ (terminalia slide 478), 15.x.1987, Andrew Mack; (ANSP).

Remarks

This male differs slightly from the specimen illustrated in the original description. The left paraproct consists of three sclerites, one strongly curved and distally with several long setae (cf. Figure 6D with Figure 1C in Roth, 1997). The left style has only a small spine in each corner of the distal margin (Figure 6E) whereas the specimen illustrated in Figure 1E (Roth, 1997) has a row of serrations.

Measurements (mm)

Length, 10.8; pronotum length x width, 2.7 x 3.3; tegmen length, 11.5; interocular width, 0.7.

Subfamily Ectobiinae Chopard

Genus *Choristima* Tepper

Choristima Tepper: Roth, 1992a: 121 (revision); Roach and Rentz, 1998: 141.

Choristimodes Hebard, 1943:30; Roth, 1992a: 122.

Type Species

Blatta hydrophoroides Walker, by subsequent designation by Kirby 1904.

Remarks

This is an Australian genus containing 13 species, most of them occurring in the eastern part of the continent; one species is found in Tasmania.

Choristima hydrophoroides (Walker)

Choristima hydrophoroides (Walker): Roth, 1992a: 129, figures 4, 5 (redescriptions: ♂ and ♀); Roach and Rentz, 1998: 143.

Material Examined

Australia: New South Wales: Yennora, under bark of *Eucalyptus* sp., 1 ♀, 21.viii.1965, N. Nikitin (PMYU); Dundas, 1 ♀, 28.vi.1972, C.E. Chadwick; Lake Parramatta, 1 ♀, 20.viii.1972, M.I. Nikitin (DARA).

Remarks

The species also is known from Queensland, Australian Capital Territory, and Victoria. It is

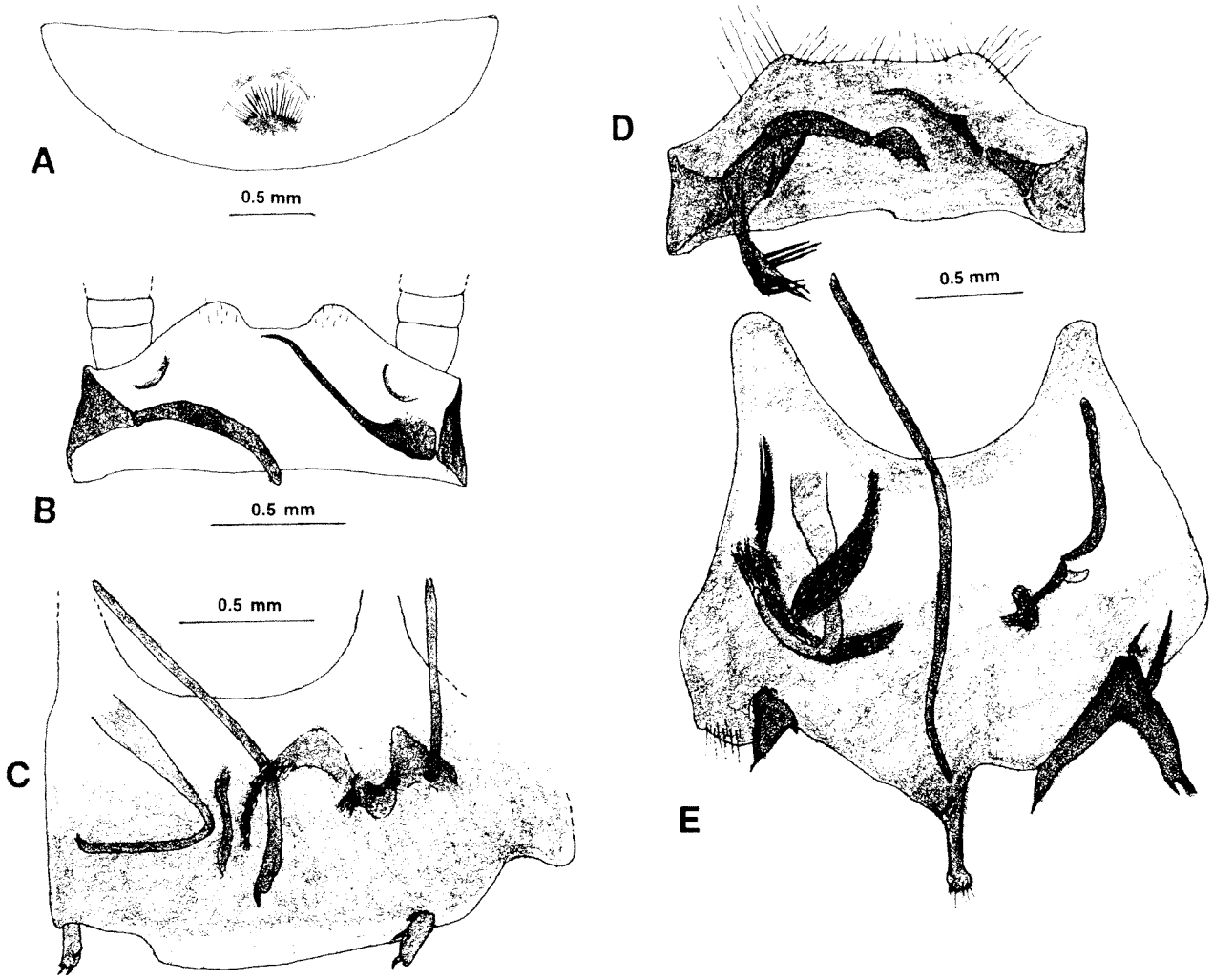

Figure 6 *Parasigmoidella* spp., males. A–C, *P. mayriverana* n.sp. holotype: A, first abdominal tergum; B, supra-anal plate and paraprocts (ventral); C, subgenital plate and genitalia (dorsal). D–E, *P. milleri* Roth from Haia, Chimbu Prov., Papua New Guinea: D, supra-anal plate and paraprocts (ventral); E, subgenital plate and genitalia (dorsal).

volant, found under bark litter, and taken in light traps (Roach and Rentz, 1998: 143).

Choristima galerucoides (Walker)

Choristima galerucoides (Walker): Roth, 1992a: 125, figures 2, 3, 4 (redescriptions: ♂ and ♀); Roach and Rentz, 1998: 142.

Material Examined

Australia: New South Wales: Mt. Victoria, 1 ♀, 1 nymph, 4.ix. 1966, C.E. Chadwick (DARA). **Tasmania** (type locality): Hobart, 1 ♂, 4.i.1951, E.F. Riek (ANIC).

Remarks

The species also is known from Victoria, South Australia, and Australian Capital Territory.

Choristima bimaculata Roth

Choristima bimaculata Roth, 1992a: 141, figures 12, 15 (♂ and ♀); Roach and Rentz, 1998: 142.

Material Examined

Australia: Queensland: Split Rock, 14 km S. of Laura [15°34'S, 144°28'E], N. Qld., 1 ♂, 23–26.vi.1975, G.B. Monteith; Hinchinbrook Island [18°23'S, 146°17'E], Gayundah Ck. [18°22'S, 146°12'E], 10 ♂, 1 ♂, 2–15.xi.1984, Monteith, Cook, and Thompson (QM); Davies Ck. (10.6 road km from Kennedy Hwy), 17 km E. by S. of Mareeba, 17°01'S, 145°35'E, 1 ♂, 2.ii.1988, D.C.F. Rentz, Stop A–13 (ANIC). **Western Australia:** 3.8 km NE. of Comet Vale Siding, 29°57'S, 121°07'E, at light at night, 1 ♂, 7–15.iii.1979, T.F. Houston *et al.* 256–8, Western Australia Museum, Biol. Survey Site, G.G. Camp (WAM).

Remarks

This species, previously known only from the northeastern coast of Queensland, is the first record for Western Australia.

Choristima brunnea (Hanitsch), comb. nov.

Chorisoneura brunnea Hanitsch, 1934: 112, 126, figure 5 (♂).

?Ectoneura brunnea (Hanitsch): Hebard, 1943: 7.

Ectoneura brunnea (Hanitsch): Princis, 1965: 350.

Choristima sonjae Roth, 1992a: 131, figures 6, 7 (♂); Roth, in Roach and Rentz, 1998: 142. **New synonymy.**

Material Examined

Holotype

♂, *Chorisoneura brunnea* Hanitsch, Burnside, Northern Territory, Australia, iv.1931, Handschin (with a handwritten label *Chorisoneura brunnea*, n. sp., ♂, R. Hanitsch, 6.vii.1933 (NHMB).

Additional material examined

Australia: Western Australia: Calm Site 13/4, 12 km S. of Kalumburu Mission, 14°25'S, 126°36'E, 1 ♂, at light open forest, 7–11.vi. 1988, T.A. Weir (ANIC).

Measurements (mm)

Pronotum length x width, 1.2 x 1.9; tegmen length, 4.4; interocular width, 0.3; ocular width, 0.5.

Remarks

When I described *Choristima sonjae*, I had not seen Hanitsch's *Chorisoneura brunnea*. The types of both species were taken in Burnside, Northern Territory. It has also been taken in northeastern Queensland. This is the first record from northeastern Western Australia.

Hanitsch originally described this species in *Chorisoneura*. A recent revision of the genus (Roth, 1998: 1) has shown that *Chorisoneura* Brunner is a New World genus (South and Central America, and the United States), whereas Asian "*Chorisoneura*" belong in *Sorineuchora* Caudell which has been considered to be a synonym of *Chorisoneura*. African species of "*Chorisoneura*" belong in *Chorisoneurodes* Princis.

Choristima astylata Roth

Choristima astylata Roth, 1992a: 136, figures 12, 13A–F, 14A–E (♂ and ♀); Roach and Rentz, 1998: 142.

Material Examined

Australia: Western Australia: 145 km SE by E of Broome, 18°55'S, 123°27'E, 2 ♂, 7.viii.1976, I.F.B. Common (ANIC).

Remarks

One male was unusual in having a small style, a structure generally absent in this species. The species is found in the northeastern part of Western Australia, as well as the northern and south central parts of the Northern Territory.

Choristima tenebrica Roth

Choristima tenebrica Roth, 1992a: 149, figures 10, 21A–D (♀); Roach and Rentz, 1998: 143.

Material Examined

Australia: Australian Capital Territory: Blundell's Ck., 3 km E. of Picadilly Circus, 850 m, flight intercept window trough trap, 1 ♀, ii.1984, 1 ♀, vi.1984, Weir, Lawrence, and Johnson; Blundell's, 1 ♀, 23.ii.1953, 1 nymph, 5.xii.1953, H.M. Cane (ANIC). **New South Wales:** Barrington Tops, 1 ♀, 6–10.iv.1949, H.M. Cane; Durras north, near Bateman's Bay, 1 ♀, 8.x.1979, H.M. Cane (ANIC). **Victoria:** Mt. Buffalo N.P., 900 m, pyrethrum spray, *Eucalyptus*, 1 (abdomen missing), 18–19.i.1980, A. Newton, M. Thayer (ANIC).

Remarks

This is a volant species whose male is unknown. The females are found under bark litter. The present specimen is the first record from Victoria.

Genus *Stenectoneura* Hebard

Stenectoneura Hebard, 1943: 26; Princis, 1965: 352; Roach and Rentz, 1998: 146.

Remarks

Hebard (1943: 27) placed four species in this Australian genus. Princis (1965: 352) listed two additional taxa under *Stenectoneura*, namely *Blatta marcida* Erichson and *Apolyta litura* Tepper, with a query. The former species is listed under *Stenectoneura* in Roach and Rentz's catalogue (1998: 146). The latter species is a *Balta* (Roth, 1991b: 967).

Stenectoneura figurata (Shelford)

Figures 7A–G

Ectoneura figurata Shelford, 1907a: 43 (♂).

Stenectoneura figurata (Shelford): Hebard, 1943: 28; Princis, 1965: 351 (literature); Roach and Rentz, 1998: 146.

Material Examined

Lectotype (here designated)

♂, no locality data (presumably Australia); Type Orth. 221/4 (HECO).

