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**The Limoniinae (Diptera: Tipulidae) of Australia**  
**V. The genera *Helius* LE PELETIER & SERVILLE, *Toxorhina* LOEW, *Limonia* MEIGEN (part), *Tonnoiromyia* ALEXANDER and *Collessophila* gen. nov. (all tribe Limoniini) and *Atarba* OSTEN-SACKEN, *Amphineurus* SKUSE, *Erioptera* MEIGEN, *Cheilotrichia* ROSSI, *Gonomyia* MEIGEN and *Idiocera* DALE (all tribe Eriopterini)**

G. THEISCHINGER

**Abstract:** The Australian species of *Helius* LE PELETIER & SERVILLE, *Toxorhina* LOEW, *Limonia* MEIGEN (part), *Tonnoiromyia* ALEXANDER and *Collessophila* gen. nov. (all tribe Limoniini) and *Atarba* OSTEN-SACKEN, *Amphineurus* SKUSE, *Erioptera* MEIGEN, *Cheilotrichia* ROSSI, *Gonomyia* MEIGEN and *Idiocera* DALE (all tribe Eriopterini) are reviewed. Six taxa of the genus group and 85 taxa of the species group are described as new. Descriptive information of the hitherto undescribed sex is presented for 32 taxa (10♂♂, 22♀♀). Lectotypes are designated for 17 species. There are changes in taxonomic rank and changes and additions to synonymy. Diagnostic characters and distributional data are presented for all taxa of the species group.

**Introduction**

The species of *Helius* LE PELETIER & SERVILLE, *Toxorhina* LOEW, *Limonia* MEIGEN (part), *Tonnoiromyia* ALEXANDER and *Collessophila* gen. nov. (all tribe Limoniini) and *Atarba* OSTEN-SACKEN, *Amphineurus* SKUSE, *Erioptera* MEIGEN, *Cheilotrichia* ROSSI, *Gonomyia* MEIGEN and *Idiocera* DALE (all tribe Eriopterini) known from Australia were described by SKUSE (1890), ALEXANDER (1912-1978) and BRUNETTI (1912). More detail is given in brief introductory notes under the appropriate taxa of the genus group. As with the recently revised genera *Molophilus* CURTIS and *Gynoplistia* MACQUART (THEISCHINGER 1992b, 1993), the previously available literature does not provide workable means for specific identifications. In order to facilitate future work on Australian Limoniinae, all available types of the above genera were studied and in conjunction with large numbers of fresh specimens, were used for inter-

pretation and identification of previously described species in this paper. These, together with the descriptions of many new forms and much additional, mainly distributional, information are presented below. As can be seen from the title of the paper, I use the one-family concept in crane-flies which was followed throughout his career by ALEXANDER and which was recently seconded by BYERS (1992). As to the genera included in the different tribes, I largely concur with STARY (1992), who, however, ranks those tribes as subfamilies. I do not yet follow Stary's suggestion to replace the family-group name Eriopterinae by its senior synonym Chioneinae.

### **Descriptive terminology**

The terminology used for wing venation and genitalia roughly follows ALEXANDER & BYERS (1981). In detail it is presented with a labeled illustration under each supra-specific taxon (see there).

### **Methods**

Much as in the introductory paper to this series (THEISCHINGER 1992a) and in previous revisions (THEISCHINGER 1992b, 1993).

### **Identifications**

As in the introductory paper to this series (THEISCHINGER 1992a).

### **Acknowledgments**

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ALEXANDER Collection, and last but not least I am extremely grateful to Dr O.S. and Mrs C. Flint for accomodation so kindly provided in Washington D.C.

## Abbreviations

Apart from abbreviations in common use, and abbreviations for taxonomic terms and geographical regions of Australia, both listed in the introductive paper to this series (THEISCHINGER 1992a), the following abbreviations are used: a) for authors:

ALEX. = ALEXANDER

BRUN. = BRUNETTI

HALI. = HALIDAY

LE PEL. = LE PELETIER

MEIG. = MEIGEN

OST.-SACK. = OSTEN-SACKEN

PHIL. = PHILIPPI

ROND. = RONDANI

SERV. = SERVILLE

STEPH. = STEPHENS

WEST. = WESTWOOD

b) for institutions and collections:

AM = Australian Museum, Sydney

ANIC = Australian National Insect Collection, Canberra

BMNH = Natural History Museum, London, England

BPBM = Bishop Museum, Honolulu, U.S.A.

GT = Collection Gunther Theischinger

IM = Indian Museum, Calcutta, India

MV = Museum of Victoria, Melbourne

NMNH = National Museum of Natural History, Washington, D.C.

QM = Queensland Museum, Brisbane

SAM = South Australian Museum, Adelaide

UQ = University of Queensland, Brisbane

WAM = Western Australian Museum, Perth

c) others:

ca = circa

Ck = Creek

c. u. = collector unknown

Dist. = District

ft = feet

Hwy = Highway

Is. = Island(s)

jn = junction  
km = kilometer(s)  
mi. = mile(s)  
Mt = Mount Mtn = Mountain  
Mts = Mountains  
N. P. = National Park  
nr = near  
R. = River  
Ra. = Range(s)  
Rd = Road  
Ref. = Refuge  
Res. = Reserve  
S. F. = State Forest  
s. l. = same locality  
s. str. = sensu stricto  
Stn = Station  
trib. = tributary

## Systematics

### Genus *Helius* LE PELETIER & SERVILLE (Figs 1-16, 121-129)

*Megarhina* LE PELETIER & SERVILLE, Enc. Meth., Hist. Nat. 10: 585 (1828).

*Helius* LE PELETIER & SERVILLE, Enc. Meth., Hist. Nat. 10: 831 (1828) (alternative original name for *Megarhina* LE PELETIER & SERVILLE). Of the concurrently published names, *Megarhina* and *Helius*, the usage of *Helius* has been settled on the First Reviser Principle.

Type species of *Megarhina* LE PELETIER & SERVILLE: *Limnobia longirostris* MEIGEN 1818, by monotypy. Type species of *Helius* LE PELETIER & SERVILLE: *Limnobia longirostris* MEIGEN 1818, automatic.

Under *Rhamphidia* MEIGEN, SKUSE (1890) described four Australian species now placed in *Helius* LE PELETIER & SERVILLE. ALEXANDER (1930b) established *Eurhamphidia* for the inclusion of one of SKUSE's four species and of one he described as new. He (ALEXANDER 1933b) also described one species under *Helius* s. str. In the most recent catalog of the Diptera of the Australian and Oceanic Regions, OOSTERBROEK (1989) lists all above species under genus *Helius*, three of them under *Helius* s. str., two under subgenus *Eurhamphidia* and one under subgenus uncertain. In

this paper, the last species is also included in *Helius* s. str., and four new species are added to this subgenus. *Rhampholimnobia* ALEXANDER, with one species described as new, is recorded from Australia for the first time, and a new subgenus, *Mammuthonasus*, is established for a previously undescribed polytypic species.

**Definition:** Front of head produced (rostrum of variable length, from about as long as, to several times length of, remainder of head); antennae generally 16 segmented. Wing with Sc2 clearly evident; Rs forking into two branches only (R3 and R4+5), R2 absent; dm generally present. Male hypopygium with one or two pairs of gonostyli.

**Habitats of larvae:** According to ALEXANDER (1964), the immature stages of *Helius* live in saturated earth as in marshes and similar situations.

**Distribution:** All zoogeographic regions. In Australia: northern, eastern, western.

**Subgenera in Australia:**

*Eurhamphidia* ALEX.

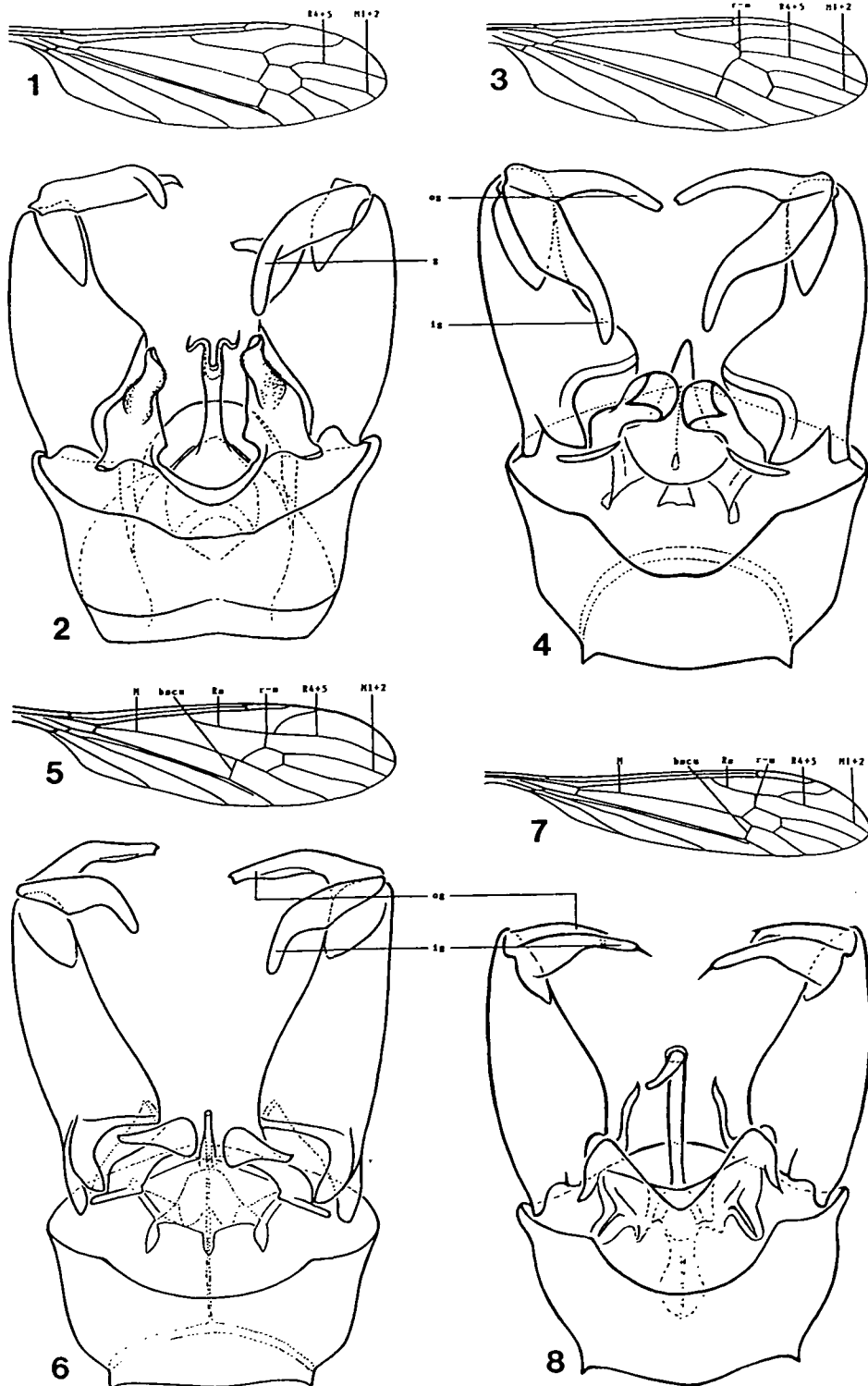
*Helius* LE PELETIER & SERVILE

*Mammuthonasus* sg. n.

*Rhampholimnobia* ALEX.

### Key to the subgenera of *Helius* in Australia (Figs 1-8)

1. R4+5 and M1+2 partly fused, thus crossvein r-m absent (Fig. 1); male hypopygium with only one pair of gonostyli (g) (Fig. 2) ..... *Mammuthonasus*
- R4+5 and M1+2 not fused, crossvein r-m present (Figs 3, 5, 7); male hypopygium with two pairs of gonostyli (ig, og) (Figs 4, 6, 8)..... 2
- 2 (1) Crossvein r-m connecting R4+5 and M1+2 (Fig. 3) ..... *Helius*
- Crossvein r-m connecting Rs and M1+2 (Figs 5, 7). ..... 3
- 3 (2) Crossvein bscu proximal to fork of M (Fig. 5) ..... *Rhampholimnobia*
- Crossvein bscu distal to fork of M (Fig. 7)..... *Eurhamphidia*



Figs 1, 2. *Helius (Mammuthonasus) allunga allunga* sp. et ssp. n.: 1: wing venation; - 2: male hypopygium, dorsal aspect. Figs 3, 4. *Helius (Helius) communis* (SKUSE): 3: wing venation; - 4: male hypopygium, dorsal aspect. Figs 5, 6. *Helius (Rhampholimnobia) deentoo* sp. n.: 5: wing venation; - 6: male hypopygium, dorsal aspect. Figs 7, 8. *Helius (Eurhamphidia) niveitarsis* (SKUSE): 7: wing venation; - 8: male hypopygium, dorsal aspect. Abbreviations: g = gonostylus; ig = inner gonostylus; og = outer gonostylus.