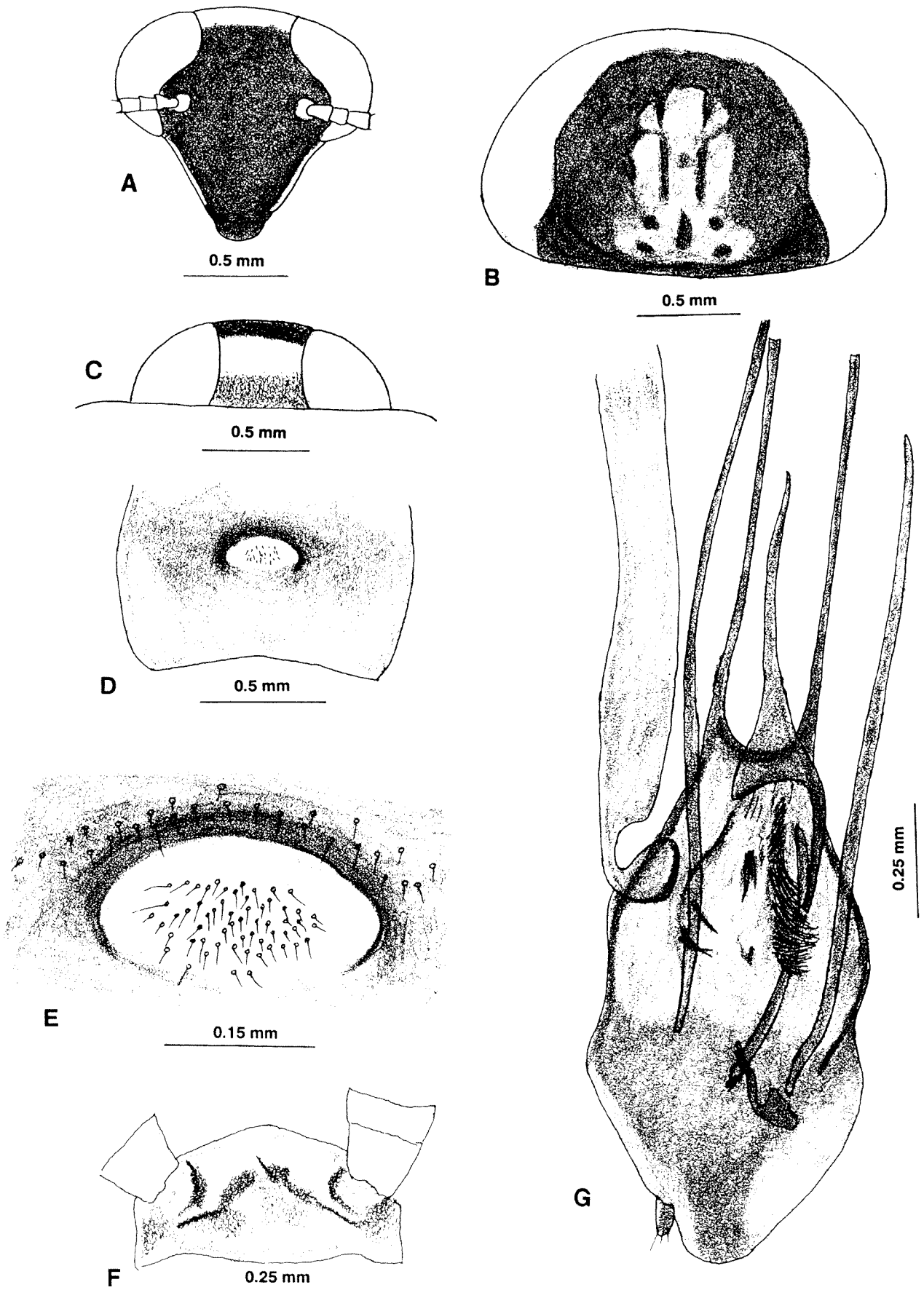

Figure 7 *Stenectoneura figurata* (Shelford), males, locality unknown, presumably Australia: A, head; B, pronotum; C, top of head; D, E, seventh abdominal tergum showing the glandular area; F, supra-anal plate and paraprocts (ventral); G, subgenital plate and genitalia (dorsal). Figure B, from lectotype, all others from a paralectotype.

Paralectotypes

?Australia: no data, 3 ♂, Type Orth. 222/4, 223/4 (terminalia slide 198), 224/4 (terminalia slide 196) (HECO).

Additional material examined

Australia: New South Wales: Wallacia, 1 ♂, iii.1927, Hale and Tindale (reported by Hebard, 1943: 29) (SAM). **Western Australia:** Stirling Range, Caravan Park, 1 ♂ (terminalia slide 110), 24.x.1977, Signe Holm (labelled *Stenectoneura punctatissima* Hebard) (UZMC).

Redescription

Male

Interocular space slightly less than distance between antennal sockets (Figure 7A). Pronotum deplanate, subelliptical, widest behind the middle (Figure 7B). Tegmina and wings fully developed, the former with oblique discoidal sectors. Hind wing with costal veins slightly thickened distad, apical triangle curled when at rest. Front femur with no large proximal spines or row of piliform spinules, with two large terminal spines (Type D2). Hind margin of sixth abdominal tergum arched over the specialization on the seventh segment which consists of a depression whose anterior border is sclerotized and containing a group of small setae (Figures 7D, 7E; details are visible clearly in slide preparations and under high magnification). Supraanal plate with hind margin shallowly trigonal; right and left paraprocts poorly defined irregular sclerites (Figure 7F). Subgenital plate elongate, apex broadly rounded, left style small, cylindrical, located to the left of the midline (Figure 4G). Genitalia as in Figure 7G: genital hook on the left side, greatly elongated, hook portion short, swollen; median phallomere slender, simple; two additional phallomeres and a setose membrane occur to the right of the median phallomere. Head with occiput brown, succeeded by a whitish band on the vertex, remainder dark brown (Figures 7A, 7C). Pronotal disk with the median portion pale and containing a pair of dark longitudinal stripes and behind them five small marks, this pictured area surrounded by dark brown, lateral and anterior border regions dark brown (Figure 7B). Tegmina hyaline, almost pearly white with fine scattered checkering of greyish brown. Hind wings hyaline, veins brownish. Abdominal terga brown, lateral borders and terminal segments pale or whitish. Abdominal sterna brown, broad lateral borders and parts of the posterior segments whitish. Cerci with segments on the basal half and two terminal cercomeres dark brown, remainder whitish. Legs brownish yellow, margins of the femora darkened.

Female

Unknown.

Measurements (mm)

Length, 5.8–7.8; pronotum length width, 1.3–1.4 x 1.8–1.9; tegmen length, 6.5–7.6.

Remarks

This species was previously recorded only from Wallacia, New South Wales but probably is more widely distributed if my identification of the specimen from Western Australia is correct; the pronotal disk macula has less dark brown, but the five posterior spots on the pale background are present. Shelford (1909: 141) synonymized *S. figurata* with *S. margarita* Tepper and recorded a male from Boorabbin, southwestern Australia. However, Hebard (1943: 29) believed both species to be closely related, but distinct.

Genus *Theganopteryx* Brunner

Theganopteryx Brunner, 1865: 53: Princis, 1971: 1118 (literature); Kumar and Princis, 1978: 19 (revision).

Type Species

Ectobia/Theganopteryx lucida Brunner, 1865, by monotypy.

Diagnosis (from Kumar and Princis, 1978: 19)

Tegmina usually fully developed generally extending beyond end of abdomen, rarely reduced. Hind wing between Cu1+3A with an apical field which is involuted when at rest; Cu1, 1A and 2A reach the wing margin, rarely does Cu2 merge into Cu1. Front femur Type B2, tarsal claws symmetrical, unspecialized, arolia present. Male abdominal terga usually specialized, rarely unspecialized; the glands often are on the seventh tergum but they may occur on others such as second, third, fifth, or eighth, and rarely on the second and seventh segments.

Remarks

Based on my examination of the type species and descriptions of other species in Kumar and Princis, I add the following characters: Male supra-anal plate symmetrical or asymmetrical. Subgenital plate rarely symmetrical, usually asymmetrical but distally not tapering to a rounded apex (as in the Ectobiinae). One (rarely) or two styles are present, if the latter they are generally dissimilar. Male genital hook on the left side, greatly elongated, with a preapical incision, median phallomere a slender rod, right phallomere consisting of two sclerites, one a slender rod the other a reduced cleft.

According to Kumar and Princis this is an African genus and the records of a number of species from other countries are questionable.

Princis (1971: 1119) placed *Theganopteryx* in

Ectobiidae: Theganopteryginae. The greatly elongated male genital hook and the relatively simple median phallomere of this genus are somewhat similar to those found in Blattellidae, Ectobiinae: Ectobiini. However, there are fewer sclerites composing the right phallomere, the shape of the subgenital plate does not taper to a rounded apex, and the positions of their tergal glands are more variable. For this reason I place *Theganopteryx* in the Blattellidae, Ectobiinae: Theganopterygini. Based on the variation in the male tergal glands, it is quite possible that more then one genus may be represented among the species now placed in *Theganopteryx*. A study of the internal male genitalia now placed in this taxon, might help to clarify this suggestion.

There is a question as to the correct determination of *lucida*, the type species of the genus. Shelford (1913: 645) studied Brunner's type which he borrowed from the Stettin Museum. The specimen lacked the abdomen so its sex was unknown but Shelford claimed that he recognized a series of specimens as being conspecific with it, and his description of the male was based on this material. Kumar and Princis (1978: 25) accepted Shelford's description of what he believed to be *lucida* because the type specimen "...is now in all probability lost,.." Even if Brunner's specimen (lacking an abdomen) were available it would not be of much help in identifying the species because other members of the genus have pronota with a pair of longitudinal bands. Shelford described the male's supra-anal plate as "...triangular, subtruncate at apex; subgenital plate lamina asymmetrical, notched to the left of the middle line, left style long and slender, right style absent." This does not agree with the supra-anal plate and the styli of the above specimens of *lucida* (which has two styles).

Theganopteryx lucida Brunner

Figures 8A–G

Ectobia/Theganopteryx lucida Brunner, 1865: 62 (sex unknown, abdomen missing). (Brunner described the species in *Ectobius* but listed it in his index under *Theganopteryx*. He gave the locality as "?Nouvelle Holland" [= ?Australia]; the genus has never been recorded from Australia, and apparently is restricted to Africa.

Theganopteryx lucida Brunner: Princis, 1971: 1119 (literature); Kumar and Princis, 1978: 25.

Material Examined

Tanzania: Tanganyika Terr., Rukwa Dist., Tumba, on light, 1 ♂ (terminalia slide 422), 22.xi.1950, H.O. Backlund; Tanganyika Terr., Ukerave Isl., 1 ♂, 1 ♀, Father Cornad (ZILS). **South Africa:** Transvaal, Louis Trichardt, 2 ♂, 20–30.xii.1956, A.L. Capener (ZILS). **Cameroon:** Afr. Fr., Kamerun, Yound,, 1 ♂, 2.vi.1952, J. Rageau (ZILS). All of these specimens were reported by Kumar and Princis (1978: 27) as *lucida*. One specimen retained in (MCZ).

Redescription

Male

Head almost hidden, interocular width slightly less than the distance between ocelliform spots. Pronotum suboval (Figure 8A). Tegmina and wings fully developed extending beyond end of abdomen, former with simple radial vein and longitudinal discoidal sectors. Hind wing with simple costal veins almost all of them thickened, radial vein simple, convex, media vein simple, concave, space between the two veins broad in middle, tapering at each end, their cross veins decidedly longer in the middle than at both ends; cubitus vein concave with a single branch reaching the anterior margin of the apical triangle where it curves obliquely to meet the cubitus forming an elongated cell, apical triangle distinct, involuted when at rest; in the female (Figure 8G) the cubitus does not quite reach the apical margin and its branch does not join the cubitus. Front femur Type B2, with two or three large proximal spines; pulvilli on four proximal tarsomeres of all legs, arolia present. First abdominal tergum unspecialized, Seventh abdominal tergum with a huge deep depression containing a dense group of raised setae mesad (Figure 8D). Supra-anal plate symmetrical, hind margin weakly undulate, paraprocts dissimilar, right one larger (Figure 8C). Subgenital plate weakly asymmetrical with pair of widely separated dissimilar styli, right one cylindrical, left one spine-like, interstylar margin truncate (Figure 8E); The left style is hidden within the margin of the plate and is not visible in ventral view (Figure 8F) but is clearly seen in end view (Figure 8B). Genitalia as in Figure 8E: hook greatly elongated, on left side, with preapical incision; median phallomere rodlike apically weakly modified with three slender spinelike processes; right phallomere consisting of two sclerites one a slender rod, other a reduced cleft. Head uniformly yellowish brown, or reddish brown with clypeus and labrum paler, or mixture, region above antennal sockets lighter than the lower part; maxillary palpi pale, segment five darker; antennae brownish. Pronotum with light or dark reddish brown oblique stripes separated by yellowish zone, lateral region subhyaline pale (Figure 8A). Tegmina yellowish-hyaline, lateral margins pale, or reddish brown-hyaline with anterior and posterior regions lighter. Abdominal terga light yellowish brown. Abdominal sterna reddish brown with pale yellowish brown edging. Cerci brown. Coxae infuscated, remaining leg parts straw coloured.

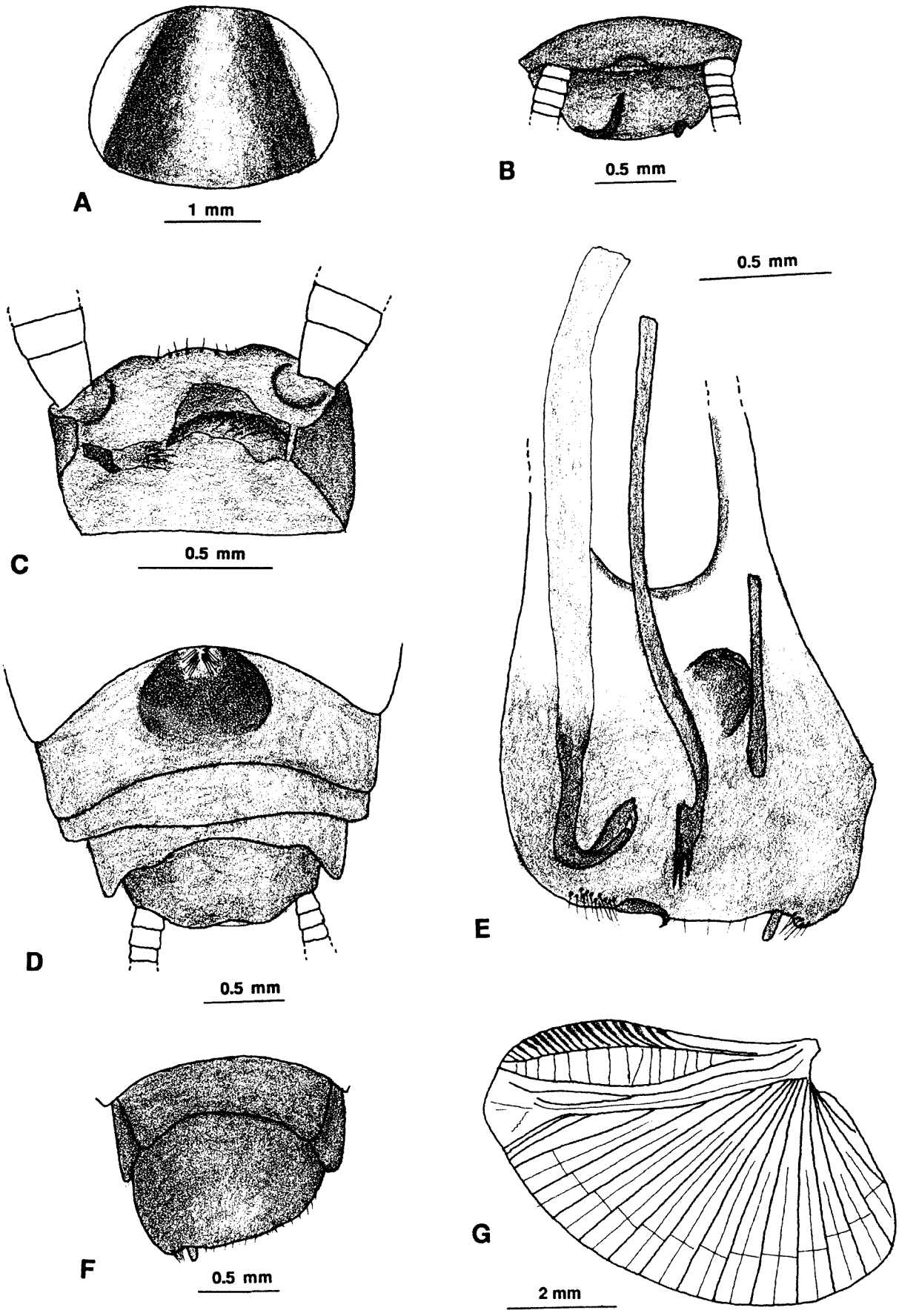

Figure 8 *Theganopteryx lucida* (Walker). A–F, males: A, pronotum; B, supra-anal and subgenital plates, and styles (end view); C, supra-anal plate and paraprocts (ventral); D, abdominal terga seven to ten (note gland on the seventh segment); E, subgenital plate and genitalia (dorsal); F, subgenital plate (ventral); G, female, left hind wing. Figures A, B, D, F, from Transvaal, C, E, from Tanganyika, G, from Cameroon.

Female

Tegmina and wings reaching only to end of abdomen. Hind wing with cubitus not quite reaching edge of wing, and the branch not quite reaching the cubitus (Figure 8G). Hind margin of supra-anal plate convexly rounded reaching to hind margin of subgenital plate. Head light reddish brown, clypeus and occiput paler yellowish. Pronotal bands very dark. Tegmina reddish brown hyaline shading into lighter anterior and posterior regions. Abdominal terga brown, darker laterally, edges narrowly yellow. Abdominal sterna dark reddish brown, lateral margins yellow. Legs with coxae mostly reddish brown, remaining parts brownish yellow. Cerci brown.

Measurements (mm) (♀ in parentheses)

Length, 7.8–8.5 (7.5); pronotum length x width, 1.8–2.1 x 2.5–3.0 (2.0 x 2.8); tegmen length, 8.2–9.3 (6.5); interocular width, 0.4 (0.5).

Remarks

The tergal modification of *Theganopteryx heterogamia* Princis (Princis, 1963a: figure 62) is superficially similar to that found in *lucida*, but according to Kumar and Princis (1978: 27) the gland areas are microscopically different.

Family Blaberidae Brunner

Subfamily Epilamprinae Saussure and Zehntner

Genus *Laxta* Walker

Laxta Walker: Roth, 1992b: 389 (revision); Roach and Rentz, 1998: 93.

Remarks

There are 13 described, and several unnamed species of *Laxta* in Australia. Two undetermined species occur in New Guinea. Some of the species are difficult to identify because their male genitalia are very similar; females of some species are particularly difficult to determine because sexual dimorphism is very strong (males winged, females apterous) making associating the sexes difficult.

Princis (1960: 438; 1963b: 146) placed *Laxta* and *Calolampra* in the Laxtinae. I follow McKittrick (1964: 17) who placed them in the Epilamprinae. Grandcolas (1997: 123) included *Laxta* in the Perisphaeriinae.

Laxta granicollis (Saussure)

Laxta granicollis (Saussure): Roth, 1992b: 392, figures 1–3, 4A, B, 5, 6) (redescriptions: ♂ and ♀); Roach and Rentz, 1998: 94.

Material Examined

Australia: Victoria: Chiltern, under bark of *Eucalyptus*, 6 ♂, 1 ♀ nymph, 15–30.v.1966, 1 ♀ nymph, 3.vi.1966, W.H. Gravestein (ZMA). **New South Wales:** The following were collected by C. and A. Jeekel: 4 km E. of Marulan, 35 km WSW. of Moss Vale, 1 ♂, 1 ♀, 6.xi.1980, St. 66; Kosciusko Nat. Park, Larry's Creek between Kiandra and Cabramurra, 35 km WNW of Adaminaby, St. 75, 1 ♀, 10. xi.1980; 5 km SW of Bungendore, 20 km ENE of Queanbeyan, 1 ♀, 7. xi.1980, St. 67 (ZMA); no exact locality: 4 ♂, 1 ♀, Crampton (MCZ).

Laxta guttata Roth

Laxta guttata Roth, 1992b: 419, figures 11, 18 (♂ and ♀); Roach and Rentz, 1998: 95.

Material Examined

Australia: Queensland: Eungella Natn. Park, 5 km N. of Netherdale, St. 30, 1 ♀, 18.x.1980, C. and A. Jeekel (ZMA).

Laxta granulosa Roth

Laxta granulosa Roth, 1992b: 404, figures 9A–C, 10, 11, 24F, G (♂ and ♀); Roach and Rentz, 1998: 95.

Material Examined

Australia: New South Wales: The following were collected by C. and A. Jeekel: near Lake Glenbawn, 12 km ESE of Scone, St. 62, 2 ♂, 1 ♀, 1.xi.1980; Arding, 9 km NNE of Uralla, St. 58, 3 ♀, 31. x.1980; 20 km NNE. of Guyra, St. 57, 2 ♀, 1 ♀ nymph, 30.x.1980 (ZMA).

Laxta tillyardi Roth

Laxta tillyardi Roth, 1992b: 411, figures 13C, D, 14A, B, 15 (♂ and ♀); Roach and Rentz, 1998: 96.

Material Examined

Irian Jaya: Ifar [an agricultural station that lasted for ten years in Dutch New Guinea, 2°33'S, 140°34'E], 1 ♂, xii.1957, G. den Hoed (ZMA).

Remarks

This is an Australian species found along the east coast of Queensland, as far north as the tip of the Cape York Peninsula, and on Moa (Banks) Island in the Torres Straits (Roth, 1992b: 411, figure 15). The new record is the first for New Guinea.

Laxta feroculotacta Roth

Laxta feroculotacta Roth, 1992b: 409, figures 13A, B, 14C, D, 15 (♂ and ♀); Roach and Rentz, 1998: 94.

Material Examined

Australia: Queensland: The following were collected by C. and A. Jeekel: 16 km N. of

Ravenshoe, 1 ♀, St. 14, 1 ♀, 8.xi.1980; Lake Barrine Nat. Park, 23 km SW. of Gordonvale, St. 17, 1 ♀, 9.x. 1980; 5 km N. of Kuranda, St. 18, 1 ♀, 10.x.1980 (ZMA).

Genus *Molytria* Stål

Molytria Stål: Princis, 1967: 646 (literature); Roach and Rentz, 1998: 97.

Type Species

Epilampra inquinata Stål, by monotypy.

Remarks

There are three species of *Molytria*, including a new one described below, found only in Australia. They can be distinguished in the following key:

1. Males. Tegmina and wings fully developed 2
   Females. Tegmina reduced. Hind wings vestigial (Figures 9A,D) 4
2. Tegmina and wings extending well beyond end of abdomen 3
   Tegmina not reaching the end of the abdomen. Pronotal disk pictured ..... *M. perplexa*
3. Large: Pronotum length x width, 7.1–9.1; tegmen length, 31.5. Pronotal disk with a broad dark solid macula ..... *M. inquinata*
   Smaller: Pronotum length x width, 5.4–5.7 x 7.4–7.8; tegmen length, 19.6–22.0. Pronotal disk pictured (Figure 10B) ..... *M. vegranda*
4. Pronotal disk with a solid dark macula reaching the anterior and posterior margins (Figure 9A). Tegmina with distal margin broadly rounded reaching about the third segment (Figure 9A) ..... *M. inquinata*
   Pronotal disk pictured with a symmetrical blackish macula Figures (9D, 10B). Tegmina reaching the first abdominal tergum, distal margin subtruncate, corners rounded (Figure 9D) 5
5. Large: Tegmen length, 6.8–8.7; interocular width, 2.3–2.6 ..... *M. perplexa*
   Smaller: Tegmen length, 5.2–6.4; interocular width, 1.9–2.1 ..... *M. vegranda*

Molytria inquinata (Stål)

Figures 9A–C

Epilampra inquinata Stål: Shelford, 1910: 7, pl. 1, figure 8 (♂ habitus); Princis, 1967: 647 (literature and synonymy); Roach and Rentz, 1998: 97.

Material Examined

Australia: New South Wales: Sydney, holotype ♀ (Typus 21:38.13), Mus. Godeffroy (NRSS); Wentworth Falls, 2800', 6 ♀, 23.xii.1931, W.M. Wheeler, Harv. Aust. Exp.; Megalong Vy., Blue Mts., 1000', 1 ♀, 20.i.1932, Darlington, Harv. Aust. Exp.; Pymble, dry forest, 1 ♀, 23.x.1950, W.L. Brown; no exact locality, 1 ♂ (supraanal and subgenital plates slide 273a; genitalia slide 273b), 1 ♀, Crampton (MCZ). The following were collected by R. Dobson: Blackheath, 3200 ft., 1 ♀, 20.ii.1949; Wentworth Falls, Blue Mts., 1 ♀, 9.xi.1949 (ANIC).