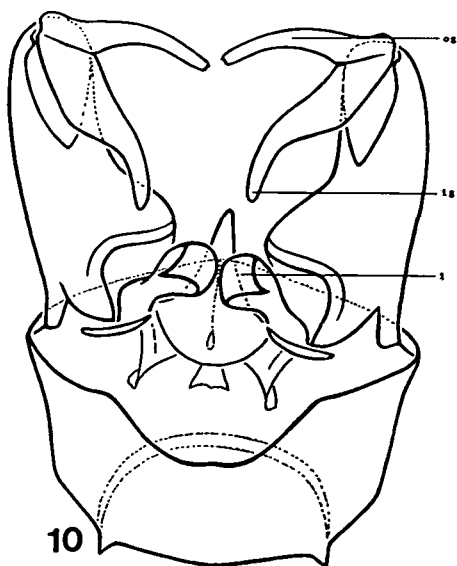
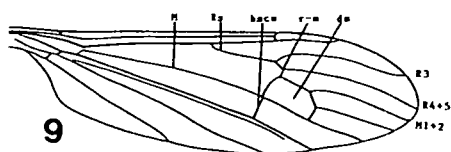
### Subgenus *Helius* LE PELETIER & SERVILLE (Figs 3, 4, 9, 10, 121-125)

*Megarhina* LE PELETIER & SERVILLE, Enc. Meth., Hist. Nat. 10: 585 (1828) (as genus).

*Helius* LE PELETIER & SERVILLE, Enc. Meth., Hist. Nat. 10: 831 (1828) (as genus) (alternative original name for *Megarhina* LE PELETIER & SERVILLE).

*Leptorhina* STEPHENS, The nomenclature of British insects, being a compendious list of such species as are contained in the systematic catalogue of British insects, and forming a guide to their classification, etc. etc. 2: 53 (1829) (as genus).

*Rhamphidia* MEIGEN, Systematische Beschreibung der bekannten europäischen zweiflügeligen Insekten 6: 281 (1830) (as genus).



Figs 9, 10. *Helius (Helius) communis* (SKUSE): 9: wing venation; - 10: male hypopygium, dorsal aspect. Abbreviations: i = interbase; ig = inner gonostylus; og = outer gonostylus.

Type species of *Megarhina* LE PELETIER & SERVILLE: *Limnobia longirostris* MEIGEN 1818, by monotypy. Type species of *Helius* LE PELETIER & SERVILLE: *Limnobia longirostris* MEIGEN 1818, automatic. Type species of *Leptorhina* STEPHENS: *Limnobia longirostris* MEIGEN 1818, by monotypy. Type species of *Rhamphidia* MEIGEN: *Limnobia longirostris* MEIGEN 1818, by designation of WESTWOOD 1840: 129.

**Definition:** Antennae 16 segmented. Wing (Fig. 9) with R3 generally longer than Rs; R4+5 and M1+2 not fused; r-m usually connecting R4+5 and M1+2; dm pentagonal; bscu usually distal to fork of M. Male hypopygium (Fig. 10) with two pairs of gonostyli (ig, og); no sclerotized bridge between interbases (i).

**Distribution:** All zoogeographic regions. In Australia: northern, eastern, western.

## Species in Australia:

<i>H. (H.) chintoo</i> sp. n.	<i>H. (H.) tonaleah</i> sp. n.
<i>H. (H.) communis</i> (SKUSE)	<i>H. (H.) tshintia</i> sp. n.
<i>H. (H.) fulvithorax</i> (SKUSE)	<i>H. (H.) venustus</i> (SKUSE)
<i>H. (H.) mesorhynchus</i> ALEX.	<i>H. (H.) yindi</i> sp. n.

***Helius (Helius) communis* (SKUSE) (Figs 3, 4, 9, 10, 121a, 122)**

*Rhamphidia communis* SKUSE, Proc. Linn. Soc. N.S.W. 4: 788 (1890).

*Helius* (?subgenus) *communis* (SKUSE); OOSTERBROEK & JONAS, Catalogue of the Australian-Oceanian Tipulidae (Insecta, Diptera): 56 (1986).

Primary type: Lectotype ♂, by present designation, of *Rhamphidia communis* SKUSE: New South Wales, Middle Harbour, near Sydney, Masters and Skuse (ANIC); seen; additionally labelled "Lectotype ♂ *Rhamphidia communis* SKUSE, designated by G. Theischinger 1994".

Published records: New South Wales: generally distributed (SKUSE 1890: 789). Queensland: Brisbane (ALEXANDER 1920a: 53); Cedarcreek; Glen Lamington (both RIEDEL 1920: 3).

Previous illustrations: SKUSE 1890: Pl. XXI, Fig. 9 (wing).

Genitalia: Male hypopygium, Figs 4, 10, 122.

Remarks: Very similar to *H. venustus* (SKUSE). Diagnostic characters: cell dm (Fig. 121a) about twice as long as wide; male with aedeagus basally wide, apically narrow, the tip not well rounded.

New records: Queensland: Binna Burra, Lamington N. P., 2000 ft (ANIC); Brisbane (NMNH, UQ); Brisbane, Sunnybank (NMNH); Bunya Mts N. P., Saddleback Ck (GT); Carnarvon Gorge (GT); Carnarvon N. P. (ANIC); Cunninghams Gap (UQ); Lamington N. P. (ANIC); Green Mtn, Lamington N. P. (ANIC); Maleny (ANIC); Montville (UQ); Peak Crossing (UQ); Pine Ck, 19 km S of Bundaberg (ANIC); Rockpool Gorge, Mt Walsh N. P., Biggenden (ANIC); Samford Valley, 12 mi. WNW of Brisbane (NMNH); S Queensland (NMNH); Woombye (ANIC); Yeronga, Brisbane (UQ). New South Wales: Acton, A.C.T. (ANIC); Barrington House (ANIC); 9 km SE of Batemans Bay (ANIC); Bawley Point (ANIC); Black Mtn, A.C.T. (ANIC); Billabong and Forest Ck jn, 42 km NE Deniliquin (ANIC); Bundeena (GT); Dorrigo- Corramba Rd (ANIC); Engadine, nr Sydney (GT); Greenwich (ANIC); Jenolan Caves (NMNH); Jervis Bay (ANIC); Lorien Ref., 3 km N Lansdowne, nr Taree (GT); Macquarie Pass (ANIC); Manly (ANIC); Minnamurra Falls, SE Mittagong (MV); Mosman (ANIC); Nadgee NR, nr Eden (GT); North Harbour, Sydney (ANIC); Petersham (ANIC); Sydney (ANIC); Tarro, Hunter R. (ANIC); Tregagle, 10 km SE Lismore (ANIC); Warrell Ck (ANIC). Victoria: Cohuna (ANIC); Latrobe R., Blue Lagoon Outfall (MV); Ringwood (MV). Tasmania: no other data (ANIC). South Australia: Flinders Ra., Wilpena Pound (ANIC); 9 mi. W of Murray Town (ANIC). Western Australia: Gingin (ANIC); Perth, sea level (NMNH).



**Distribution:** Queensland (SEQ, SIQ), New South Wales (NEN, SEN), Victoria, Tasmania, South Australia (SES); Western Australia (SWA).

***Helius (Helius) venustus* (SKUSE) (Figs 121b, 123)**

*Rhamphidia venusta* SKUSE, Proc. Linn. Soc. N.S.W. 4: 790 (1890).

*Helius venustus* (SKUSE); ALEXANDER, Proc. Linn. Soc. N.S.W. 52: 69 (1927).

*Helius (Helius) venustus* (SKUSE); ALEXANDER, Proc. Linn. Soc. N.S.W. 69: 5 (1944).

**Primary type:** Lectotype ♂, by present designation, of *Rhamphidia venusta* SKUSE: New South Wales, Middle Harbour, near Sydney, Skuse (ANIC); seen; additionally labelled "Lectotype ♂ *Rhamphidia venusta* SKUSE, designated by G. Theischinger 1994".

**Published records:** New South Wales: Brooklana, Dorrigo (ALEXANDER 1944: 5); Clifton; Knapsack Gully, Blue Mts; Middle Harbour, nr Sydney (all SKUSE 1890: 791).

**Genitalia:** Male hypopygium, Fig. 123.

**Remarks:** Similar to *H. communis* (SKUSE). Diagnostic characters: thorax with distinct dark stripes; male with aedeagus conical, the tip well rounded.

**New records:** Queensland: Bee Ck, nr Eungella (GT); Birthday Ck, 6 km NW by W of Paluma (ANIC); 2 km S of Horseshoe Lookout, Blackdown Tableland (ANIC). New South Wales: Marengo S. F. (GT).

**Distribution:** Queensland (NEQ, SEQ), New South Wales (NEN, SEN).

***Helius (Helius) mesorhynchus* ALEXANDER**

*Helius (Helius) mesorhyncha* ALEXANDER, Ann. Mag. nat. Hist. (10) 12: 350 (1933).

*Helius (Helius) mesorhynchus* ALEXANDER; ALEXANDER, Proc. Linn. Soc. N.S.W. 69: 5 (1944).

**Primary type:** Holotype ♀: New South Wales, A.C.T., Blundell's, 21.1.1931, A.L. Tonnoir (NMNH); seen.

**Published records:** New South Wales: Blundell's, A.C.T (ALEXANDER 1933b: 351; ALEXANDER 1944: 5). Known only from female.

**Original description:** Length, including rostrum, about 8 mm; wing 6 mm; rostrum 0,8 mm. Rostrum relatively short, a little less than twice the remainder of head, obscure yellow throughout; palpi black. Antennae about as long as the rostrum, black throughout; flagellar segments oval, gradually decreasing in size outwardly; verticils only a little longer than the segments. Head grey; anterior vertex about 1/2 wider than the diameter of the scape. Pronotum dark grey. Mesonotal praescutum with the ground-colour brownish yellow, with three darker brown stripes, the median one

weakly divided behind; posterior sclerites of mesonotum grey, the centres of the scutal lobes darker, the posterior margin of scutellum somewhat brighter. Pleura grey. Legs with the coxae brownish yellow; trochanters yellow; femora, tibiae and basitarsi obscure yellow, the tips narrowly darkened; outer tarsal segments more uniformly brown. Wings relatively narrow, with a faint brown tinge, the prearcular and costal regions clearer yellow; stigma oval, brown; wing-tip in outer radial field narrowly darkened; a scarcely evident darkening on anterior cord; veins brown, paler in the flavous portions. Venation: Rs in alignment with R4+5, the basal deflection of the latter lacking; branches of sector diverging, cell R3 at margin about 1/3 more extensive than cell R2; r-m at fork of Rs; cell 1st M2 widest across basal portion; m-cu close to fork of M. Halteres pale, the knobs infuscated. Abdominal tergites dark brown, the sternites more yellowish brown; valves of ovipositor elongate.

**Remarks:** Affinities cannot be assessed as the male is still unknown. According to ALEXANDER (1933b), *H. fulvithorax* would seem to be the nearest described species. Potential diagnostic characters (female): rostrum short, a little less than twice remainder of head.

**New records:** None.

**Distribution:** New South Wales (SEN).

### ***Helius (Helius) fulvithorax* (SKUSE) (Figs 121c, 121d, 124)**

*Rhamphidia fulvithorax* SKUSE, Proc. Linn. Soc. N.S.W. 4: 789 (1890).

*Helius (Helius) fulvithorax* (SKUSE); ALEXANDER, Ann. Mag. nat. Hist. (10) 12: 351 (1933).

**Primary type:** Holotype ♂: New South Wales, Narrabeen Lagoon, nr Manly, Jan., Skuse (ANIC); seen.

**Published records:** New South Wales: Narrabeen Lagoon, near Manly (SKUSE 1890: 790).

Previously known only from male.

**Description of female:** Structure and colouration much as described for male (SKUSE 1890). Wing length 6,4 mm.

**Genitalia:** Male hypopygium, Fig. 124.

**Remarks:** Similar to *H. tshintia* sp. n. and *H. yindi* sp. n. Diagnostic characters: medium size (wing length 6,4-6,6 mm); rostrum moderately long (about three times as long as remainder of head); thorax, coxae and trochanters pale; vein R3 almost parallel to R4+5 (Fig. 121d).

New records: Queensland: 2 km S of Horseshoe Lookout, Blackdown Tableland (ANIC); Searys Ck, nr Rainbow Beach (GT). New South Wales: Bawley Point (ANIC).

Distribution: Queensland (SEQ), New South Wales (SEN). RIEDEL (1921) cited specimen from New Guinea - probably a misidentification.

***Helius (Helius) tshinta* spec. nov. (Figs 121e, 121f)**

Description (♀): Head largely blackish grey; rostrum greyish- to brownish yellow, about twice as long as remainder of head; palps and antennae greyish- to brownish yellow. Thorax greyish- to brownish yellow. Legs greyish yellow, the femora with or without greyish brown subapical ring. Wings very faintly suffused with greyish yellow all over. Halteres greyish yellow. Abdomen greyish yellow, ringed with greyish brown; terminalia greyish yellow to yellowish brown. Wing length 4,3-5,5 mm.

Male unknown.

Remarks: Similar to *H. fulvithorax* (SKUSE) and *H. yindi* sp. n. Diagnostic characters (female): small (wing length 4,3-5,5 mm); rostrum rather short (about twice length of remainder of head); thorax, coxae and trochanters pale; R3 moderately long; R3 and R4+5 diverging towards wing margin (Fig. 121f).

Material examined: Holotype ♀: Northern Territory, Litchfield Park, Ada Creek, at Jump Up, light trap, 24-25.6.1992, Wells and Webber (ANIC). Paratypes: Northern Territory: 1 ♀, same data as holotype (NTM). Queensland: 1 specimen (genitalia missing), 3 ♀ ♀, 13°44'S/143°20'E, 11 km W by N Bald Hill, McIlwraith Range, 500 m, I.D. Naumann (ANIC).