Redescriptions

Male

Head hardly exposed, interocular space greater than the distance between ocellar spots, about the same as width between antennal sockets. Pronotum subparabolic, sides deflexed. Tegmina and wings fully developed extending well beyond end of abdomen. Anteroventral margin of front femur with six or seven small stout spines succeeded by a short row of piliform spinules, terminating in a single large spine; pulvilli on four proximal tarsomeres of all legs; hind metatarsus about as long as the succeeding segments, its pulvillus elongated towards the base beyond the middle of the segment where there are only a few small spines in a short double row; tarsal claws simple, symmetrical, arolia small. Abdominal terga unspecialized; posterolateral corners of the segments rounded. Supraanal plate with hind margin convexly rounded, entire, paraprocts large, dissimilar "hairy" plates; cerci extend beyond hind margin of the subgenital plate (Figure 6B). Exposed portion of the subgenital plate transverse, styles similar, widely separated, interstylar margin shallowly convex (Figure 9C). Genitalia as in Figure 9C: hook on the right side, sclerotized portion short, apex blunt, without a preapical incision; median phallomere wide at base, tapering distad, apex with a small, densely setose lobe; left phallomere a large cleft sclerite. Head with yellowish occiput and small dark dots, vertex with a large medially interrupted brown macula, rest of face lighter, clypeus and labrum yellowish; proximal antennomeres becoming yellowish distad. Pronotal disk with a large dark essentially uniform reddish brown macula, its lateral margins uneven, broad lateral and narrow anterior regions yellowish with some large and more numerous small dark dots (as in Figure 6A). Tegmina yellowish with large areas mottled reddish brown, humeral vein darker. Hind wings with yellowish tinge. Abdominal terga divided transversely into anterior light brown and posterior darker brown bands. Abdominal sterna dark reddish brown with medial and lateral

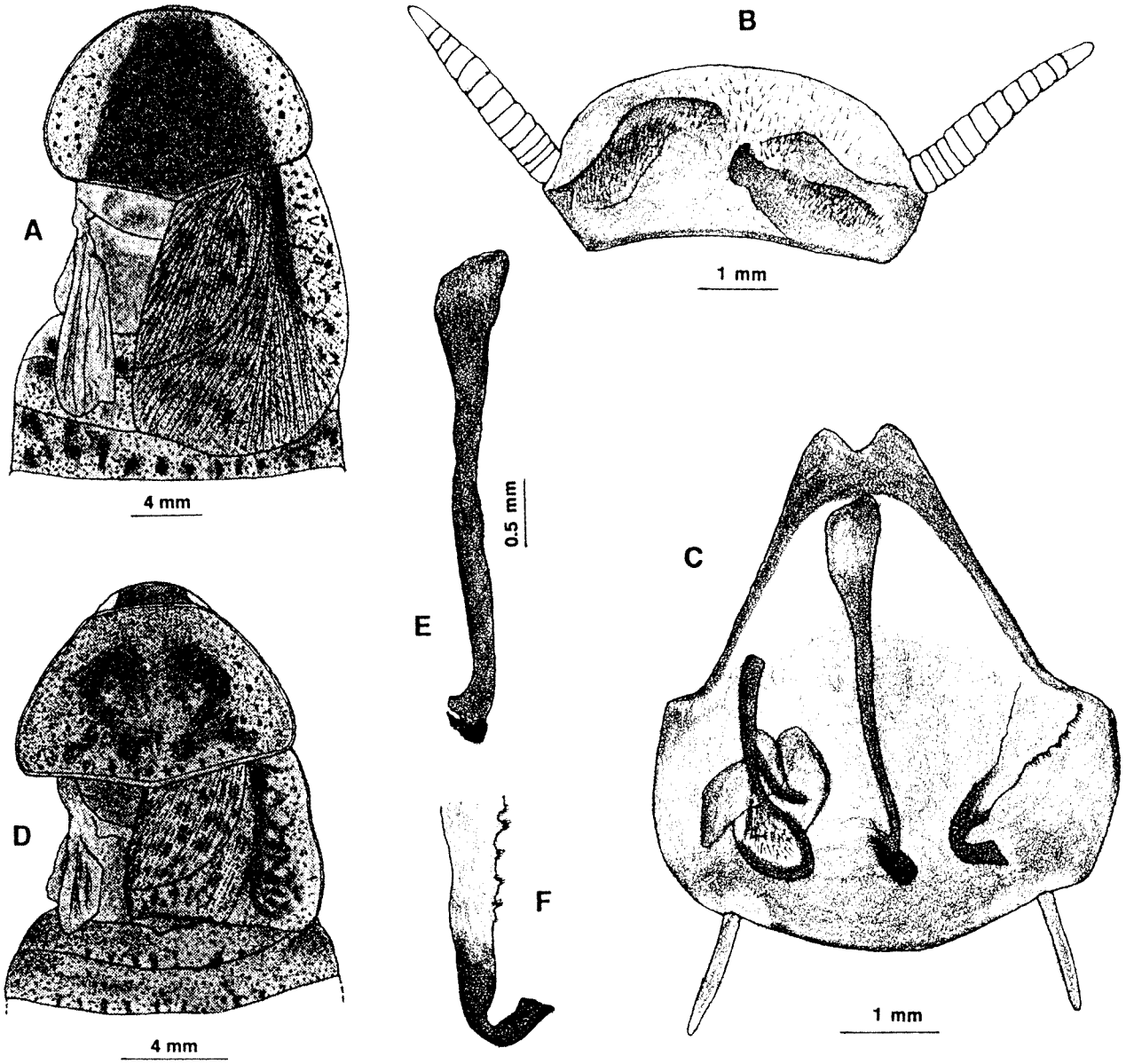

Figure 9 *Molytria* spp.: A–C, *M. inquinata* (Stål) from New South Wales: A, female, thorax, tegmen and proximal three abdominal terga; the left tegmen was removed to show the vestigial wing; B, male supra-anal plate and paraprocts (ventral); C, male subgenital plate and genitalia (dorsal). D–F, *M. perplexa* Shelford: D, female from New South Wales, thorax, tegmen and proximal three abdominal terga; the left tegmen was removed to show the vestigial wing; E, F, male holotype, median genital phallomere (L2vm) and hook (R2) respectively (the left phallomere was lost in slide preparation).

regions of proximal segments yellowish and speckled with dark dots. Legs brownish yellow.

Female

Tegmina reduced in length reaching to about the third abdominal tergum, apical outer corner broadly rounded, width normal the hind margins contiguous (Figure 9A). Hind wings shorter and narrower, reaching to about the second abdominal tergum, veins present (Figure 9A). Pulvillus of hind metatarsus extending beyond the middle of the segment where there is a very short double row of spines. Posterolateral corners of the abdominal terga obtuse or in the form of a small spine. Supraanal plate with an incomplete longitudinal groove, hind margin convexly rounded, entire, or shallowly indented. Cerci are small and do not reach the hind margin of the subgenital plate. Head usually with more extensive dark regions. Abdominal terga with large mottled areas of dark dots, longitudinal stripes and blotches on a yellowish brackground. Subgenital plate and preceding segment dark brown or dark reddish brown, remaining segments with large medial and lateral areas yellowish, the lateral regions with numerous small dark dots.

Measurements (mm) (♀ in parentheses)

Length, 26.0 (26.0–33.0); pronotum length x width, 7.1 x 9.1 (7.2–8.1 x 10.4–12.0); tegmen length, 31.5 (9.0–13.0); interocular width, 1.6 (2.2–2.3).

Remarks

This species has been recorded from South Australia, Victoria, and Tasmania.

Molytria perplexa Shelford

Figures 9D–F

Molytria perplexa Shelford, 1910: 7, footnote 1 (♂); Princis, 1967: 647; Roach and Rentz, 1998: 97.

Material Examined

Holotype

♂ (terminalia on slide), Gippsland, Victoria, Australia (with the following handwritten labels: "28. *Epilampra inquinata* Stål, Gippsland 3/95", "det. by Tepper 3/95", "Det. by Shelford, sent ...1907", Type T-4443) (NMV).

Additional material examined

Australia: New South Wales: Porters Retreat (34°00'S, 149°49'E), 1 ♀, 26.xi.1956, E.F. Riek; Burradoo (34°30'S, 150°24'E), 1 ♀, 22.x. 1949, 1 ♀, 2000 ft., 29.viii.1950, 1 ♀, 19.ix.1950, R. Dobson (ANIC). Two females retained in MCZ.

Redescription

Male

Head exposed. Pronotum subparabolic. Tegmina with rounded apex, slightly reduced, reaching to seventh abdominal segment, wings with truncate apex reaching the middle of tergum six. Anteroventral margin of front femur with five large proximal spines succeeded by about eight, well spaced piliform spinules terminating in a single large spine; mid and hind tarsi missing. Abdominal terga unspecialized, hind margins with small, well spaced ridges. Supraanal plate with hind margin convexly rounded, reaching the upturned hind margin of the subgenital plate. Median genital phallomere very darkly sclerotized and with a small setose structure apically (Figure 9E); right genital hook with a small sclerotized hook portion, apically truncate (Figure 9F). Head reddish brown, with a large black macula extending from the vertex to the level of the antennal sockets. Pronotum black, lateral zones with small and large black dots on a yellowish background (similar to the female, Figure 6D but usually more intense or distinct). Tegmina reddish brown, costal areas brownish yellow, mediastinal vein black.

Measurements (mm) (Shelford's measurements in parentheses)

Length, 26.0 (27.0); pronotum length x width, 7.1 x 9.4 (7.0 x 9.8); tegmen length, 19.0 (19.0); interocular width, 1.6.

Female (previously undescribed)

Head slightly exposed, interocular space greater than the distance between ocellar spots, about the same as the space between antennal sockets. Pronotum subparabolic hind margin weakly produced medially (Figure 9D). Tegmina width normal, length reduced, hind margin unevenly truncate, corners narrowly rounded, reaching the first abdominal tergum (Figure 9D). Hind wing vestigial, reaching the first segment, its posterior field subobsolete (Figure 9D). Anteroventral margin of front femur with three to five stout spines, succeeded by a row of minute piliform spinules, terminating in one (sometimes two) terminal spines; posteroventral margin of the front femur and both ventral margins of the mid and hind femora usually with less than four spaced spines; pulvilli on four proximal tarsomeres of all legs; fore and mid metatarsi short, without ventral spines, hind metatarsus longer, its pulvillus extending to before the middle of the segment where there is a relatively long double row of small spines that do not quite reach the base of the tarsomere; tarsal claws symmetrical, simple, arolia small. Posterolateral corners of all abdominal terga not produced, supraanal plate with hind margin convexly rounded, shallowly indented mesad. Cerci short, not reaching hind margin of supraanal plate. Head with vertex dark brown becoming reddish brown below the ocellar spots until the proximal half of the clypeus, the distal half and labrum yellowish. Pronotal disk mottled dark reddish brown (the intensity and amount of mottling may vary), lateral and anterior border regions yellowish brown with large and small dark brown dots. Tegmina reddish brown with brownish yellow mottling, radial vein dark reddish brown. Abdominal terga dark brown mottled with brownish yellow. Abdominal sterna with broad medial area reddish brown, lateral zones very dark brown to black, subgenital plate blackish except for a small reddish brown area anteromedially. Cerci yellowish, apex black. Legs reddish brown.

Measurements (mm)

Length, 25.7–28.0; pronotum length x width, 6.9–7.4 x 10.4–11.0; tegmen length, 6.8–8.7; interocular width, 2.3–2.6.

Remarks

Apparently this is the first record of the species from New South Wales, previously being known only from the type male from Victoria.

Molytria vegranda **sp. nov.**
Figures 10A–D

Material Examined

Holotype

♂, Bawley Point, New South Wales, Australia, 35°30'S, 150°24'E, 10.xi.1995, D.C.F. Rentz, K. Mccarron (ANIC).