Distribution: Queensland (CY), Northern Territory (NNT).

Name: Tshinta is an Australian Aboriginal word for "sun".

***Helius (Helius) yindi* spec. nov. (Figs 121g, 121h)**

Description (♀): Head largely dark grey; rostrum dark yellowish- to greyish brown, about four times as long as remainder of head; palps and antennae dark greyish brown. Thorax dark reddish- to blackish brown. Coxae and trochanters dark reddish- to blackish brown; other leg segments dark yellowish- to greyish brown. Wings very faintly suffused with greyish brown, somewhat darker in pterostigma area. Halteres with stem greyish yellow and knob greyish brown. Abdomen greyish brown, ringed

with pale yellowish grey; terminalia greyish yellow to yellowish brown. Wing length 4,6 mm.

Male unknown.

**Remarks:** Similar to *H. fulvithorax* (SKUSE) and *H. tshintia* sp. n. Diagnostic characters (female): small (wing length 4,6 mm); rostrum long (about four times as long as remainder of head); thorax, coxae and trochanters very dark; vein R3 long and almost parallel to R4+5 (Fig. 121h).

**Material examined:** Holotype ♀: Queensland, 15°03'S/145°09'E, 3 km NE of Mount Webb, at light, 3.10.1980, D.H. Colless (ANIC).

**Distribution:** Queensland (CY); known only from the holotype.

**Name:** Yindi is an Australian Aboriginal word for "sun".

### ***Helius (Helius) tonaleah* spec. nov. (Fig. 121i)**

**Description (♀):** Head including palps and antennae blackish brown; rostrum brown, about twice as long as remainder of head. Thorax blackish brown. Coxae and trochanters yellowish- to greyish brown; femora pale to dark greyish brown, with extreme apex yellow; tibiae greyish brown with extreme base yellow; tarsi and claws greyish- to blackish brown. Wings largely suffused with greyish brown; distinct dark greyish brown patches just distal of arculus, at origin of Rs, in pterostigma area, about midway of cell Rs and along cord. Halteres with stem yellowish grey and knob greyish brown. Abdomen largely greyish brown, ringed with pale yellowish grey; terminalia dark yellowish brown. Wing length 10,7-10,9 mm.

Male unknown.

**Remarks:** Not similar to any other described Australian species. Diagnostic characters (female): large (wing length 10,7-10,9 mm); rostrum short (about twice length of remainder of head); wing pattern heavy (membrane largely blackish grey).

**Material examined:** Holotype ♀: Western Australia, Pemberton, 5.10.1970, D.H. Colless (ANIC). Paratype: 1♀, Western Australia, Deep Dene, 23.6.1963, L.M. O'Halloran (ANIC).

**Distribution:** Western Australia (SWA).

**Name:** Tonaleah is an Australian Aboriginal word for "sun".

***Helius (Helius) chintoo* spec. nov. (Figs 121j, 121k, 125)**

**Description:** Head largely pale grey; rostrum pale yellowish brown, about as long as remainder of head; palps pale greyish brown; antennae with scape and pedicel pale yellowish brown and flagellum greyish brown. Thorax greyish yellow to pale greyish brown. Legs greyish yellow. Wings very faintly suffused with greyish yellow all over. Halteres greyish yellow. Abdomen greyish yellow, ringed with greyish brown. Wing length, male 3,6-4,4 mm, female 4,0-4,8 mm.

**Genitalia:** Male hypopygium, Fig. 125.

**Remarks:** Not similar to any other described Australian species. Diagnostic characters: small (wing length 3,6-4,8 mm); colouration largely yellowish- to greyish brown; rostrum short (about as long as remainder of head); veins R3 and R4+5 widely divergent (Fig. 121k).

**Material examined:** Holotype ♂: Queensland, 15°16'S/144°59'E, Mount Cook National Park, at light, 12.10.1980, D.H. Colless (ANIC). Paratypes: Queensland: 1♂, type locality, 11.10.1980, D.H. Colless (ANIC); 1♂, 15°04'S/145°07'E, Mount Webb National Park, at light, 28.9.1980, 1♂, s. l., 30.9.1980, D.H. Colless (ANIC); 2♂♂, 15°03'S/145°09'E, 3 km NE of Mount Webb, at light, 1.10.1980, D.H. Colless (ANIC, GT); 1♀, 15°14'S/145°07'E, 7 km N of Hope Vale Mission, at light, 4.10.1980, D.H. Colless (ANIC); 1♀, 15°16'S/144°59'E, 14 km W by N of Hope Vale Mission, at light, 10.10.1980, D.H. Colless (ANIC). Western Australia: 1♀, 14°49'S/126°49'E, Carson escarpment, 9-15.8.1975, I.F.B. Common and M.S. Upton (ANIC); 2♀♀, 15°02'S/126°55'E, Drysdale River, 3-8.8.1975, I.F.B. Common and M.S. Upton (ANIC). Northern Territory: 1♂, Darwin, malaise trap, 22-25.6.1984, M. Malipatil (NTM); 1♀, Litchfield National Park, Florence Falls, 13°03'S/130°47'E, light, 9.4.1991, Wells and Horak (NTM); 1♀, Melville Island, Pularumpi, 11°26'S/130°23'E, MV-light, 30.6.-6.7.1986, P. Horner (NTM); 3♂♂, 1♀, 12 km NNW of Mount Cahill, 25.10.1972, D.H. Colless (ANIC); 1♀, Nourlangie Creek, 8 km N of Mount Cahill, 16.6.1973, D.H. Colless (ANIC).

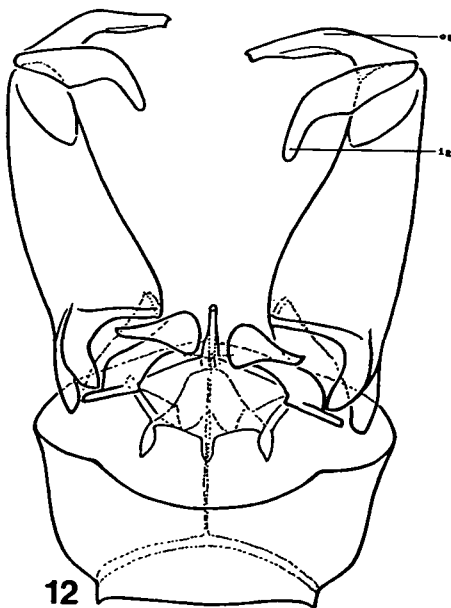
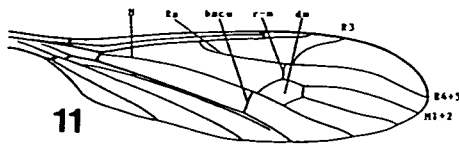
**Distribution:** Queensland (CY), Western Australia (KIM), Northern Territory (NNT).

**Name:** Chintoo is an Australian Aboriginal word for "sun".

**Subgenus *Rhampholimnobia* ALEXANDER (Figs 5, 6, 11, 12, 126)**

*Rhampholimnobia* ALEXANDER, Proc. U.S. Natl. Mus. 49: 169 (1915) (as genus).

**Type species:** *Rhampholimnobia reticularis* ALEXANDER 1915, by original designation.



Figs 11, 12. *Helius (Rhampholimnobia) deentoo* sp. n.: 11: wing venation; - 12: male hypopygium, dorsal aspect. Abbreviations: ig = inner gonostylus; og = outer gonostylus.

**Definition:** Antennae 15 (ALEXANDER 1915b) or 16 segmented. Wing (Fig. 11) with R3 shorter than Rs which is aligned with R4+5; R4+5 not fused with M1+2, r-m present; dm pentagonal; bscu proximal to fork of M. Male hypopygium (Fig. 12) with two pairs of gonostyli (ig, og).

**Distribution:** Oriental and Australian regions. In Australia: north-eastern.

Only one species in Australia:

*H. (R.) deentoo* sp. n.

***Helius (Rhampholimnobia) deentoo* spec. nov. (Figs 5, 6, 11, 12, 126)**

**Description (♂):** Head largely brownish- to blackish grey; rostrum dark greyish brown, slightly longer than remainder of head; palps and antennae greyish brown. Thorax brown. Legs pale to dark greyish brown. Wings almost hyaline, with greyish brown patch at origin of Rs and in

pterostigma area. Halteres with stem greyish yellow and knob greyish brown. Abdomen greyish brown, or greyish brown and indistinctly ringed with paler; gonocoxites somewhat paler than the rest. Wing length 3,8-4,5 mm.

**Genitalia:** Hypopygium, Figs 6, 12, 126.

Female unknown.

**Remarks:** Not similar to any other described Australian species. Diagnostic characters: small (wing length 3,8-4,5 mm); rostrum short (about 1,5 times as long as remainder of head); vein R3 short, hardly 1/3 length of R4+5, strongly and almost evenly curved.

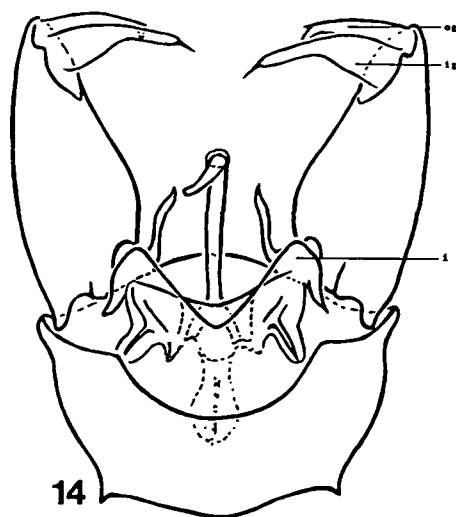
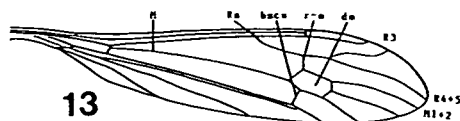
**Material examined:** Holotype ♂: Queensland, 12°44'S/143°14'E, 3 km ENE of Mount Tozer, 28.6.-4.7.1986, D.H. Colless (ANIC). Paratypes: Queensland: 1♂, Cape Tribulation, 23-26.10.1989, G. Theischinger (GT); 3♂♂, Mossman Gorge, 23.4.1967, D.H. Colless (ANIC); 3♂♂, Bamboo Creek, near Miallo, N of Mossman, 25.4.1967, D.H. Colless (ANIC, GT).

**Distribution:** Queensland (CY, NEQ).

**Name:** Deentoo is an Australian Aboriginal word for "sun".

**Subgenus *Eurhamphidia* ALEXANDER (Figs 7, 8, 13, 14, 127, 128)**

*Eurhamphidia* ALEXANDER, Proc. U.S. Natl. Mus. **49**: 168 (1915) (*Rhamphidia* subgenus).



Figs 13, 14. *Helius* (*Eurhamphidia*) *niveitarsis* (SKUSE): 13: wing venation; - 14: male hypopygium, dorsal aspect. Abbreviations: i = interbase; ig = inner gonostylus; og = outer gonostylus.

Type species: *Rhamphidia niveitarsis* SKUSE 1890, by original designation.

Definition: Rostrum short, about as long as remainder of head; antennae 16 segmented. Wing (Fig. 13) with R3 sinuous and about as long as Rs; R4+5 and M1+2 not fused; r-m connecting Rs and M1+2; dm hexagonal; bscu distal to fork of M. Male hypopygium (Fig. 14) with two pairs of gonostyli (ig, og); a sclerotized bridge between the interbases (i).

Distribution: Oriental and Australian regions. In Australia: eastern (mainly south-eastern), south-western.

**Species in Australia:**

*H. (E.) invenustipes* ALEX.

*H. (E.) niveitarsis* (SKUSE).

***Helius* (*Eurhamphidia*) *niveitarsis* (SKUSE) (Figs 7, 8, 13, 14, 127)**

*Rhamphidia niveitarsis* SKUSE, Proc. Linn. Soc. N.S.W. **4**: 791 (1890).

*Rhamphidia* (*Eurhamphidia*) *niveitarsis* SKUSE; ALEXANDER, Proc. U.S. Natl. Mus. **49**: 168 (1915).

*Eurhamphidia niveitarsis* (SKUSE); ALEXANDER, Proc. Linn. Soc. N.S.W. **52**: 69 (1927).

*Helius* (*Eurhamphidia*) *niveitarsis* (SKUSE); ALEXANDER, Proc. Linn. Soc. N.S.W. **69**: 6 (1944).

Primary type: Lectotype ♀, by present designation, of *Rhamphidia niveitarsis* SKUSE: New South Wales, Knapsack Gully, Blue Mountains, Masters and Skuse (ANIC); seen; additionally labelled "Lectotype ♀ *Rhamphidia niveitarsis* SKUSE, designated by G. Theischinger 1994".

**Published records:** New South Wales: Brooklana, Dorrigo (ALEXANDER 1944: 6); Knapsack Gully, Blue Mts; Woronora (both SKUSE 1890: 792).

Previously known only from female. (The male described from Javanese material (ALEXANDER 1915b) most probably represents a different species).

**Description of male:** Structure and colouration much as described for female (SKUSE 1890). Wing length 4,5-5,9 mm.

**Genitalia:** Hypopygium, Figs 8, 14, 127.

**Remarks:** Very similar to *H. invenustipes* (ALEX.). Diagnostic characters: femora and tibiae with white markings, tarsi white.

**New records:** Queensland: Camp Mt (ANIC). New South Wales: Batemans Bay (ANIC); 10 mi. N of Batemans Bay (ANIC); ck nr Berowra (GT); Bodalla (ANIC); Bolaro, 16 km WNW Batemans Bay (GT); Bowral (ANIC); Bundanoon (GT); Calga (GT); Clyde Mt area (ANIC); Kuringai Chase (GT); cks nr Lucas Heights (GT); Narooma (ANIC); Picton Lakes (ANIC); Somersby Falls, N of Sydney (GT); Stoney Ck, 77 km N of Windsor (ANIC); Woronora R., nr Heathcote (GT). Victoria: Bell Bird Ck (ANIC); Cabbage Tree Ck (ANIC); Cann R. (ANIC); Cape Otway (ANIC); 5 East Genoa (ANIC); 7 East Orbst (ANIC); Grampians (ANIC); Myrtleford, Ovens R. (MV); Sherbrooke (ANIC); Simpson's Ck (ANIC); Thurra R., Gippsland (ANIC); Toorloo Arm, Gippsland (ANIC).

**Distribution:** Queensland (SEQ), New South Wales (NEN, SEN), Victoria.

### ***Helius (Eurhamphidia) invenustipes* (ALEXANDER) (Fig. 128)**

*Eurhamphidia invenustipes* ALEXANDER, Ann. Mag. nat. Hist. (10) 5: 155 (1930).

*Helius (Eurhamphidia) invenustipes* (ALEXANDER); OOSTERBROEK & JONAS, Catalogue of the Australian-Oceanian Tipulidae (Insecta, Diptera): 54 (1986).

**Primary type:** Holotype ♂: Western Australia, Donnybrook, 29.8.1926, E.W. Ferguson (supposedly in ANIC); not found.

**Published records:** Western Australia: Donnybrook; Pemberton (both ALEXANDER 1930b: 156).

Previously known only from male.

**Description of female:** Structure and colouration much as described for male (ALEXANDER 1930b). Wing length 6,0-6,8 mm.

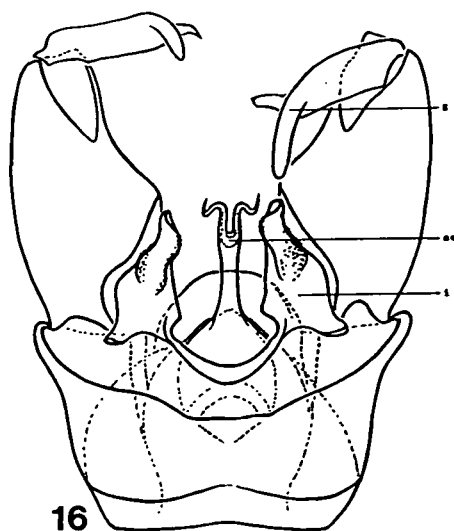
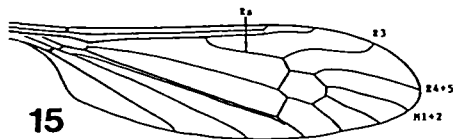
**Genitalia:** Male hypopygium, Fig. 128.

**Remarks:** Very similar to *H. niveitarsis* (SKUSE). Diagnostic characters: legs without white markings.

**New records:** Western Australia: Augusta (ANIC); Gingin (ANIC); Jarrahdale (ANIC); Mammoth Cave, 46 km S Yallingup (WAM); Mandijong (ANIC); Margaret R. (AM); Mt Chudalup, S of Northcliffe (ANIC); Nunnup (ANIC); 24 NW Pemberton, tea-tree swamp (ANIC); Porongurup (ANIC).

**Distribution:** Western Australia (SWA).



***Mammuthonasus* subgen. nov. (Figs 1, 2, 15, 16, 129)**

Figs 15, 16. *Helius (Mammuthonasus) allunga allunga* sp. et ssp. n.: 15: wing venation; - 16: male hypopygium, dorsal aspect. Abbreviations: ae = aedeagus; g = gonostylus; i = interbase.

Type species: *Helius allunga* sp. n., by monotypy.

Definition: Rostrum long and powerful (about four times as long as remainder of head); antennae 16 segmented, conical, the first three flagellar segments wider than long. Wing (Fig. 15) with R3 sinuous and about as long as Rs; R4+5 fused partly with M1+2, thus r-m absent. Male hypopygium (Fig. 16) with only one pair of gonostyli (g); interbases (i) connected by sclerotized bridge; apex of aedeagus (ae) profoundly bifid.

Remarks: Similar in some respects to *Prohelius* ALEX. from Africa, *Idiohelius* ALEX. from New Caledonia and *Rhampholimnobia* ALEX. Diagnostic characters: as given above.

Distribution: Australian region. In Australia: northern.

Name: A combination of *Mammuthus* (= generic name for "Mammoth") and *nasus* (= Latin for "nose"); refers to the long powerful rostrum.

Only one species in Australia:

*H. (M.) allunga* sp. n.

***Helius (Mammuthonasus) allunga* spec. nov. (Figs 1, 2, 15, 16, 129)**

Remarks: Not similar to any other described Australian species. Diagnostic characters: as given above, under *Mammuthonasus* sg. n.

Distribution: Queensland (CY), Western Australia (KIM), Northern Territory (NNT).

Subspecies in Australia:

*H. (M.) allunga* ssp. n.

*H. (M.) wirruna* ssp. n.

***Helius (Mammuthonasus) allunga allunga* spec. et subspec. nov.****(Figs 1, 2, 15, 16, 129)**

**Description:** Head largely dark grey; rostrum blackish brown; palps and antennae dark greyish brown. Thorax largely greyish brown. Coxae and trochanters reddish- to greyish brown; femora dark greyish yellow to to greyish brown, apex blackish brown; tibiae, tarsi and claws greyish brown. Wings largely hyaline, distinctly and almost regularly spotted with greyish brown (including pterostigma) between R and CuA. Halteres with stem greyish yellow and knob greyish brown. Abdomen dark greyish brown, terminalia slightly paler. Wing length, male 4,5-5,4 mm, female 4,8-5,6 mm.

**Genitalia:** Male hypopygium, Figs 2, 16, 129.

**Remarks:** Very similar to *H. allunga wirruna* ssp. n. Diagnostic characters: dark wing pattern regular and spread over most of wing (between R and CuA).

**Material examined:** Holotype ♂: Queensland, 15°03'S/145°09'E, 3 km NE of Mount Webb, at light, 30.4.1981, D.H. Colless (ANIC). Paratypes: Queensland: 1♂, 4♀♀, same data as holotype (ANIC); 1♂, type locality, 1.10.1980, 1♀, s. l., 2.10.1980, 1♂, s. l., 3.10.1980, 2♀♀, s. l., 2.5.1981, D.H. Colless (ANIC); 2♂♂, 10°55'S/142°22'E, Burster Creek, at light, 17.10.1992, P. Zborowski and T. Weir (ANIC); 1♂, 1♀, 15°14'S/145°07'E, 7 km N of Hope Vale Mission, at light, 4.10.1980, D.H. Colless (ANIC); 1♂, 15°17'S/145°13'E, 1 km N of Rounded Hill, at light, 6.10.1980, D.H. Colless (ANIC); 1♂, 15°17'S/145°17'E, 4 km N by E Rounded Hill, at light, 6.5.1981, D.H. Colless (GT).

**Distribution:** Queensland (CY).

**Name:** Allunga is an Australian Aboriginal word for "sun".

***Helius (Mammuthonasus) allunga wirruna* subspec. nov.**

**Description:** Head largely dark grey; rostrum blackish brown; palps and antennae dark greyish brown. Thorax largely greyish brown. Coxae and trochanters reddish- to greyish brown; other leg segments pale to dark greyish brown with only apex of femora somewhat darker. Wings largely hyaline, spotted rather irregularly and sparsely with dark greyish brown (including pterostigma) between R and M. Halteres greyish yellow, stem paler than knob. Abdomen dark greyish brown, ringed indistinctly with paler. Wing length, male 4,3-5,0 mm, female 4,7-5,6 mm.

**Genitalia:** Much as in *H. a. allunga* sp. et ssp. n., but with all structures slightly more slender.

**Remarks:** Very similar to *H. a. allunga* sp. et ssp. n. Diagnostic characters: dark wing pattern irregular and rather restricted (between R and M).

**Material examined:** Holotype ♂: Northern Territory, 15 km S by E of Mudginbarry HS (Scarp foot), 11.6.1973, D.H. Colless (ANIC). Paratypes: Northern Territory: 3♂♂, same data as holotype (ANIC, GT); 1♀, Baroalba Creek, Springs, 19 km NE by E of Mount Cahill, 28.10.1972, D.H. Colless (ANIC); 1♂, Bessie Spring, 16°40'S/135°51'E, 8 km ESE of Cape Crawford, 26.10.1975, M.S. Upton (ANIC); 1♀, 16°08'S/136°06'E, 22 km WSW of Borroloola, 2.11.1975, M.S. Upton (ANIC); 1♂, 3♀♀, Bowerbird, Magela Creek, 13°37'S/132°08'E, 29.8.-1.9.1983, I. Archibald (NTM); 2♂♂, Gimbat Station, 13°29'S/132°28'E, MV-light, 7-8.10.1986, P. Horner (NTM); 3♀♀, Kakadu National Park, Baroalba Springs, 25.4.1991, Wells and Webber (NTM); 1♀, Koongarra, 15 km E of Mount Cahill, 12.6.1972, 1♀, s. l., 15.11.1972, 1♂, s. l., 6-9.3.1973, D.H. Colless (ANIC); 2♂♂, 1♀, Litchfield National Park, Tolmer Falls, 12°13'S/130°43'E, light trap, 9-10.4.1991, Wells and Horak (NTM); 2♂♂, 2♀♀, Litchfield Park, Ada Creek, at Jump Up, light trap, 24-25.6.1992, Wells and Webber (NTM); 1♀, 15 km E by N of Mount Cahill, 29.10.1972, D.H. Colless (ANIC); 1♂, 1♀, 9km N by E of Mudginbarry HS, 30.10.1972, D.H. Colless (ANIC); 1♀, Nourlangie Creek, 8 km N of Mount Cahill, 16.6.1973, D.H. Colless (ANIC). Western Australia: 1♂, 14°49'S/126°49'E, Carson escarpment, 9-15.8.1975, I.F.B. Common and M.S. Upton (ANIC).

**Distribution:** Western Australia (KIM), Northern Territory (NNT).

**Name:** Wirruna is an Australian Aboriginal word for "sunset".

### **Genus *Toxorhina* LOEW (Figs 17-24, 130-134)**

*Toxorhina* LOEW, Programm. K. Realschule zu Meseritz: 36 (1850).

*Toxorrhina*, error for *Toxorhina*.

**Type species:** *Toxorhina fragilis* LOEW 1851, by designation of OSTEN SACKEN 1869: 113.

*Toxorhina* LOEW is generally, including the recent catalogs of OOSTERBROEK & JONAS (1986) and OOSTERBROEK (1989), placed in the tribe Eriopterini. On the basis of wing venation and male genitalia, however, *Toxorhina* is in my opinion closer to other limoniine genera with prolonged rostrum, particularly *Helius* LE PELETIER & SERVILLE. Since those genera have been included in Limoniinae (= Limoniini of this series of papers) by STARY (1992), I am treating *Toxorhina* as a member of the Limoniini. All previously known Australian species described were described by ALEXANDER (1922a, 1926, 1931a, 1944) and listed under *Toxorhina* (*Ceratocheilus*) by OOSTERBROEK (1989). As a result of the present study, two of ALEXANDER's taxa are synonymized, and three more species are described in the subgenus *Ceratocheilus*. Another species described as new in this paper, represents the first record of the subgenus *Eutoxorhina* ALEXANDER for Australia.

**Definition:** Front of head extended into a long slender rostrum; antennae 16 segmented. Setae of legs profoundly bifid. Wing: Sc2 situated basal to origin of Rs, Sc1 not exceeding fork of Rs; Rs short, almost straight from origin, and in alignment with R4+5; R2 or R2 and R3 missing, and no more than 2 branches of Rs reaching wing margin; r-m present or absent; bscu very close to fork of M; cell dm closed or open.