Paratypes

Australia: New South Wales: Clyde Mt. (35°33'S, 149°57'E), 1 ♀, 20.x.1953, B.J. Gremmell; 4 miles N. Bateman's Bay, 1 ♀, 30.iv.1953, Riek and Paramanov, 1 ♀, 18.ix.1953, E.F. Riek; East Lynne, 1 ♀, 13.viii. 1955, M. and A. Pamerbridge; Cabbage Tree Ck., Clyde Mt., 1 ♀, 1 ♀, near top of Clyde Mt., 3.viii.1954, H.M. Cameron. The following were collected by D.C.F. Rentz: 1 ♀, 23.v.1998, 1 ♀, 4.x.1997; Durras North, near Bateman's Bay, 35°39'S, 150°18'E, 2 ♀, 30.i.–1.ii. 1987, Stop 4, 1 ♀, 20–22.i.1984; Bawley Point, 1 ♀, 4.x.1997, 1 ♀, 23.v.1998. The following were collected by H.M. Cane: Jervis Bay (35°08'S, 150°42'E), C.T. 1 ♂, 18.ix.1951 (labelled *Molytria pallida* sp. n., holotype, viii.1952, H.H. Cane); 2 miles NE. Tomerong (35°04'S, 150°35'E), nr. Jervis Bay, 2 ♀, 20.ix.1951. The following were collected by D.C.F. Rentz and K. Mccarron: same data as holotype 9 ♂ (1 with terminalia slide 677), 1 ♀; same locality and collectors: 1 ♀, 26.viii.1994, 2 ♀, 3.xii.1994, 1 ♀, 21.i.1995, 1 ♀, 29.iv.1995, 1 ♀, 12.viii.1995, 2 ♀, 10.xi.1995, 1 ♂, 2.i.1996, 2 ♀, 5.i.1996, 1 ♂ (terminalia slide 678), 30.xii.1996, 1 ♀, 6.xii.1998, 1 ♂, 12.xi.1995. Four specimens retained in the (MCZ).

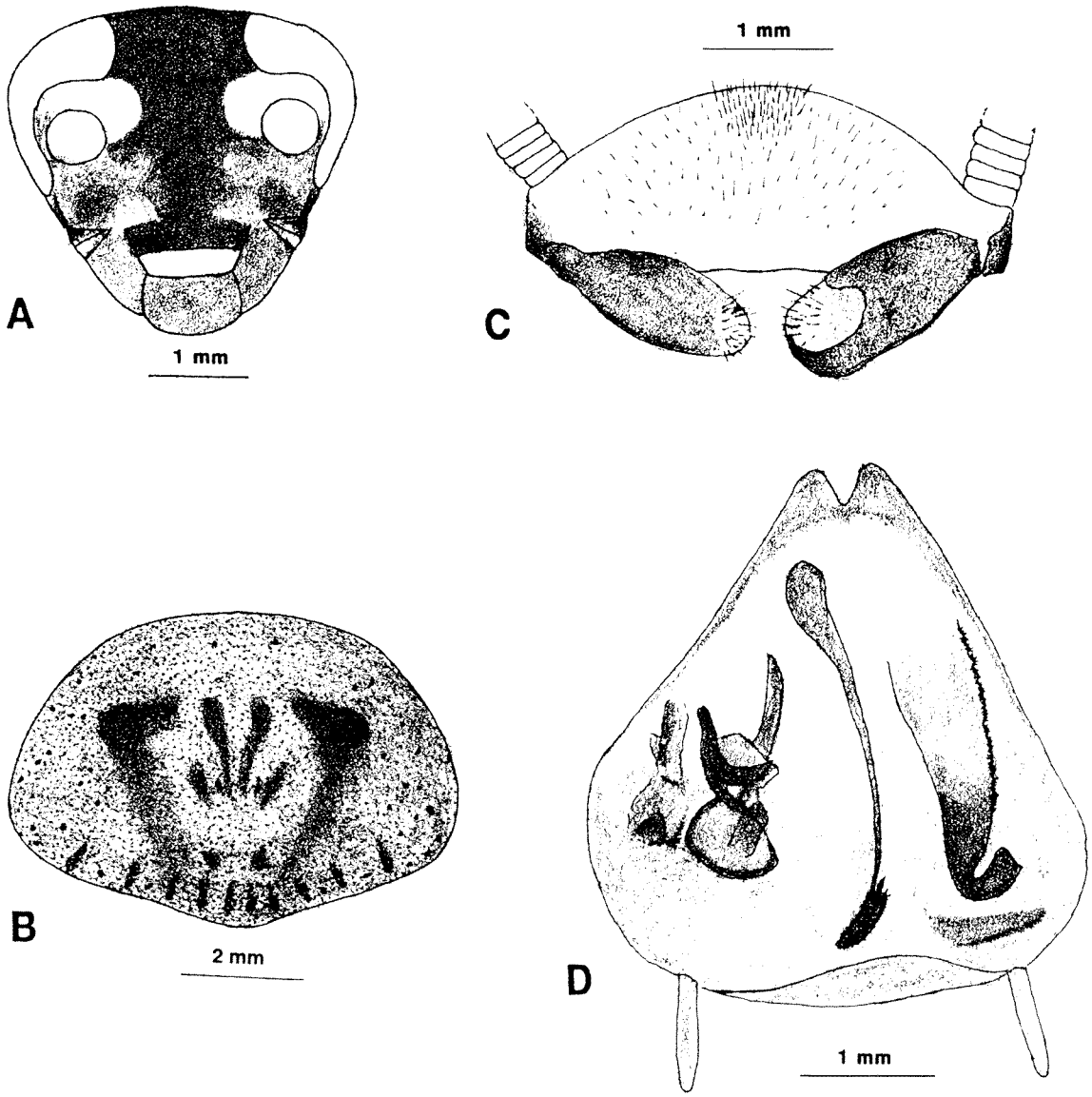

Figure 10 *Molytria vegranda* sp. nov., male paratypes from New South Wales. A, B, D, from Bawley Point, C from Jervis Bay: A, head; B, pronotum (pale form); C, supra-anal plate and paraprocts (ventral); D, subgenital plate and genitalia (dorsal).

Male

Head with interocular space greater than the distance between ocellar spots and less than the width between antennal sockets (Figure 10A); fifth maxillary palpomere longer than the fourth. Pronotum subelliptical, widest behind the middle, hind margin weakly produced medially (Figure 10B). Tegmina and wings fully developed extending beyond the end of the abdomen. Hind wing cubitus vein with 2 complete and about 6 incomplete branches, apical triangle absent. Anteroventral margin of forefemur with 4 large proximal spines succeeded by a row of about 6 small, well spaced piliform setae, terminating in a single large spine (rarely with an additional small terminal spine); pulvilli on 4 proximal tarsomeres, the one on the basitarsus of the hind leg extending about two thirds the length of the segment where about 6 to 14 setae are arranged in a double row (the number of setae may differ in each row); tarsal claws symmetrical, simple, arolia present. Abdominal terga smooth, unspecialized. Supra-anal plate transverse, hind margin convexly rounded, entire with a group of small setae medially; paraprocts dissimilar, the right one hooklike apically (Figure 10C). Subgenital plate with a pair of widely separated, similar, slender, cylindrical styles (Figure 10D). Genitalia as in Figure 10D: hook on the right side, distal part darkly sclerotized, apical margin truncate without a preapical incision; median phallomere with a distinct setose L2d apically; left phallomere a large cleft. Colour: Head with pale occiput, the vertex black or dark brown, extending on the frons to the dark anteclypeus, the postclypeus, labrum (Figure 10A), and labial palps pale, maxillary palps dark; antennal flagellum pale, pedicel darker. Pronotum with small and large dark dots, the disk with a symmetrical black macula, a row of small dark stripes along the hind margin. The intensity and extent of the dark pattern varies; Figure 10B shows the pronotal pattern of a pale morph. Tegmina mottled with dark spots, the humeral vein black. Abdominal terga brown, laterally pale. Abdominal sterna pale with small and large dark dots, laterally with a large dark macula. Cerci pale, apical segment dark.

Female

Head with interocular space greater than the distance between ocellar spots, about the same as the width between antennal sockets. Pronotum parabolic. Tegmina reduced in length reaching to about the third segment, width normal, the left one overlapping the right, hind margin subtruncate; the shape of the tegmen is closer to that of *M. perplexa*, but its length is more like *M. inquinata*. Hind wing vestigial, lateral, reaching the first segment, veins present. Abdominal terga with narrow raised mounds along the hind margins, these most pronounced medially, reduced or subobsolete laterally. Supra-anal plate convexly rounded, weakly indented medially, reaching the hind margin of the subgenital plate. Abdominal sterna with subobsolete elevations along the hind margins. Colour: Head and pronotum similar to male. Abdomen much darker; subgenital plate black.

Measurements (mm) (♀ in parentheses; N= 5 ♂, 5 ♀; averages in brackets)

Length, 22.0–22.5 [22.0] (20.0–24.0) [22.1]; pronotum length x width, 5.4–5.7 x 7.4–8.0 [5.6 x 7.8] (5.2–6.0 x 8.4–9.2) [5.6 x 8.7]; tegmen length, 19.6–22.0 [20.7] (5.2–6.4) [5.9]; interocular width, 1.4–1.5 [1.46] (1.9–2.1) [1.98]; interocellar width, 1.0–1.2 [1.04] (1.2–1.3) [1.22]; interantennal socket width, 1.7–2.0 [1.86] (1.9–2.1) [2.0].

Remarks

This species is closely related to *M. perplexa* (similarity in tegmina shape and pronotal pattern (cf. Figures), and looks very much like a small version of that species. Its genital phallomere L2d is similar to that of *inquinata*.

Dr David Rentz collected most of the specimens and supplied the following ecological information: "The *Molytria* were collected in a 'Reserve' consisting principally of large Spotted Gums, *Eucalyptus maculata* with an understorey of a variety of *Persoonia*, *Acacia* and *Banksia* species, with *Pittospermum revolutum*, and the Cycad *Macrozamia communis*. The cockroaches are found at night on the leaf litter or within 6 inches of the ground on stems. Early in the evening they have sand grains on their bodies suggesting they live in the soil during the day. I don't know whether or not they construct burrows. They are most commonly seen on the 'edge' of this habitat where there is mowed grass over the sandy substrate. After dark they are seen on the grass, usually motionless."

Etymology

Refers to its small size when compared to the other two known species.

Genus *Calolampra* Saussure

Calolampra Saussure: Roth and Princis, 1973: 101 (revision); Roach and Rentz, 1998: 87.

Type Species

Calolampra irrorata (Fabricius) = *Blatta irrorata* Fabricius = *Epilampra gracilis* Brunner (Princis, 1963b: 147).

Remarks

Calolampra is an Australian taxon containing about 26 species. Most of them show strong sexual

dimorphism with the males being fully winged and the females having reduced tegmina and vestigial hind wings. The non-Australian species of "*Calolampra*" belong to other genera, namely: *Calolamprodes* Bey-Bienko (Burma, India, Sri Lanka, Thailand), *Howintoniella* Roth (Philippine Islands), *Juxtacalolampra* Roth (Burma, Thailand), *Princisola* Gurney and Roth (Sarawak), and *Pseudocalolampra* Roth and Princis (Africa) (Roth, 1981: 405). Princis (1960: 438; 1963b: 147) placed the genus in the Laxtinae and McKittrick (1964) assigned it to the Epilamprinae. However, Grandcolas (1993) assigned it to the Diplopterinae (with *Diploptera*). I provisionally follow McKittrick and retain it in the Epilamprinae.

Calolampra elegans Roth and Princis

Calolampra elegans Roth and Princis, 1973: 103, figures 2–5 (♂ habitus); Roth, 1989: 50, figure 1A (♀ habitus); Roach and Rentz, 1998: 89.

Material Examined

Australia: Queensland: Emerald District, 1 ♂, 1 ♀, ex culture, gift of the Queensland Museum (MCZ).

Remarks

This is a large, distinctively coloured, wingless (both sexes) species. According to Dr G.B. Monteith (pers. comm., 25 July 1990), "*Calolampra elegans* has recently emerged as a minor pest of germinating legume crops in the Emerald region (near the type locality of Peak Downs) and apparently occurs in considerable numbers in ploughed fields. Quite a transition for something we thought of as a rarity!" The species is a herbivore and granivore and occurs in the soil and litter. It chews seedling stems of sunflower, sorghum, cotton, navy beans and maize (Roach and Rentz, 1998: 89).

Calolampra darlingtoni Roth and Princis

Calolampra darlingtoni Roth and Princis, 1973: 105, figures 6–13 (♂ and ♀); Roach and Rentz, 1998: 89.