**Distribution:** All zoogeographic regions. In Australia: eastern, south-western.

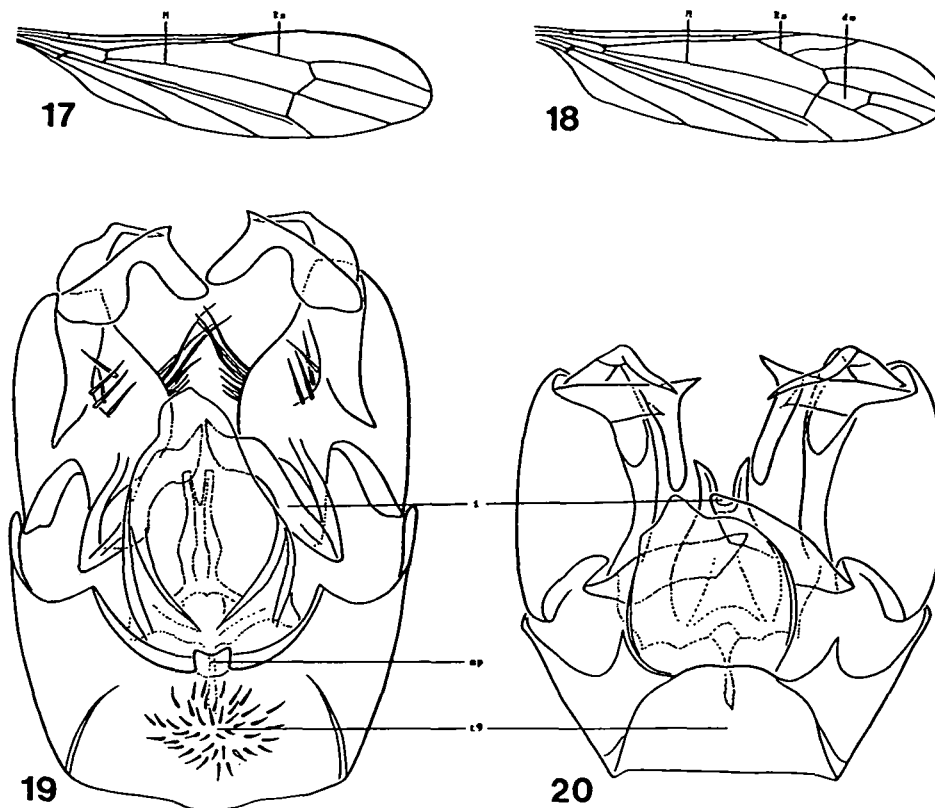
**Subgenera in Australia:**

*Ceratocheilus* WESCHE

*Eutoxorhina* ALEX.

**Key to the subgenera and species groups of *Toxorhina* in Australia  
(Figs 17-20)**

- 1       Rs and M single-branched; r-m absent; dm open (Fig. 17) ..... *Eutoxorhina*
- Rs and M double-branched; r-m present; dm closed (Fig. 18) .. *Ceratocheilus*, 2
- 2 (1)   Number of macrotrichiae on M4 (= CuA1) greater than 25 .....  
..... *T. (C.) australasiae* group
- Number of macrotrichiae on M4 (= CuA1) smaller than 25 ..... 3
- 3 (2)   Tergite 9 (t9) of male with median projection (mp); interbase (i) strongly  
curved (Fig. 19) ..... *T. (C.) nasus* group
- Tergite 9 (t9) of male without median projection; interbase (i) slightly  
curved (Fig. 20) ..... *T. (C.) tasmaniensis* group



Figs 17, 18. Wing venation of: 17: *Toxorhina (Eutoxorhina) ammoula* sp. n.; - 18: *Toxorhina (Ceratocheilus) nasus* sp. n. Figs 19, 20. Male hypopygium, dorsal aspect, of: 19: *Toxorhina (Ceratocheilus) nasus* sp. n.; - 20: *Toxorhina (Ceratocheilus) tasmaniensis* (ALEX.). Abbreviations: i = interbase; mp = median projection; t9 = tergite 9.

### Subgenus *Ceratocheilus* WESCHE (Figs 17, 19-23, 130-133)

*Ceratocheilus* WESCHE. J. Linn. Soc. Lond. Zool. **30**: 358 (1910) (as genus).

*Neostyringomyia* ALEXANDER, Can. Ent. **44**: 85 (1912) (as subgenus of *Styringomyia*).

*Conithorax* BRUNETTI, Rec. Indian Mus. **15**: 298 (1918) (as genus).

Type species of *Ceratocheilus* WESCHE: *Ceratocheilus winnsampsoni* WESCHE 1910 (= *Styringomyia cornigera* SPEISER 1908), by designation of BRUNETTI 1920: 230. Type species of *Neostyringomyia* ALEXANDER: *Styringomyia cornigera* SPEISER 1908, by original designation. Type species of *Conithorax* BRUNETTI. *Conithorax latifrons* BRUNETTI: 1918, by original designation.

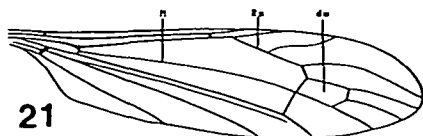


Fig. 21. *Toxorhina (Ceratocheilus) nasus* sp. n., wing venation.

**Definition:** Wing (Fig. 21): Rs and M both double-branched; dm closed.

**Distribution:** Australian, Ethiopian, Neotropical, Oriental and Palearctic regions.

**In Australia:** eastern, south-western.

*T. (C.) australasiae* group

*T. (C.) nasus* group

*T. (C.) tasmaniensis* group.

### ***Toxorhina (Ceratocheilus) australasiae* group**

**Definition:** More than 25 macrotrichiae on M4 (=CuA1).

**Distribution in Australia:** Lord Howe Island.

**Only one species in Australia:**

*T. (C.) australasiae* (ALEX.).

### ***Toxorhina (Ceratocheilus) australasiae* (ALEXANDER)**

*Ceratocheilus australasiae* ALEXANDER, Rec. S. Aust. Mus. 2: 235 (1922).

*Toxorhina (Ceratocheilus) australasiae* (ALEXANDER); ALEXANDER, Ann. ent. Soc. Am. 41: 147 (1948).

**Primary type:** Holotype ♀: Lord Howe Island, A.M. Lea (NMNH, SAM); seen.

**Published records:** Lord Howe Island (ALEXANDER 1922a: 236). Known only from female.

**Previous illustrations** ALEXANDER 1927a: Fig. 87 (part of wing).

**Original description:** Length excluding rostrum 8 mm; wing 7,8 mm; rostrum 5,5 mm. Rostrum slender, dark brownish black. Antennae dark brownish black. Head yellowish grey, the median area of the vertex a little infuscated; corniculus small, cubcircular, yellowish brown. Pronotum dark brown; lateral margins of the mesonotal praescutum brownish yellow, the disk with three broad dark brown stripes, the anterior ends of the lateral stripes confluent with the median stripe, restricting the ground-colour to two indistinct streaks near the suture; scutal lobes dark brown; scutellum and postnotum reddish testaceous, brown medially, sparsely pruinose; pleura obscure brownish yellow, with a broad dark brown longitudinal stripe extending from the pronotum to the base of the abdomen, passing through the base of the halteres; mesoster-

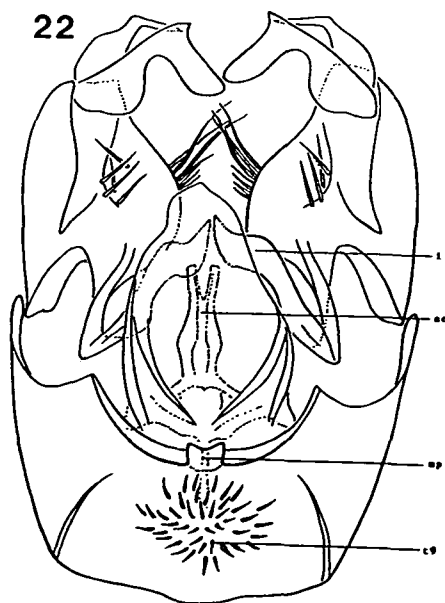
num between the fore and middle coxae pale brown. Legs with the coxae and trochanters brown, the femora brown, paler basally; tibiae and tarsi darker brown; hairs on the legs profoundly bifid as in the genus. Wings with a strong brownish tinge, a little darker along the cord; cells C and Sc darker brown; veins dark brown. Venation: Sc1 ending a short distance beyond the origin of Rs, Sc2 opposite this origin; Rs short, straight, subequal to the deflection of R4+5; R2+3 sinuous, about twice the length of the sector; cell 1st M2 closed, m-a little more than one-half the outer deflection of M3; basal deflection of Cu1 a short distance beyond the fork of M. Halteres pale brown, the knobs darker. Abdomen dark brown; valves of the ovipositor reddish horn-colour.

Remarks: *T. australasiae* cannot be assessed with confidence as the male is still unknown. Diagnostic characters: large number of macrotrichiae (>25) on M4 (= CuA1)(ALEXANDER 1926).

New records: Lord Howe Island: Mt Gower.

Distribution: Known only from Lord Howe Island.

### *Toxorhina (Ceratocheilus) nasus* group (Figs 17, 19, 21, 22, 130, 131)



Definition: Fewer Than 25 macrotrichiae on M4 (=CuA1). Male hypopygium (Fig. 22): tergite 9 (t9) of male with median projection (mp) of variable length and width; aedeagus (ae) with two sub-rectangular apical lobes separated by V-shaped notch; interbases (i) strongly curved.

Distribution in Australia: Eastern and south-western.

Species in Australia:

*T. (C.) growea* sp. n.

*T. (C.) nasus* sp. n.

Fig. 22. *Toxorhina (Ceratocheilus) nasus* sp. n., male hypopygium, dorsal aspect. Abbreviations: ae = aedeagus; i = interbase; mp = median projection; t9 = tergite 9.

***Toxorhina (Ceratocheilus) nasus* spec. nov. (Figs 17, 19, 21, 22, 130)**

**Description:** Head largely grey; rostrum, palps and antennae greyish brown. Thoracic terga largely greyish brown, only sides of prescutum greyish yellow; dorsal portion of pleura greyish brown, ventral portion largely greyish yellow, only ventral corner of katepisternum somewhat darkened. Coxae and trochanters greyish yellow; femora from greyish yellow (at base) to greyish brown (at apex); other leg segments dark greyish brown. Wings slightly suffused with greyish brown. Halteres with stem greyish yellow and knob greyish brown. Abdomen greyish yellow and blackish brown; tergites 2-7 with base and apex dark, pale in between; sternites 2-7 with only apex dark; terminalia yellowish- to dark greyish brown. Wing length, male 4,2-5,5 mm, female 5,4-6,0 mm.

**Genitalia:** Male hypopygium, Figs 19, 22, 130.

**Remarks:** Similar to *T. growea* sp. n. Diagnostic characters: abdomen bicolored; tergite 9 of male with moderately long, narrow median projection; corners of projection distinct.

**Material examined:** Holotype ♂: New South Wales, Barrington House, 13.11.1967, N. Dobrotworsky (ANIC). Paratypes: Queensland: 3♂♂, 1♀, Green Mountain, Lamington National Park, Earthwatch Australia (ANIC); 1♂, Searys Creek, Cooloola National Park, 9-10.2.1987, G. Theischinger (GT). New South Wales: 11♂♂, 8♀♀, Dorrigo National Park, Never Never area, 11.12.1985, D. Bickel and J. Cassis (GT); 1♂, Engadine, 28.12.1986, G. Theischinger (GT); 1♂, Gloucester Tops, 1280 m, Nothofagus forest, malaise trap, 4-30.12.1988, D. Bickel (GT); 1♂, Otford, Royal National Park, 31.12.1962, D.H. Colless (ANIC); 1♂, Watagan Forest, 18-19.2.1980, L. Muller and G. Theischinger (GT). Victoria: 1♂, 5 East Genoa, 16.12.1964, N. Dobrotworsky (ANIC).

**Distribution:** Queensland (SEQ), New South Wales (NEN, SEN), Victoria.

**Name:** *Nasus* (= Latin for "nose") refers to the narrow nose-like projection on tergite 9 of the male.

***Toxorhina (Ceratocheilus) growea* spec. nov. (Fig. 131)**

**Description:** Head largely dark grey; rostrum, palps and antennae brown. Thoracic terga largely greyish brown, only sides of prescutum greyish yellow. Dorsal portion of pleura blackish brown, ventral portion pale greyish yellow. Coxae and trochanters pale greyish yellow; femora from pale greyish yellow (at base) to greyish brown (at apex); other leg segments dark greyish brown. Wings very slightly suffused with greyish brown. Halteres with stem greyish yellow and knob pale greyish brown. Abdomen pale yellowish grey to greyish brown, tergites somewhat darker than



sternites; terminalia yellowish- to dark brown. Wing length, male 5,5-5,9 mm, female 6,9 mm.

**Genitalia:** Male hypopygium, Fig. 131.

**Remarks:** Similar to *T. nasus* sp. n. Diagnostic characters: colouration rather pale; tergite 9 of male with short wide median projection; corners of projection more or less rounded.

**Material examined:** Holotype ♂: Western Australia, Growea State Forest, Pemberton, 18.11.1978, S.J. Curry (ANIC). Paratypes: 1♂, 1♀, same data as holotype (ANIC).

**Distribution:** Western Australia (SWA); known only from Growea State Forest.

**Name:** From Growea State Forest, the type locality; to be treated as a noun in apposition.

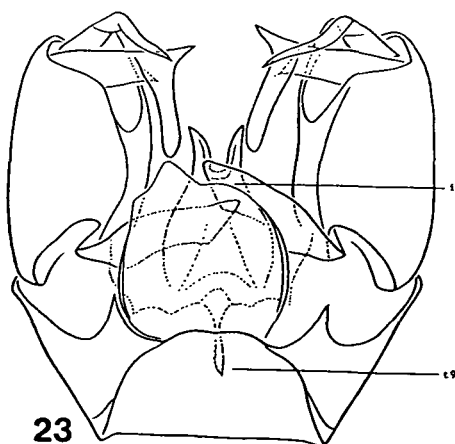


Fig. 23. *Toxorhina (Ceratocheilus) tasmaniensis* (ALEX.), male hypopygium, dorsal aspect. Abbreviations: i = interbase; t9 = tergite 9.

***Toxorhina (Ceratocheilus) tasmaniensis* group (Figs 20, 23, 132, 133)**

**Definition:** Fewer than 25 macrotrichiae on M4 (=CuA1). Male hypopygium (Fig. 23): tergite 9 (t9) of male without median projection; interbases (i) slightly curved.

**Distribution in Australia.** Eastern and south-western.

**Species in Australia:**

*T. (C.) tasmaniensis* (ALEX.)

*T. (C.) westralis* sp. n.

***Toxorhina (Ceratocheilus) tasmaniensis* (ALEXANDER) (Figs 20, 23, 132)**

*Ceratocheilus tasmaniensis* ALEXANDER, Ann. Mag. nat. Hist. (9) 18: 187 (1926).

*Ceratocheilus davidsoni* ALEXANDER, Ann. Mag. nat. Hist. (10) 7: 35 (1931).

*Toxorhina (Ceratocheilus) davidsoni eungellae* ALEXANDER, Proc. Linn. Soc. N.S.W. 69: 15 (1944).

*Toxorhina (Ceratocheilus) tasmaniensis* (ALEXANDER); OOSTERBROEK & JONAS, Catalogue of the Australian-Oceanian Tipulidae (Insecta, Diptera): 172 (1986).

**Primary types:** Holotype ♂ of *Ceratocheilus tasmaniensis* ALEXANDER: Tasmania, Strahan, 5.2.1923, A. Tonnoir (ANIC); seen. Holotype ♂ of *Ceratocheilus davidsoni* ALEXANDER: Queensland, Mount Tamborine, ca. 2000 ft, Nov. 1928, W.H. Davidson (NMNH); seen. Holotype ♀ of *Toxorhina davidsoni eungellae* ALEXANDER: Queensland, Eungella, via Mackay, 2300 ft, March 1929, F.H. Taylor (NMNH); seen. **Published records:** Queensland: Eungella, via Mackay, 2300 ft (ALEXANDER 1944: 15); Mt Tamborine, ca 2000 ft (ALEXANDER 1931a: 36). Tasmania: Strahan (ALEXANDER 1926: 188).

**Genitalia:** Male hypopygium, Figs 20, 23, 132.

**Remarks:** Most similar to *T. westralis* sp. n. Diagnostic characters: aedeagus with two rather pointed apical lobes separated by U-shaped excision.

**New records:** Queensland: Binna Burra (ANIC); Binna Burra, 2700 ft (ANIC); Cunningham Gap (ANIC); Green Mtn, Lamington N. P. (ANIC); Kuranda Ra. S. F. (ANIC); Lamington N. P., O'Reilly's (ANIC); 9 km ENE of Mt Tozer (ANIC). New South Wales: Mt Wilson, Blue Mts (AM); Upper Allyn R. (ANIC); Wilson R. Res., 15 km NW Bellangry, 244 m (GT). Victoria: Cabbage Tree Ck (ANIC); 5 East Genoa (ANIC).

**Distribution:** Queensland (CY, NEQ, SEQ), New South Wales (NEN, SEN), Victoria, Tasmania.

### *Toxorhina (Ceratocheilus) westralis* spec. nov. (Fig. 133)

**Description (♂):** Head largely dark grey; rostrum, palps and antennae blackish brown. Thoracic terga largely blackish brown, only scutellum yellowish brown and sides of prescutum pale grey; dorsal portion of pleura brownish black, ventral portion pale yellowish grey except for the ventral corner of katepisternum which is dark brown. Coxae and trochanters greyish yellow; femora from greyish yellow (at base) to dark greyish brown (at apex); other leg segments greyish- to blackish brown. Wings slightly suffused with greyish brown all over. Halteres with stem brownish yellow and knob brown. Abdominal tergites largely dark greyish- to blackish brown, sternites greyish yellow and brownish black. Wing length 5,2-5,6 mm.

**Genitalia:** Male hypopygium, Fig. 133.

Female unknown.

**Remarks:** Most similar to *T. tasmaniensis* (ALEX.). Diagnostic characters (male): colouration very dark; aedeagus with two subrectangular apical lobes separated by narrow V-shaped cleft.

**Material examined:** Holotype ♂: Western Australia, Pemberton, Tea Tree Swamp, 9.10.1965, N. Dobrotworsky (ANIC). Paratypes: Western Australia: 1♂, Maradong Road, 15 km SE Dwellingup, jarrah forest, pans, 31.10.1991, D. Bickel (GT); 1♂, Nornalup, 10.10.1965, N. Dobrotworsky (ANIC); 1♂, 24 mi. NW of Walpole, 7.10.1970, D.H. Colless (ANIC).

**Distribution:** Western Australia (SWA).

**Name:** Westralis is an artificial Latinized term; it is supposed to stand for "from Western Australia".

**Subgenus *Eutoxorhina* ALEXANDER (Figs 18, 24, 134)**

*Eutoxorhina* ALEXANDER, Philipp. J. Sci. 53: 297 (1934).

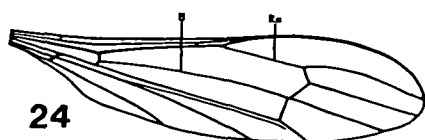


Fig. 24. *Toxorhina (Eutoxorhina) ammoula* sp. n., wing venation.

**Type species:** *Toxorhina simplex* ALEXANDER 1934, by monotypy.

**Definition:** Wing (Fig. 24): Rs and M both single-branched; dm open.

**Distribution:** Australian region. In Australia: north-eastern.

Only one species in Australia:

*T. (E.) ammoula* sp. n.

***Toxorhina (Eutoxorhina) ammoula* spec. nov. (Figs 18, 24, 134)**

**Description (♂):** Head largely blackish brown; rostrum, palps and antennae brown, scape and pedicel paler than flagellum. Thoracic terga largely greyish brown, only sides of prescutum greyish yellow; pleura greyish yellow. Coxae and trochanters greyish yellow; femora from greyish yellow (at base) to greyish brown (at apex); other leg segments greyish brown. Wings slightly suffused with greyish brown. Halteres greyish yellow. Abdominal tergites greyish yellow to greyish brown, sternites pale greyish yellow. Wing length 3,4 mm.

**Genitalia:** Hypopygium, Fig. 134.

Female unknown.

**Remarks:** Not similar to any other described Australian species. Diagnostic characters: as above, under subgenus *Eutoxorhina* ALEX.

**Material examined:** Holotype ♂: Queensland, Cape Tribulation, Daintree rainforest, Earthwatch Australia (ANIC).

**Distribution:** Queensland (NEQ).

**Name:** Ammoula (= Australian Aboriginal word for "nose") refers to the wide projection on tergite 9 of the male.

**Genus *Limonia* MEIGEN (Figs 25-72, 135-218)**

*Amphinome* MEIGEN, Nouvelle classification des mouches a deux ailes (Diptera L.), d'apres un plan tout nouveau: 15 (1800). Suppressed by I.C.Z.N., Opinion 678, Bull. Zool. Nomencl. 20: 339 (1963). (Preoccupied by BRUGIERE, 1792).

*Limonia* MEIGEN, Magazin Insektenk. (Illiger) 2: 262 (1803).

*Limnobia* MEIGEN, Systematische Beschreibung der bekannten zweiflügeligen Insekten: 116 (1818) (unnecessary new name for *Limonia*).

Type species: *Tipula tripunctata* FABRICIUS 1782, by designation of WESTWOOD 1840: 129.

Definition: Front of head only slightly produced; antennae 14 segmented. Wing: Sc2 clearly evident; R2 present; bscu close to fork of M. Male hypopygium: gonocoxites with well developed meso-ventral lobe.

Habitat of larvae: According to ALEXANDER (1964), the immature stages of *Limonia* frequent a range of habitats that is virtually as extensive as the entire family (= Tipulidae), including species living in saturated earth, in wet masses of mosses and liverworts, decaying wood, rotting vegetation, fungi, and various other restricted habitats. A few species are aquatic or essentially so while a very few are marine.

Distribution: All zoogeographic regions. In Australia: eastern, southern, western, northern.

Subgenera in Australia:

*Atypophthalmus* BRUN.

*Cygnomyia* sg. n.

*Dapanoptera* WEST.

*Dicranomyia* STEPH.

*Discobola* OST.-SACK.

*Geranomyia* HALI.

*Goniodineura* WULP

*Idioglochina* ALEX.

*Libnotes* WEST.

*Limonia* MEIG.

*Metalibnotes* ALEX.

*Nealexandriaria* ALEX.

*Neolibnotes* ALEX.

*Nesciomyia* sg. n.

*Pandamyia* sg. n.

*Paralibnotes* ALEX.

*Pseudoglochina* ALEX.

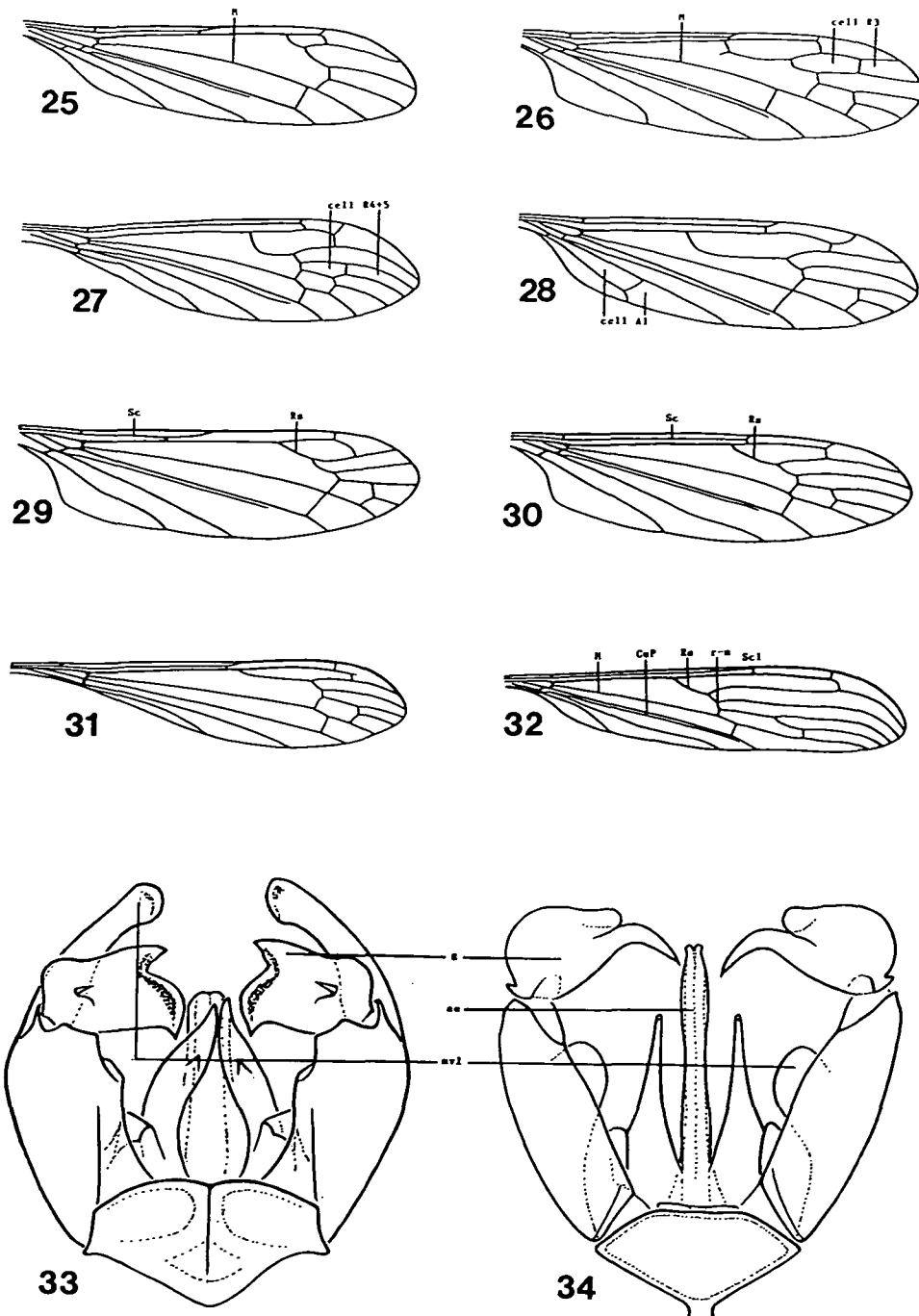
*Rhipidia* MEIG.

*Thrypticomyyia* SKUSE.