Material Examined

Australia: New South Wales: The following were collected by C. and A.J. Jeekel: 5 km WNW. of Adaminaby [36°03'S, 148°43'E], st. 74, 2 ♂, 9.xi.1980; near Lake Glenbawn, 12 km ESE. of Scone [32°05'S, 150°51'E], st. 62, 1 ♀, 1.xi.1980; 5 km SW. of Bungendore [35°15'S, 149°26'E], 20 km ENE. of Queanbeyan [35°21'S, 149°14'E], st. 67, 1 ♀, 7.xi.1980 (ZMA).

Subfamily Panesthiinae Saussure and Zehntner

Remarks

The seven genera in the Panesthiinae of the world have been revised by Roth (1977, 1979a, 1979b, 1982). Since then, Walker *et al.* (1994: 263) have described nine new species, two *Geoscapheus* Tepper, five *Macropanesthia* Saussure, one *Neogeoscapheus* Roth, and one *Parapanesthia* Roth. These genera were placed in the Geoscapheinae Tepper (Rugg and Rose 1984: 118); I consider them to be in the tribe Geoscapheini.

Genus *Panesthia* Serville

Panesthia Serville: Roth, 1977: 1; 1979a: 3 (revision); Roach and Rentz, 1998: 105.

Remarks

There are about 54 species and nine subspecies of *Panesthia* that are found on the Asian mainland, Indonesian islands, and Australia. There are nine species and two subspecies in Australia. Since my revision, Asahina (1988: 60) added another subspecies of *P. angustipennis*, from Yayeyama Islands and Taiwan.

Panesthia cribrata Saussure

Panesthia cribrata Saussure: Roth, 1977: 14, figures 5–11 (redescriptions: ♂ and ♀); Roach and Rentz, 1998: 107.

Material Examined

Australia: New South Wales: Harrington, 2 nymphs, 5.viii. 1965, G. Williams (PMYU). The following were collected by C. and A. Jeekel: Heaton State Forest, 22 km SE. of Cessnock, st. 64, 3 ♂, 2 ♀, 1 ♂ nymph, 2.xi.1980; Arding, 9 km NNE. of Uralla, st. 58, 1 ♂, 1 ♂ nymph, 31.x.1980; 5 km E. of Tabulam, st. 54, 1 ♂ nymph, 29.x.1980 (ZMA); no exact locality: 4 ♂, 7 ♂ and 7 ♀ nymphs, Crampton; Dorrigo, 2 ♂, 1 ♀, Crampton (MCZ). **Queensland:** The following were collected by C. and A. Jeekel: Kondalilla Natn. Park, 11 km WSW. of Nambour, st. 4, 1 ♀, 30.ix.1980; Beerwah Natn. Forest, 7 km SSW. of Landsborough, st. 3, 1 nymph, 29.xi. 1980 (ZMA); no exact locality, rainforest, sea level, 1 ♀ nymph, 22.ix.1964, A. Cottrell (MCZ).

Remarks

This is a volant, gregarious species that burrows under and inside rotting logs of *Eucalyptus* sp., *Ceratopetalum* sp., *Syncarpia* sp., and *Casuarina* sp., where they feed on decomposing wood. They live mostly in groups of a number of females, one male and different aged nymphs (Roach and Rentz, 1998: 108).

Panesthia australis Brunner

Panesthia australis Brunner: Roth, 1977: 25, figures

17–19 (redescriptions: ♂ and ♀); Roach and Rentz, 1998: 107.

Material Examined

Australia: New South Wales: 5 or 6 km SW. of Bungendore, 20 km ENE. of Queanbeyan, 1 ♀ (with an ootheca in the brood sac), 6 nymphs, 7.xi.1980, C. and A. Jeekel; Kosciusko Nat. Park, Dead Horse Gap, 4 km SW. of Thredbo, 1600 m, 1 nymph, 6.iii.1989, P. Oosterbroek and C. Hartveld (ZMA); Brindabella Range, 3700 ft., dry sclerophyll for., 2 ♀, 1 ♀ nymph, 18.x.1964, A. Cottrell (MCZ).

Remarks

This is a gregarious species that lives in rotting wood (Roach and Rentz, 1998: 107).

Panesthia tryoni tegminifera Roth

Panesthia tryoni tegminifera Roth, 1977: 32, figures 23, 25D–27I (♂ and ♀); Roach and Rentz, 1998: 110.

Material Examined

Australia: New South Wales: Dorrigo, 1 ♀ nymph, Crampton (MCZ).

Remarks

A burrowing, gregarious species that lives in rotting wood (Roach and Rentz, 1998: 110).

Panesthia ancaudellioides Roth

Panesthia ancaudellioides Roth, 1977: 20, figures 12, 13 (♂ and ♀).

Material Examined

Australia Queensland: Cairns, 1 ♀, 11.iii.1996, T. Miura (MCZ).

Remarks

The species is known only from around the Cairns district, Queensland. It is a burrowing, volant, gregarious species that lives in rotting wood.

Genus *Parapanesthia* Roth

Parapanesthia Roth, 1977: 45; Walker et al. 1994: 264; Roach and Rentz, 1998: 103.

Remarks

There are only two species in this Australian genus, namely *P. gigantea* and *P. pearsoni* Walker, Rugg and Rose.

Parapanesthia gigantea (Tepper)

Geoscapheus gigantea Tepper, 1894: 176 (♂ lectotype only).

Parapanesthia gigantea (Tepper): Roth, 1977: 46, figure 35 (redescriptions: ♂ and ♀).

Material Examined

Australia: no exact locality, 1 ♂, 1 ♀, Crampton (MCZ).

Remarks

The species has been found in southeast Queensland, and extreme northeast New South Wales, and apparently incorrectly Victoria; regarding the Victoria (no exact locality) record (Roth, 1977: 47; specimen in the University Museum, Copenhagen, Denmark) is undoubtedly spurious (Monteith, in Roach and Rentz, 1998: 103).

Family Blattidae Handlirsch

Subfamily Polyzosteriinae Handlirsch

Remarks

In a series of monographs, Mackerras (1965a, b, c, 1966a, b, 1967a, b, 1968a, b) revised this subfamily in Australia, and included keys to tribes, genera, subgenera, and species.

Genus *Polyzosteria* Burmeister

Polyzosteria Burmeister: Mackerras, 1965a: 845 (revision); Roach and Rentz, 1998: 78.

Remarks

This is an Australian genus containing 15 species.

Polyzosteria cuprea Saussure

Polyzosteria cuprea Saussure: Mackerras, 1965a: 862, figures 2 (habitus), 18, 30 (redescriptions: ♂ and ♀); Roach and Rentz, 1998: 78.

Material Examined

Australia: Western Australia: Yilgarn, 1 ♀, 1889 (ZMA); Hammersly Riv., Cheyne Beach, coast, dunes, low sand plain scrub, 1 ♀, 16–18.xi.1964, A. Cottrell. The following were collected by P. Darlington on the Australia/Harvard Exp. in 1932: Pemberton, 1 ♂, 2 ♀, 10.xi., 1 ♂ nymph; Margaret River, S.W.A., 1 ♂, xi. (MCZ); Waterman's Bay, 1 ♂, 28.xii.1964, C.H. Norris (PMYU).

Remarks

This Western Australia cockroach is a large, brownish black or coppery, oval species, with a yellow band on the anterior margin of the pronotum and strikingly marked brown and yellow legs. It is a ground dweller and diurnal and the ootheca is simply dropped or buried (Roach and Rentz, 1998: 78).

Polyzosteria limbata Burmeister

Polyzosteria limbata Burmeister: Mackerras, 1965a: 852, figures 1, 3–14, pl. 2, figure 7 (habitus) (redescriptions: ♂ and ♀); Roach and Rentz, 1998: 79.

Material Examined

Australia: no exact locality: 1 ♀ (det. by Hebard, 1921); 1 ♀, S.H. Scudder coll. (MCZ). **New South Wales:** Wentworth Falls, 2800 ft., 2 ♂, 23.xii.1931, P.J. Darlington, Australia/Harvard Exp. (MCZ).

Remarks

This is a large species found in Western Australia, South Australia, Victoria, New South Wales, and Tasmania. The species is a diurnal ground dweller and frequently climbs on shrubs to bask or forage. The oothecae are dropped or buried in sand (Roach and Rentz, 1998: 79).

Polyzosteria viridissima Shelford

Polyzosteria viridissima Shelford: Mackerras, 1965a: 870, figures 25, 36, pl. 1, figure 4 (habitus) (redescriptions: ♂ and ♀).

Material Examined

Australia: New South Wales: The following were collected on the Australia/Harvard Expedition, on Mt. Kosciusko (type locality) in 1931: 5–7000 ft., 1 ♂ nymph, 10.xii., 3 ♂, 4 ♀, 1 ♂ and 1 ♀ nymphs, 11.xii., 5000 ft. 1 ♀, 14.xii., 6000 ft., 1 ♂, 2 ♀, 1 ♀ nymph, 14.xii., P. Darlington, 4–5000 ft., 1 ♂, 2 ♀, 1 ♀ nymph, 15.xii., W.M. Wheeler (MCZ).

Remarks

This is a shiny, metallic green species known from the alpine areas of New South Wales and Australian Capital Territory. It is diurnal and has been taken on shrubs, tussock grasses and on or near sphagnum (Roach and Rentz, 1998: 81).

Polyzosteria mitchelli (Angas)

Polyzosteria mitchelli (Angas): Mackerras, 1965a: 876, figures 22, 37, pl. 1, figure 10 (habitus) (redescriptions: ♂ and ♀); Roach and Rentz, 1998: 80.

Material Examined

Australia: Western Australia: Mt. Ragged-to-Thomas R. Sta., track, midway E. Esperance, sand pl.-mallee, 1 ♀ nymph, 30.i.1955, E.O. Wilson and C.P. Haskins (MCZ).

Remarks

This is a large, striking species easily recognized by its habitus (Shelford 1910: pl. 1, figure 2; Mackerras 1965a, pl. 1, figure 10). It is a ground dwelling, epigean species but has been taken in caves, and is widely distributed in Western Australia, South Australia, and New South Wales (Roach and Rentz, 1998: 80).

Genus *Celatoblatta* Johns

Celatoblatta Johns, 1966: 99; Roach and Rentz, 1998: 32.

Remarks

Johns placed 13 New Zealand species in this genus. Princis (1971: 1147) transferred about a dozen Australian species in various genera to *Celatoblatta*.

Celatoblatta sedilloti (Bolívar)

Celatoblatta sedilloti (Bolívar): Johns, 1966: 15, figures 39, 41, 49, 57 (redescriptions: ♂ and ♀).

Material Examined

New Zealand: South Island, Nelson, 3 ♀, 1 ♀ nymph, iii.–iv. 1971, L. Karstens-Koert (ZMA).

Genus *Anamesia* Tepper

Anamesia Tepper, 1893: 69; Mackerras, 1966b: 335 (revision); Roach and Rentz, 1998: 41.

Remarks

There are 11 species in this Australian genus.

Anamesia frenchii Tepper

Anamesia frenchii Tepper, 1893: 72; Mackerras, 1966b: 347, figures 1, 13, 23, 33, pl. 1, figure 6 (habitus) (redescriptions: ♂ and ♀); Roach and Rentz, 1998: 41.

Material Examined

Australia: Western Australia: Meekatharra, 2 ♂, 1 ♀, 3 ♂ nymphs, 25.ix.; Mullewa, 1 ♂, 11.ix, P.J. Darlington on the Harvard/Aust. Exp. 1931 (MCZ).

Remarks

This diurnal species is found in Western Australia under logs, stones, or in clumps of spinifex (Roach and Rentz, 1998: 41).

Genus *Cosmozosteria* Stål

Cosmozosteria Stål: Mackerras, 1967a: 594 (revision); Roach and Rentz, 1998: 43.

Remarks

There are 13 species of described *Cosmozosteria*, restricted to Australia.

Cosmozosteria bicolor (Saussure)

Cosmozosteria bicolor Saussure: Mackerras, 1967a: 597, figures 2, 9–12, 23, 33, pl. 1, figures 1–3, 8 (habitus) (redescriptions: ♂ and ♀); Roach and Rentz, 1998: 43.