**Key to the subgenera of *Limonia* MEIGEN in Australia (Figs 25-46)**

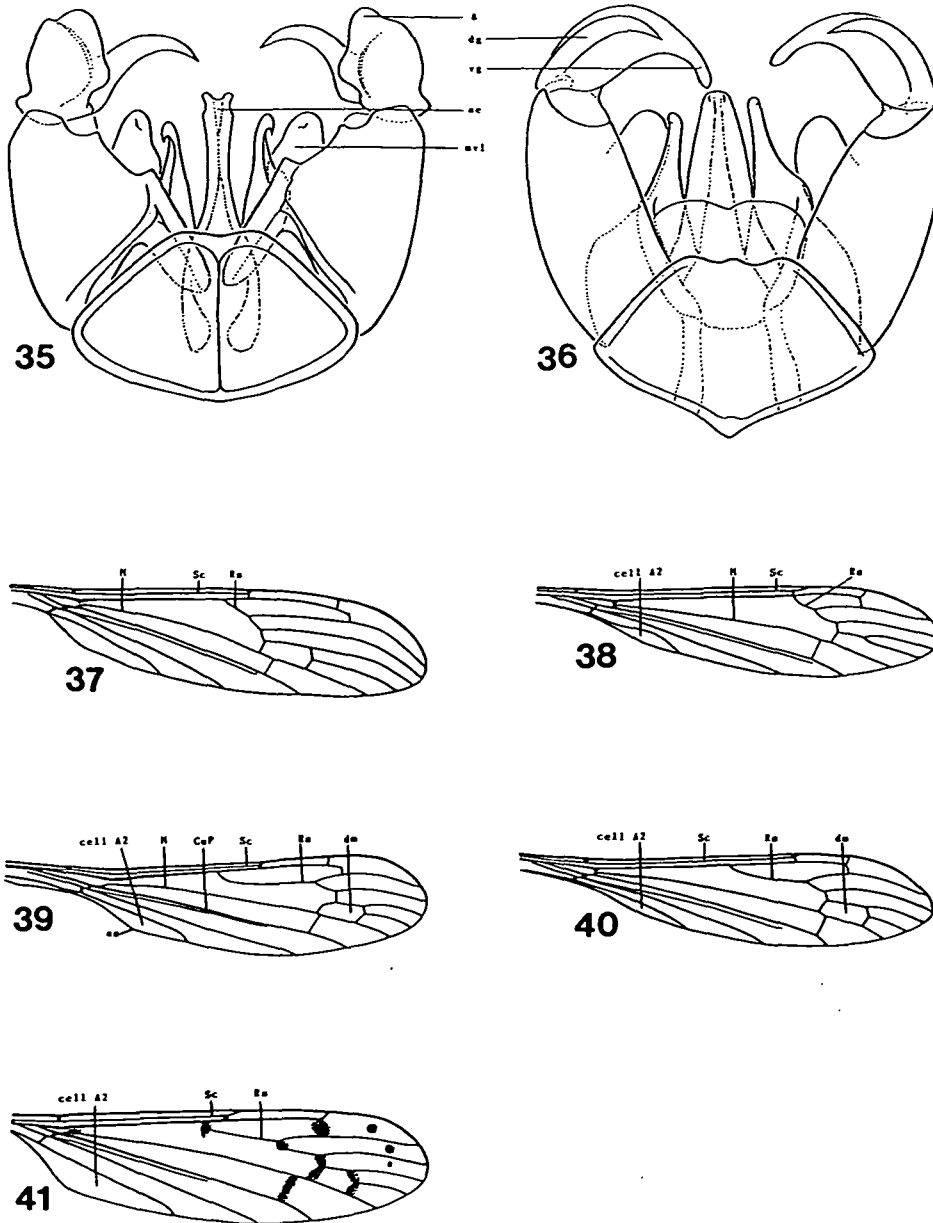
1. M single-branched (Fig. 25).....*Nealexandriaria*
- M double-branched (Fig. 26) ..... 2
- 2 (1) Supernumerary crossveins in cells R3, R4+5 or A1 (Figs 26-28) ..... 3
- No supernumerary crossveins (Fig. 29)..... 5
- 3 (2) Flagellomeres of male antennae produced; supernumerary crossvein in cell R3 (Fig. 26).....*Pandamyia*
- Flagellomeres of antennae not produced; supernumerary crossveins in cells R4+5 or A1 (Figs 27, 28)..... 4
- 4 (3) Supernumerary crossvein in cell R4+5 (Fig. 27) .....*Dapanoptera*
- Supernumerary crossvein in cell A1 (Fig. 28) ..... *Discobola*
- 5 (2) Flagellomeres of antennae of both sexes produced..... 6
- Flagellomeres of antennae not produced ..... 7
- 6 (5) Sc ending some distance before origin of Rs (Fig. 29) .....*Idioglochina*
- Sc ending very close to origin of Rs (Fig. 30) .....*Rhipidia*
- 7 (5) Vein CuP lacking (Fig. 31) .....*Thrypticomyyia*
- Vein CuP present (as in Fig. 32) ..... 8
- 8 (7) Male hypopygium with one pair of gonostyli (g) (Figs 33-35) ..... 9
- Male hypopygium with two pairs of gonostyli (dg, vg) (as in Fig. 36) ..... 11
- 9 (8) Male hypopygium with meso-ventral lobe (mvl) of gonocoxite unusually large (Fig. 33). .....*Metalibnotes*
- Male hypopygium with meso-ventral lobe (mvl) of gonocoxite of moderate size (Figs 34, 35) ..... 10
- 10 (9) Male hypopygium with aedeagus (ae) unusually long and slender (Fig. 34).....  
.....*Paralibnotes*
- Male hypopygium with aedeagus (ae) of moderate length and width (Fig. 35).....*Limonia*

- 11 (8) Mouthparts, especially labella, elongate, about equal in length to combined head and thorax ..... *Geranomyia*
- Mouthparts shorter than remainder of head ..... 12
- 12 (11) Some branches of Rs and M strongly deflected near wing margin (Figs 32, 37)..... 13
- Branches of Rs and M not strongly deflected near margin (as in Fig. 38)..... 14
- 13 (12). Sc1 ending some distance beyond fork of Rs; Rs much longer than r-m (Fig. 32)..... *Libnotes*
- Sc1 ending from about opposite to origin of Rs to just beyond fork of Rs; Rs not much longer than r-m (Fig. 37) ..... *Neolibnotes*
- 14 (12). Wings strongly narrowed and petiolate at base; cell A2 very small (Figs 38-40)..... 15
- Wings not particularly narrow or petiolate at base; cell A2 of moderate size (as in Fig. 41) ..... 17
- 15 (14). Sc ending close to origin of Rs; cell dm open (Fig. 38) ..... *Pseudoglochina*
- Sc ending some distance beyond origin of Rs; cell dm closed (Figs 39, 40) .. 16
- 16 (15). Wing with anal angle (aa) (Fig. 39); male hypopygium with ventral gonostylus (vg) not subdivided (Fig. 36)..... *Nesciomyia*
- Wing without anal angle (Fig. 40); male hypopygium with ventral gonostylus (vg) subdivided into base and rostral prolongation (Fig. 42).....  
..... *Cygnomyia*
- 17 (14). Male without any spines on rostral prolongation of ventral gonostylus (vg); proctiger (pr) strongly modified (Fig. 43)..... *Atypophthalmus*
- Male with rostral prolongation of ventral gonostylus (vg) armed with at least one spine; proctiger (pr) not strongly modified (Figs 44, 46)..... 18
- 18 (17). Usually, Sc ending before fork of Rs, and Sc1 not particularly long (Fig. 41); male usually with two, more rarely with one or several spines on rostral prolongation of ventral gonostylus (vg) (Fig. 44) ..... *Dicranomyia*
- Sc ending beyond fork of Rs, and Sc1 long (Fig. 45); male with one thick and one rather weakly developed spine on rostral prolongation of ventral gonostylus (vg) (Fig. 46)..... *Goniodineura*



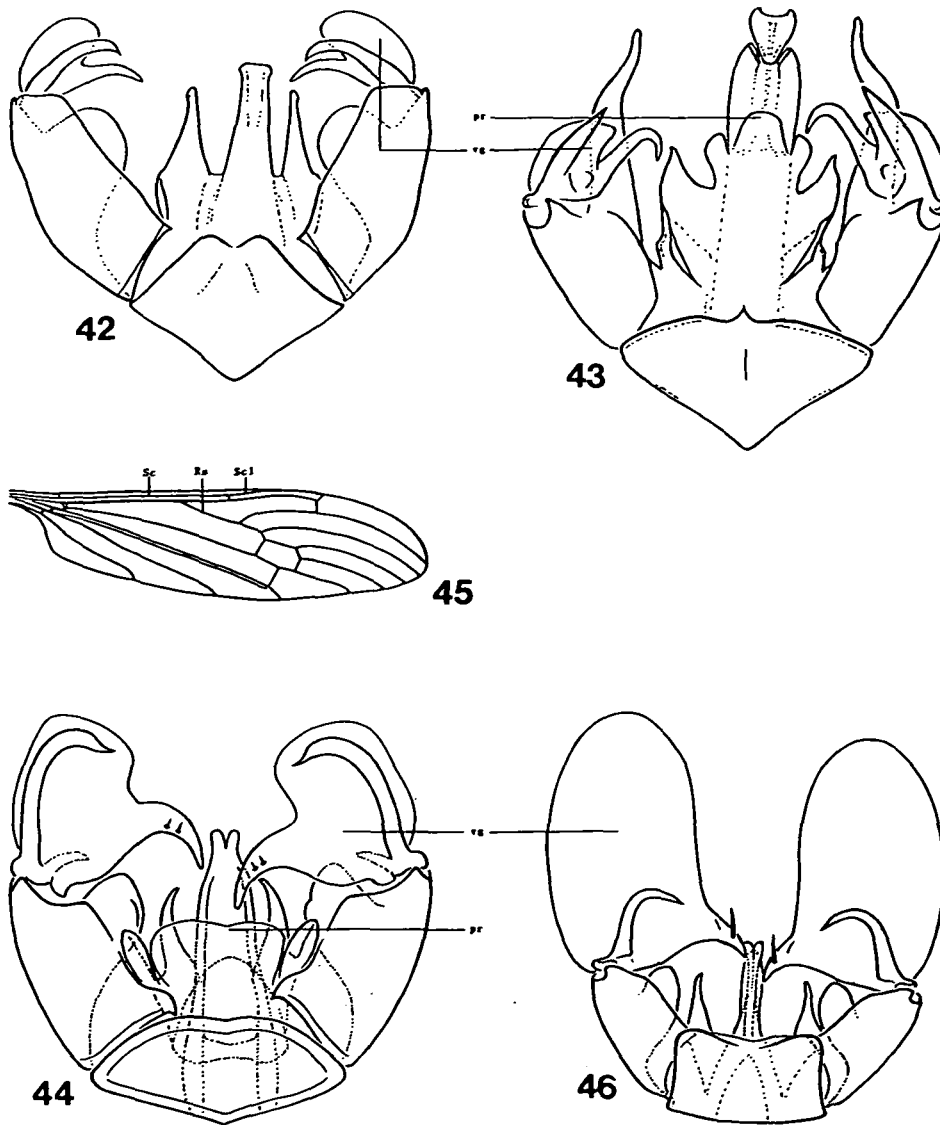
Figs 25-34. Wing venation and male hypopygium, dorsal aspect, of *Limonia* species representing the subgenera: *Nealexandriaria* ALEX. (25); - *Pandamyia* sg. n. (26); - *Dapanoptera* WEST. (27); - *Discobola* OST.-SACK. (28); - *Idioglochina* ALEX. (29); - *Rhipidia* MEIG. (30); - *Thrypticomylia* SKUSE (31); - *Libnotes* WEST. (32); - *Metalibnotes* ALEX. (33); - *Paralibnotes* ALEX. (34).

Abbreviations: ae = aedeagus; dg = dorsal gonostylus; g = gonostylus; mvl = meso-ventral lobe of gonocoxite; pr = proctiger; t9 = tergite 9; vg = ventral gonostylus.



Figs 35-41. Wing venation and male hypopygium, dorsal aspect, of *Limonia* species representing the subgenera: - *Limonia* MEIG. (35); - *Nesciomyia* sg. n. (36, 39); - *Neolibnotes* ALEX. (37) - *Pseudoglochina* ALEX. (38); - *Cygnomyia* sg. n. (40); - *Dicranomyia* STEPH. (41).  
Abbreviations: ae = aedeagus; dg = dorsal gonostylus; g = gonostylus; mvl = meso-ventral lobe of gonocoxite; pr = proctiger; t9 = tergite 9; vg = ventral gonostylus.





Figs 42-46. Wing venation and male hypopygium, dorsal aspect, of *Limonia* species representing the subgenera: *Cygnomyia* sg. n. (42); - *Atyophthalmus* BRUN. (43); - *Dicranomyia* STEPH. (44); - *Goniodyneura* WULP (45, 46).

Abbreviations: ae = aedeagus; dg = dorsal gonostylus; g = gonostylus; mvl = meso-ventral lobe of gonocoxite; pr = proctiger; t9 = tergite 9; vg = ventral gonostylus.

Of the subgenera of *Limonia* MEIGEN represented in Australia, only *Atypophthalmus* BRUN., *Cygnomyia* sg. n., *Dapanoptera* WEST., *Dicranomyia* STEPH., *Goniodineura* WULP, *Limonia* MEIG., *Metalibnotes* ALEX., *Nealexandriaria* ALEX., *Neolibnotes* ALEX., *Nesciomyia* sg. n., *Pandamyia* sg. n., *Paralibnotes* ALEX., and *Pseudoglochina* ALEX. are treated in this paper.

### Subgenus *Limonia* MEIGEN (Figs 35, 47, 48, 135-139)

*Amphinome* MEIGEN, Nouvelle classification des mouches a deux ailes (Diptera L.) d'apres un plan tout nouveau: 15 (1800). Suppressed by I.C.Z.N., Opinion 678, Bull. Zool. Nomencl. 20: 339 (1963). (Preoccupied by BRUGUIERE 1792).

*Limonia* MEIGEN, Mag. Insektenkd. 2: 262 (1803) (as genus).

*Limnobia* MEIGEN, Systematische Beschreibung der bekannten europäischen zweiflügeligen Insekten: 116 (1818) (unnecessary new name for *Limonia*).