Material Examined

Australia: Queensland: The following were collected by C. and A. Jeekel: Clarke Creek, NW. of Rockhampton [23°23'S, 150°30'S], St. 31, 1 ♂, 1 ♀, 5 ♂ and 3 ♀ nymphs, 19.x.1980; 8 km E. of Gayndah [25°38'S, 151°36'E], St. 39, 1 ♀ nymph, 22.x.1980; Plainland [27°34'S, 152°25'E], 13 km E. of Gatton, St. 46, 1 ♂ nymph, 24.x.1980; 6 km S. of Alligator Creek, 24 km SE. of Townsville [19°15'S, 146°48'E], St. 25, 1 ♀ nymph, 14.x.1980 (ZMA); Dunk Island [17°57'S, 146°10'E], 1 ♂, 1896, A.G. Mayer. The following were collected by P. Darlington on various dates during the Australia/Harvard Expedition in 1932: Coen [13°56'S, 143°12'E], C. York, 1 ♀, 4 ♂ and 2 ♀ nymphs; Mt. Carbine [16°32'S, 145°08'E], N. Qld., 2 ♂, 1 ♂ nymph; Townsville, 2 ♂, 1 ♀ (coll. Wheeler); Brisbane [27°30'S, 153°01'E], 1 ♂, 1 ♀; National Park, McPherson Rge. [28°20'S, 153°00'E], 1 ♂, 1 ♂ and 1 ♀ nymphs (MCZ).

Remarks

The species is diurnal and is often found sunbasking on the ground, rocks and low foliage (Roach and Rentz, 1998: 43).

Genus *Platyzosteria* Brunner

Platyzosteria Brunner: Mackerras, 1967b: 1217 (revision); Roach and Rentz, 1998: 53, 54.

Remarks

The are 90 species of Australian *Platyzosteria*: 31 belong to the subgenus *Platyzosteria*, 8 to the subgenus *Leptozosteria*, and 51 to the subgenus *Melanozosteria* (Roach and Rentz, 1998: 54, 63, 64).

Platyzosteria (Platyzosteria) novaeseelandiae (Brunner)

Platyzosteria (Platy.) novaeseelandiae (Brunner): Johns, 1966: 124, figures 15, 63, 64, 66, 67, 69 (redescriptions: ♂ and ♀).

Material Examined

New Zealand: Eastbourne [41°18'S, 174°54'E], 1 ♂, 14.x.1984, G. Moonen; South Island, Nelson [41°18'S, 173°17'E], 1 ♀, xi.1971, W.H. Gravestein, Mevr. L. Karstens-Koert (ZMA); Governor's Bay [43°37'S, 172°39'E], 2 ♂, 1 ♀, J. Wid. Paiman (MCZ).

Remarks

Two species of *Platyzosteria* occur in New Zealand. According to Johns, *Platyzosteria novaeseelandiae* is a very common species in the lowlands of North Island, and almost entirely coastal in the northern part of South Island.

Platyzosteria (Platyzosteria) melanaria (Erichson)

Platyzosteria (Platy.) melanaria (Erichson): Mackerras, 1967b: 1225, figures 3–10, pl. 1, figure 1 (habitus) (redescriptions: ♂ and ♀); Roach and Rentz, 1998: 58.

Material Examined

Australia: Victoria: Melbourne, 4 ♂ [one labelled *Platyzosteria grandis* (Sauss.) by Hebard, 1921]. **New South Wales:** Wentworth Falls [33°43'S, 150°23'E], 2800 ft., 1 ♂, 1931, Darlington, Australia/ Harvard Expedition (MCZ). The following were collected by C. and A. Jeekel: 5 km SW. of Bungendore [35°15'S, 149°26'E], 20 km ENE. of Queanbeyan [35°21'S, 149°14'E], St. 67, 3 ♂, 7.xi. 1980; 20 km NNE. of Guyra [30°14'S, 151°40], St. 57, 1 ♀, 30.x.1980; Kosciusko Natn. Park, Rennex Gap, 12 km NW. of Jindabyne [36°25'S, 148°38'E], St. 71, 2 ♂, 8.xi.1980 (ZMA); Cabramatta, under log, 1 ♂, 31.vii. 1965, M. I. Nikitin (PMYU). **Tasmania:** Ben Lomond Natn. Park, 35 km ENE. of Evandale [41°35'S, 147°14'E], St. 96, 1 ♂, 3 ♀ (one carrying ootheca in vertical position), 1 ♂ and 3 ♀ nymphs, 23.xi.1980, C. and A. Jeekel (ZMA).

Remarks

According to Mackerras, this is a widely distributed species extending from southern Queensland, through New South Wales and Victoria to Tasmania, and into the southeastern part of South Australia. The species is diurnal and is found under bark and in litter. The oothecae are dropped on the ground or buried in sand or moss. The species apparently does not discharge a defensive secretion (Roach and Rentz, 1998: 59) which is surprising since species of *Platyzosteria* are known to have repugnatorial glands used when disturbed (Roach and Rentz, 1998: 59).

Platyzosteria (Platyzosteria) anceps Shaw

Platyzosteria (Platy.) anceps Shaw: Mackerras, 1967b: 1258, figures 29, 50, 69, pl. 2, figure 4 (habitus) (redescriptions: ♂ and ♀); Roach and Rentz, 1998: 54.

Material Examined

Australia: Queensland: The following were collected by C. and A. Jeekel, 22.x.1980: 4 km ESE. of Murgon [26°14'S, 151°57'E], St. 43, 1 ♀ (with ootheca); Cherbourg, 6 km S. of Murgon, St. 42, 1 ♂; near Oakdene, 27 km ESE. of Gayndah [25°38'S, 151°36'E], St. 40, 1 ♀ (retained in MCZ) (ZMA).

Remarks

The species has been reported only from Queensland, and is found under bark.

Platyzosteria (Platyzosteria) scabrella Tepper

Platyzosteria (Platy.) scabrella Tepper: Mackerras, 1967b: 1255, figures 26, 47, pl. 2, figure 3 (habitus) (redescriptions: ♂ and ♀); Roach and Rentz, 1998: 61.

Material Examined

Australia: South Australia: Mt. Lofty, 1 ♂, 31.viii.1931, W.M. Wheeler, Australia/Harvard Exp. (MCZ).

Remarks

This very variable species is found in the southeastern corner of Queensland, eastern New South Wales, Australian Capital Territory, Victoria, and the southeastern part of South Australia. It is found under bark, rocks, logs and litter (Roach and Rentz, 1998: 61).

Platyzosteria (Platyzosteria) scabra Brunner

Platyzosteria (Platy.) scabra Brunner: Mackerras, 1967b: 1252, figures 25, 46, 66, pl. 2, figure 5 (habitus) (redescriptions: ♂ and ♀); Roach and Rentz, 1998: 60.

Material Examined

Australia: New South Wales: no exact locality, 1 ♂, 2 ♀, Crampton (MCZ).

Remarks

The species is found in the southeastern corner of Queensland, and the eastern coast of New South Wales where it can be collected under bark and stones (Roach and Rentz, 1998: 60).

Platyzosteria (Melanozosteria) soror (Brunner)

Platyzosteria (Melano.) soror (Brunner): Mackerras, 1968a: 256, figures 19, 32, 44, 57, pl. 1I (habitus) (redescriptions: ♂ and ♀).

Material Examined

Amboina: Moluccas: Ambon, 1 ♀, Toxopeus (ZMA). **British Solomon Islands:** The following were collected by M.J.A. de Koster: Eiland Florida (= Small Gela = Nggela), rond dorp Belaga, 5 ♂, 2 ♀, 2 ♂ and 1 ♀ nymphs, 1963/1964, 1 ♀, 12–31.xii.1963, 3 ♂ and 1 ♀ nymphs, 1966, 7 ♂, 2 ♀, 1 ♀ nymph, 1967; Small Gela (=Florida Island), 8 ♂, 8 ♀, 1 ♂ nymph; (ZMA). Two pairs retained in (MCZ). **Austral Island (Polynesia):** Rapa, Pukutaketake, 100–200 m, open field, 1 ♀, 6.ii.1980, Gustav Paulay (PMYU). **United States:** Hawaii: The following are all from Oahu: 1 ♂, 1864, H. Mann; Moluleia Beach, 1 ♂, Kolekola Pass, 1 ♂, 1 ♀, W.M. Wheeler; Oahu and Kaiu, 4 ♂, 1 ♀, Expl. Exp., C. Pickering (S.H. Scudder coll.); N. ridge, Mt. Konahuanui, 1500–2000 ft., 1 ♂, Levy, Werner, Parsons; ridge above Kuliouau Valley, Koolau Rge., 800–1200 ft., 1 ♀, 29.i.1945, Werner; Manoa, 1 ♀, v.1906, F.Y. Oshiro (MCZ).

Remarks

This is a very widely distributed and commnon species. According to Mackerras, it is not found in Australia but is common to the Islands north of that continent. The type is from Amboina.

Platyzosteria (Melanozosteria) secunda (Tepper)

Platyzosteria (Melano.) secunda (Tepper): Mackerras, 1968a: 249, figures 14, 26, 35, 45, 50, pl. 2, figures E, F (habitus) (redescriptions: ♂ and ♀); Roach and Rentz, 1998: 76.

Material Examined

Australia: Queensland: Cooktown [15°28'S, 145°15'E], 2 ♀, E.A.C. Olive; Mt. Carbine [16°32'S, 145°08'E], N. Qld., 2 ♂, 1 ♂ nymph, 20.vii. 1932, P. Darlington, Australia/Harvard Exp.; Palm Island to Cooktown, 1 ♂ nymph, 21.iv.–13.v.1896, A.G. Mayer (MCZ).

Remarks

There is a question about the valid specific name of this taxon. Princis (1966: 577) lists *secunda* as a synonym of *Melanozosteria triangulata* Brunner. However, Mackerras (1968: 251) claimed that *triangulata* is a nomen nudum. Roach and Rentz (1998: 75) lists the species as *Platyzosteria (Melanozosteria) triangulata* (Brunner).

Platyzosteria (Melanozosteria) bicolor Kirby

Platyzosteria (Melano.) bicolor Kirby: Mackerras, 1968a: 247, figures 13, 25, 39, 49, pl. 1H (habitus) (redescriptions: ♂ and ♀); Roach and Rentz, 1998: 66.

Material Examined

Australia: Queensland: Rocky Scrub, McIlwraith Rge. [13°43'S, 143°23'E], Cape York, 2 ♀, vi.1932, Darlington, Australia/ Harvard Exp. (MCZ).

Remarks

The types are from Dauan Island [9°25'S, 142°32'E] (as Cornwallis Island); the species also occurs in northern Queensland, and according to Shaw (1925: 179) in New Guinea. It is found under bark.

Platyzosteria (Melanozosteria) nitida (Brunner)

Platyzosteria (Melano.) nitida (Brunner): Mackerras, 1968a: 243, figures 3–11, pl. 1A (habitus) (redescriptions: ♂ and ♀); Roach and Rentz, 1998: 73.

Material Examined

Samoa: Apia, 2 ♂, 4 ♀, Crampton (MCZ).

Remarks

This is a widely distributed species reported from Taiwan, Philippines, Malaya, Moluccas, Santa Cruz I., Hollandia, New Hebrides, Solomon Islands, Louisiade Archipelago, New Ireland, New Zealand, southeastern Papua New Guinea, the eastern coast of Queensland, and islands off the eastern coast of that state. It is found under bark.

Platyzosteria (Melanozosteria) illingworthi (Shaw)

Platyzosteria (Melano.) illingworthi (Shaw): Mackerras: 1968a: 255, figures 21, 31, 42, 55, pl. 1K (habitus) (redescriptions: ♂ and ♀); Roach and Rentz, 1998: 70.

Material Examined

Moluccas: Buru: Station 1 ♂, 2–6.xii.1921, L. J. Toxopeus (ZMA).

Remarks

This species is unusual in having "tegmina" that are only indicated by a curved groove that does not reach the pronotal and metanotal margins; the male has an asymmetrical subgenital plate with the left style longer than the right one, and a single curved spinelike process medially on the interstylar margin. One other species, *P. uncinata* (Shaw), shares these characteristics, but its thorax and abdominal terga have yellow markings whereas illingworthi is reddish brown (Mackerras, 1968a: 254). Platyzosteria illingworth has been reported from northern Queensland, Moa Island (Torres Straits), and Northern Territory. The present record appears to be the first for the Moluccas. The species is found under bark.

Platyzosteria (Melanozosteria) castanea Brunner

Platyzosteria (Melano.) castanea Brunner: Mackerras, 1968a: 267, figures 60, 66, 70, 75, 76, pl. 1F (habitus) (redescriptions: ♂ and ♀); Roach and Rentz, 1998: 66.

Material Examined

Australia: New South Wales: 20 km NNE. of Guyra [30°14'S, 151°40], St. 57, 1 ♂, 2 ♀, 30.x.1980, C. and A. Jeekel (ZMA). **Victoria:** Melbourne [37°50'S, 145°00'E], 2 ♂ (one labelled *Platyzosteria biglumis* (Sauss.), by Hebard, 1921]) (MCZ).

Remarks

The species also is known from the Australian Capital Territory. It is found under bark and has been recorded from a granite outcrop (Roach and Rentz, 1998: 67).

Platyzosteria (Melanozosteria) nigrofasciata (Shaw)

Platyzosteria (Melano.) nigrofasciata (Shaw): Mackerras, 1968a: 285, figures 87, 102, 120, pl. 2G (habitus) (redescriptions: ♂ and ♀); Roach and Rentz, 1998: 72.

Material Examined

Australia: Western Australia: Payne's Find, Bonnie Rock [30°32'S, 118°21'E], mulga-eucalypt, 1 ♂, 4–7.xi.1964, A. Cottrell (MCZ); N.W. Cape Peninsula, near Cave C. 60, 22°06'S, 113°59'E, 1 ♂, 17.v.1990, J. Waldock (WAM).

Roach and Rentz (1998: 72) give the other Western Australia records as: Coorow (29°53'S, 116°01'E), Morawa (29°13'S, 116°00'E), Mullewa (28°32'S, 115°31'E), Waddouring (30°56'S, 117°51'E), Wubin (30°06'S, 116°38'E).

Remarks

The species is found under bark. The specimen from Cape Peninsula keyed closest to *P. nigrofasciata*. However, its tegmina were separated from the mesonotum by a little more than half its length (rather than about one third) and the middle of the pronotal disk was yellowish rather than solidly dark.

Genus *Zonioploca* Stål

Zonioploca Stål: Mackerras, 1965c: 903 (revision); Roach and Rentz, 1998: 82.

Remarks

There are nine known species of *Zonioploca* recorded only from Australia.

Zonioploca pallida Shelford

Zonioploca pallida Shelford: Mackerras, 1965c: 911, figures 5, 14, 23, pl. 1, figures 5, 6 (habitus) (redescriptions: ♂ and ♀); Roach and Rentz, 1998: 84.

Material Examined

Australia: Western Australia: Shannon Riv. [34°52'S, 116°24'E], Mill S. of Manjimup, savannah for., 1 ♂, 23.xi.1964, A. Cottrell (MCZ).

Remarks

According to Mackerras, this species appears to be restricted to the south-western corner of Western Australia. It is a ground dweller.

Zonioploca medilinea (Tepper)

Zonioploca medilinea (Tepper): Shelford, 1910: 8, pl. 1, figure 4 (habitus); Mackerras, 1965c: 914, figures 8, 17, 28, pl. 1, figure 9 (habitus) (redescriptions: ♂ and ♀); Roach and Rentz, 1998: 83.

Material Examined

Australia: Western Australia: Chariton Find, 1000 ft., sand plain, 1 ♂, 11.xi.1964, A. Cottrell (MCZ).

Remarks

This is an epigean, ground dwelling species but has been taken in a cave. It has also been recorded from South Australia and Victoria (Roach and Rentz, 1998: 84). It is easily recognized by the dark median line on the meso-, metanotum, and abdominal terga.

Zonioploca occidentalis Mackerras

Zonioploca occidentalis Mackerras, 1965c: 908, figures 3, 12, 21, pl. 1, figure 3 (habitus) (redescriptions: ♂ and ♀); Roach and Rentz, 1998: 84.

Material Examined

Australia: Western Australia: 18 miles E. of Bonnie Rock, Lake Varley (32°46'S, 119°27'E), 1000 ft., sand plain, 1 ♂, 8–12. xi.1964, A. Cottrell (MCZ).

Remarks

This is a ground dweller known only from Western Australia.

Genus *Temnelytra* Tepper

Temnelytra Tepper: Mackerras, 1968b: 534 (revision); Roach and Rentz, 1998: 40.

Remarks

Only four species of *Temnelytra* are found in Australia.

Temnelytra truncata (Brunner)

Temnelytra truncata (Brunner): Mackerras, 1968b: 535, figures 22, 26, 81 (habitus) (redescriptions: ♂ and ♀); Roach and Rentz, 1998: 40.

Material Examined

Australia: Victoria: Melbourne [37°50'S, 145°00'E], 3 ♂, H. Edwards (MCZ).

Remarks

The species is also known from New South Wales, South Australia, and Tasmania.

Genus *Scabina* Shelford

Scabina Shelford: Mackerras, 1968b: 541 (revision); Roach and Rentz, 1998: 39.

Remarks

There are two species in this genus, one from Australia, and the other, *S. horrida* Hanitsch, from Sumatra and Borneo.

Scabina antipoda (Kirby)

Scabina antipoda (Kirby): Mackerras, 1968b: 541, figures 30–35, 80 (habitus) (redescriptions: ♂ and ♀); Roach and Rentz, 1998: 40.

Material Examined

Australia: Queensland: National Park, McPherson Rge. [28°20'S, 153°00'E], 1 ♀, iii.1932, Darlington, Australia/ Harvard Exp. (MCZ).

Remarks

The species is known from coastal northern New South Wales and southern Queensland. It is found under bark in rainforest. The oothecae are glued to undersides of bark and the nymphs require humid conditions (Roach and Rentz, 1998: 40).

Genus *Methana* Stål

Methana Stål: Mackerras, 1968b: 517 (revision); Roach and Rentz, 1998: 37.

Remarks

There are ten species of *Methana* in Australia (Mackerras, 1968b; key p. 518) and one in New Guinea (Princis 1966: 601).

Methana soror (Saussure)

Methana soror Saussure: Mackerras, 1968b: 529, figures 6, 71 (habitus) (redescriptions: ♂ and ♀); Roach and Rentz, 1998: 39.

Material Examined

Australia: New South Wales: Harrington [31°15'S, 152°42'E], 1 ♀ (carrying ootheca in vertical position), 8.v.1965, G. Williams (PMYU).

Remarks

A distinctive species with a pair of pale maculae on the dark pronotal disk. Previously known only from Macleay River (30°52'S, 153°01'E), New South Wales. It is found under bark.

Methana marginalis (Saussure)

Methana marginalis (Saussure): Mackerras, 1968b: 519, figures 1, 2a–c, 11, 12, 17, 18, 70 (habitus), 100, 101 (redescriptions: ♂ and ♀); Roach and Rentz, 1998: 38.

Material Examined

Australia: Queensland: Brisbane [27°30'S, 153°01'E], 1 ♀ (carrying fully formed ootheca), 27.ix.1992, D. Furth (MCZ).

Remarks

This species is fairly common in coastal areas of Queensland (Mackerras 1968b: 521). It is found under bark of dead trees and in foliage of living trees. Females attach their oothecae to the undersides of loose bark and leaves and cover them with debris (Roach and Rentz, 1998: 38).

Methana convexa (Walker)

Methana convexa (Walker): Mackerras, 1968b: 523, figures 3, 14, 73 (habitus) (redescriptions: ♂ and ♀); Roach and Rentz, 1998: 37.

Material Examined

Australia: Queensland: Russett Park, 5 km WNW. of Kuranda, 16°48'S, 145°35'E, 1 ♂, 1 ♀, 20.11.1988, D.C.F. Rentz, Stop A–20; Dunk Island [17°57'S, 146°10'E] (near settlement), 1 ♀, 13–19.iv.1990, D.C.F. Rentz and A. Lo, Stop 17 (ANIC).

Remarks

The species is found in Queensland and New South Wales, under bark. The female fastens the ootheca to bark and covers it with debris. Both nymphs and adults produce a strong defensive secretion (Roach and Rentz, 1998: 37).

Genus *Drymaplaneta* Tepper

Drymaplaneta Tepper: Mackerras, 1968b: 543 (revision); Roach and Rentz, 1998: 34.

Remarks

There are six species of *Drymaplaneta* in Australia. Princis (1966: 569) treated this genus as a synonym of *Melanozosteria*, but Mackerras, and Roach and Rentz considered them distinct taxa.

Drymaplaneta semivitta (Walker)

Drymaplaneta semivitta (Walker): Mackerras, 1968b: 547, figures 37a–c, 45, 91 (habitus) (redescriptions: ♂ and ♀); Roach and Rentz, 1998: 36.

Material Examined

Australia: Western Australia: Perth [31°58'S, 115°50'E], 1 ♂, 5 ♀, i., W.S. Brooks; Margaret River, S.W.A., 2 ♂, 2 ♀, 30.x., P. J. Darlington, Harvard Aust. Exped. [1932] (MCZ).

Remarks

According to Mackerras, this species appears to be restricted to the southwestern part of Western Australia and apparently is a common domestic pest in various settlements and throughout Perth. The third and fourth maxillary palpomeres, and the hind tibiae of the male are greatly enlarged and distinctive.

Drymaplaneta heydeniana (Saussure)

Drymaplaneta heydeniana Saussure, 1864: Mackerras, 1968b: 549, figures 38a–d, 46, 87 (habitus) (redescriptions: ♂ and ♀); Roach and Rentz, 1998: 35.

Material Examined

Australia: Western Australia: Pemberton [34°28'S, 116°01'E], 1 ♂, 10.xi., P.J. Darlington, Harvard Australia Exped. [1932] (MCZ).

Remarks

The male's third and fourth maxillary palpomeres are only slightly enlarged and the hind tibiae are not specialised in this species which apparently is restricted to coastal southwest and northwest Western Australia. It occurs under bark (Roach and Rentz, 1998: 35).

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INDEX TO FAMILIES, SUBFAMILIES, GENERA, AND SPECIES

Guide to Authors

Subject Matter:

Reviews, observations and results of research into all branches of natural science and human studies will be considered for publication. However, emphasis is placed on studies pertaining to Western Australia. Longer papers will be considered for publication as a Supplement to the *Records of the Western Australian Museum*. Short communications should not normally exceed three typed pages and this category of paper is intended to accommodate observations, results or new records of *significance*, that otherwise might not get into the literature, or for which there is a particular urgency for publication. All material must be original and not have been published elsewhere.

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Authors are advised to follow the layout and style in the most recent issue of the *Records of the Western Australian Museum* including headings, tables, illustrations and references.

The title should be concise, informative and contain key words necessary for retrieval by modern searching techniques. An abridged title (not exceeding 50 letter spaces) should be included for use as a running head.

An abstract must be given in full length papers but not short communications, summarizing the scope of the work and principal findings. It should normally not exceed 2% of the paper and should be suitable for reprinting in reference periodicals.

The International System of units should be used.

Numbers should be spelled out from one to nine in descriptive text; figures used for 10 or more. For associated groups, figures should be used consistently, e.g. 5 to 10, not five to 10.

Spelling should follow the *Concise Oxford Dictionary*.

Systematic papers must conform with the International Codes of Botanical and Zoological Nomenclature and, as far as possible, with their recommendations.

Synonymies should be given in the short form (taxon, author, date, page) and the full reference cited at the end of the paper. All citations, including those associated with scientific names, must be included in the references.

Manuscripts:

The original and two copies of manuscripts and figures should be submitted to the Editors, c/- Publications Department, Western Australian Museum, Francis Street, Perth, Western Australia 6000. They must be in double-spaced typescript on A4 sheets. All margins should be at least 30 mm wide. Tables plus heading and legends to illustrations should be typed on separate pages. The desired position for insertion of tables and illustrations in the text should be indicated in pencil. Tables should be numbered consecutively, have headings which make them understandable without reference to the text, and be referred to in the text.

High quality illustrations are required to size (16.8 cm x 25.2 cm) or no larger than 32 cm x 40 cm with sans serif lettering suitable for reduction to size. Photographs must be good quality black and white prints, not exceeding 16.8 cm x 25.2 cm. Scale must be indicated on illustrations. All maps, line drawings, photographs and graphs, should be numbered in sequence and referred to as Figure/s in the text and captions. Each must have a brief, fully explanatory caption. On acceptance a computer disk containing all corrections should be sent with amended manuscript. The disk should be marked with program (e.g. Word, WordPerfect, etc).

In papers dealing with historical subjects references may be cited as footnotes. In all other papers references must be cited in the text by author and date and all must be listed alphabetically at the end of the paper. The names of journals are to be given in full.

Processing:

Papers and short communications are reviewed by at least two referees and acceptance or rejection is then decided by the editors.

The senior author is sent one set of page proofs which must be returned promptly.

The senior author will receive fifty free offprints of the paper. Additional offprints can be ordered at page proof stage.

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