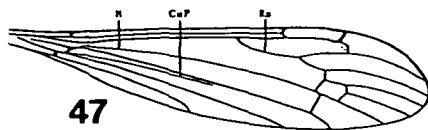
*Unomyia* MEIGEN, Systematische Beschreibung der bekannten europäischen zweiflügeligen Insekten: 135 (1818) (as genus).

*Limnomyza* RONDANI, Dipterologiae italicae prodromus. I. genera italica ordinis Diptero-  
rum ordinatim disposita et distincta et in familias et stirpes aggregata: 185 (1856) (as genus).

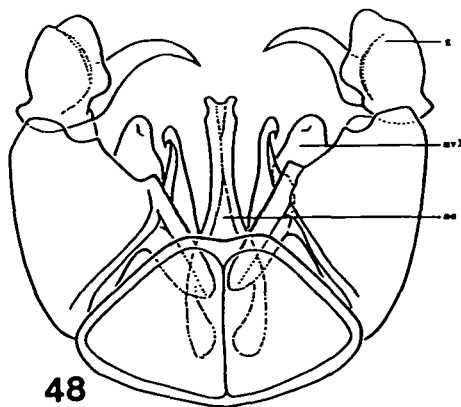
Type species of *Limonia* MEIGEN: *Tipula tripunctata* FABRICIUS 1782, by designation WESTWOOD, 1840: 129. Type species of *Unomyia* MEIGEN: *Tipula tripunctata* FABRICIUS 1782, by designation COQUILLET 1910: 618. Type species of *Limnomyza* RONDANI: *Tipula tripunctata* FABRICIUS 1782, by original designation.

OOSTERBROEK (1989) listed 12 species of *Limonia* s. str. from Australia. From the present series of generic revisions it became clear that seven of them (*L. annulipes*, *L. cinctitibia*, *L. clarki*, *L. gemina*, *L. inanis*, *L. incisuralis*, *L. zonata*) have to be included in *Limonia* (*Dicranomyia*), whereas *emacerata* belongs in *Limonia* (*Atypophthalmus*) and *semiermis* in *Limonia* (*Metalibnotes*). This left only three Australian species in *Limonia* s. str. In this paper, one of them is synonymized, and three species are described as new.

**Definition:** Head: mouthparts shorter than remainder of head; flagellomeres of antennae not produced. Wings (Fig. 47): branches of Rs and M not strongly deflected near margin; M double-branched; vein CuP present; no supernumerary crossvein; membrane without dark pattern except for pterostigma. Male hypopygium (Fig. 48): meso-ventral lobe of gonocoxite (mvl) of moderate size; only one pair of gonostyli (g); proctiger not particularly modified; eadeagus (ae) moderately long, apex not particularly modified.



47



48

**Distribution:** All zoogeographic regions. In Australia: eastern.

**Species in Australia:**

*L. (L.) amicula* (ALEX.)

*L. (L.) atnitta* sp. n.

*L. (L.) cairnensis* (ALEX.)

*L. (L.) kumbu* sp. n.

*L. (L.) yeranda* sp. n.

Figs 47, 48. *Limonia (Limonia) kumbu* sp. n.: 47: wing venation; - 48: male hypopygium, dorsal aspect. Abbreviations: ae = aedeagus; g = gonostylus; mvl = meso-ventral lobe of gonocoxite.

### ***Limonia (Limonia) amicula* (ALEXANDER) (Fig. 135)**

*Dicranomyia amicula* ALEXANDER, Ann. Mag. nat. Hist. (9) 8: 548 (1921).

*Limonia (Limonia) exosa* ALEXANDER, Ann. Mag. nat. Hist. (10) 5: 148 (1930).

*Limonia amicula* (ALEXANDER); ALEXANDER, Ann. Mag. nat. Hist. (10) 5: 149 (1930).

*Limonia (Limonia) amicula* (ALEXANDER); OOSTERBROEK & JONAS, Catalogue of the Australian-Oceanian Tipulidae (Insecta, Diptera): 83 (1986).

**Primary types:** Holotype ♀ of *Dicranomyia amicula* ALEXANDER: Queensland, Kuranda, Cairns District, altitude 1100 ft, Apr. 1921, A. P. Dodd (NMNH); seen. Holotype ♂ of *Limonia (Limonia) exosa* ALEXANDER: New South Wales, Brooklana, Eastern Dorrigo, altitude 2000 ft, 6.11.1927, W. Heron (NMNH); seen.

**Published records:** Queensland: Kuranda, Cairns Dist., 1100 ft (ALEXANDER 1921d: 549). New South Wales: Brooklana, Eastern Dorrigo, 2000 ft (ALEXANDER 1930b: 149).

**Genitalia:** Male hypopygium, Fig. 135.

**Remarks:** Similar to *L. atnitta* sp. n. Diagnostic characters: dm open; male with tip of parameres simply rounded.

**New records:** Queensland: 11 km N by W Bald Hill, McIlwraith Ra., 500 m (ANIC); Binna Burra (ANIC); Binna Burra, 2700 ft (ANIC); Birthday Ck, 6 km NW by W of Paluma (ANIC); Bunya Mts N. P. (GT); Carnarvon Gorge (GT); Conondale Ra., Bundaroo Ck (AM); Cunningham Gap, 2484 ft (ANIC); Cunningham Gap, 2500 ft (ANIC); Dalrymple Ck, nr Eungella (GT); Davies Ck, 20 km E by S of Mareeba (ANIC); Eumundy (ANIC); Green Mtn, Lamington N. P. (ANIC); Herberton Ra. S. F. (ANIC); 5 mi. S Kenilworth (ANIC); Kuranda S. F. (ANIC); Moses Ck, 4 km N by E of Mt Finnigan (ANIC). New South Wales: Barrington House (ANIC); Barrington Tops (GT); Bawley Point (ANIC); Colo R., 25 km N of Windsor (ANIC); Bruxner Park (ANIC); ca 2 mi. NW of Bruxner Park (ANIC); ca 5 mi. NW of Bruxner Park (ANIC); Bruxner Park, Coffs Harbour (ANIC); Dingo Tops Forest Park, NW Wingham, 950 m (GT); 33 mi. Dorrigo-Coramba Rd (ANIC); 36 mi. Dorrigo-Coramba Rd (ANIC); Eungai (ANIC); 5-7 km NE of Harrington (GT); Heathcote Brook (GT); 3 km N Lansdowne (GT); Lorien Ref., 3 km N Lansdowne, nr Taree (GT); Mt Keira (GT); Nanack Fire Rd, 29 mi. Dorrigo-Coramba (ANIC); Otford (AM); Royal N. P. (AM); Royal N. P., Lady Carrington Drive (GT); Termeil (ANIC); Weismantels (ANIC).

**Distribution:** Queensland (CY, NEQ, SEQ), New South Wales (NEN, SEN).

***Limonia (Limonia) atnitta* spec. nov. (Fig. 136)**

**Description:** Head largely dark grey; rostrum, palps and antennae greyish brown. Thoracic terga yellowish- to greyish brown; pleura greyish yellow. Coxae and trochanters greyish yellow; femora greyish yellow at base, merging into greyish brown for most of length; tibiae, tarsi and claws greyish brown. Wings very slightly suffused with greyish brown, a small oval, dark greyish brown, patch in pterostigma are. Sc long, ending at about opposite 2/3-4/5 length of Rs; Sc1 hardly to markedly longer than Sc2; R2 near tip of R; Rs largely straight, curved only at origin, about four times as long as basal section of R4+5; bscu at to slightly beyond fork of M; anal angle very wide, cell A2 very narrow. Halteres greyish brown, only base of stem somewhat paler. Abdomen dark greyish- to blackish brown. Wing length, male 4,7-6,3 mm, female 6,1 mm.

**Genitalia:** Male hypopygium, Fig. 136.

**Remarks:** Similar to *L. amricula* (ALEX.). Diagnostic characters: Rs about four times length of basal section of R4+5; dm closed; male with tip of parameres expanded, hand-shaped.

**Material examined:** Holotype ♂: Queensland, Binna Burra, 2700 ft, 9.12.1966, N. Dobrotworsky (ANIC). Paratypes: Queensland: 3♂♂, 1♀, same locality and collector as holotype, 11-13.12.1966 (ANIC); 1♂, Conondale Range, Bundaroo Creek, 3.12.1985, G. Cassis and D. Bickel (AM); 1♂, 3♀♀, Green Mountain, Lamington National Park, Earthwatch Australia (ANIC); 1♂, 5 mi. S Kenilworth, rainforest, 7.4.1967, N. Dobrotworsky (ANIC); 1 specimen (abdomen missing), Lamington National Park, O'Reilly's, 13.12.1966, N. Dobrotworsky (ANIC); 1♂, Woombye, near Nambour, 11-16.10.1965, D.H. Colless (ANIC). New South Wales: 1♂, O'Sullivan's Gap, nr Buladelah, wet scler., 25.11.1987, D.J. Bickel (GT).

**Distribution:** Queensland (SEQ), New South Wales (SEN).

**Name:** *Atnitta* (= Australian Aboriginal word for "hand") refers to the shape of the apical portion of the parameres.

***Limonia (Limonia) cairnensis* (ALEXANDER) (Fig. 137)**

*Dicranomyia cairnensis* ALEXANDER, Ann. Mag. nat. Hist. (9) 8: 548 (1921).

*Limonia (Limonia) cairnensis* (ALEXANDER); ALEXANDER, Studia ent. 20: 151 (1978).

**Primary type:** Holotype ♂: Queensland, Kuranda, Cairns District, altitude 1100 ft, Apr. 1921, A.P. Dodd (NMNH); seen.

**Published records:** Queensland: Kuranda, Cairns Dist., 1100 ft (ALEXANDER 1921d: 548). Known only from male.

**Genitalia:** Hypopygium, Fig. 137.

**Remarks:** Most similar to *L. amacula* (ALEX.). Diagnostic characters: dm closed; tergite 9 of male with small median notch; gonostyli with basal flap and with slender, strongly curved apex.

**New records:** Queensland: Kuranda State Forest (ANIC); Bramston Beach near Babinda (ANIC).

**Distribution:** Queensland (NEQ).

***Limonia (Limonia) kumbu* spec. nov. (Figs 35, 47, 48, 138)**

**Description (♂):** Head largely dark greyish brown; rostrum pale greyish yellow; palps and antennae pale greyish brown. Thoracic terga pale to dark greyish yellow, postscutum, scutellum and mediotergite darker than the rest; pleura pale greyish yellow with ventral portions slightly paler than dorsal portions. Procoxa pale greyish brown; meso- and metacoxa pale greyish yellow; trochanters pale greyish yellow; femora greyish brown with base greyish yellow; tibiae, tarsi and claws greyish brown. Wings (Fig. 47) with veins largely yellowish- to greyish brown, only R1+2 yellowish white; membrane hyaline, slightly suffused with greyish yellow; a small brownish grey oval mark in pterostigma area; Sc ending about opposite 2/3 length of Rs; Sc1 short, shorter than, or subequal to, Sc2; R2 near tip of R; Rs slightly and evenly caruated, about twice as long as basal section of R4+5; bscu at or slightly beyond fork of M; anal angle almost straight, cell A2 very narrow. Halteres with basally yellow, otherwise greyish brown stem and largely greyish yellow knob. Abdomen dorsally and laterally greyish brown, ventrally pale greyish yellow. Wing length 4,0-4,3 mm.

**Genitalia:** Hypopygium, Figs 35, 48, 138.

Female unknown.

Remarks: Not very similar to any other described Australian species. Diagnostic characters (male): gonocoxite plump, with strongly developed basal meso-dorsal apodeme.

Material examined: Holotype ♂: Queensland, Kuranda State Forest, 20.4.1967, D.H. Colless (ANIC). Paratypes: Queensland: 1♂, 17°25'S/145°51'E, Bartle Frere track, 200m, rainforest creek, malaise, 12-21.4.1994, B. Sinclair (GT); 1♂, Cape Tribulation, Earthwatch Australia (ANIC).

Distribution: Queensland (NEQ).

Name: Kumbu (= Australian Aboriginal word for "stone tomahawk") refers to the shape of the gonostylus.

***Limonia (Limonia) yeranda* spec. nov. (Fig. 139)**

Description (♂): Head largely brownish grey; rostrum, palps and antennae greyish brown. Thorax almost uniformly greyish brown. Procoxa dark greyish brown, meso- and metacoxa pale greyish brown; trochanters greyish yellow; femora largely greyish yellow, with apex greyish brown; tibiae, tarsi and claws greyish- to blackish brown. Wings slightly suffused with greyish brown; a small oval, greyish brown, patch in pterostigma area; Sc ending about opposite 2/5 length of Rs; Sc1 and R2 subequal in length; R2 near tip of R; Rs slightly and evenly curved, about twice to three times as long as basal section of R4+5; bscu slightly beyond fork of M; anal angle moderately wide, cell A2 moderately wide. Halteres greyish brown, stem paler than knob. Abdomen greyish brown. Wing length 3,7 mm.

Genitalia: Hypopygium, Fig. 139.

Female unknown.

Remarks: Not very similar to any other described Australian species. Diagnostic characters (male): pleura uniformly dark; tergite 9 profoundly bilobed; gonostylus plump and strongly curved.

Material examined: Holotype ♂: Queensland, 12°44'S/143°14'E, 3 km ENE of Mount Tozer, 28.6.-4.7.1986, D.H.Colless (ANIC).

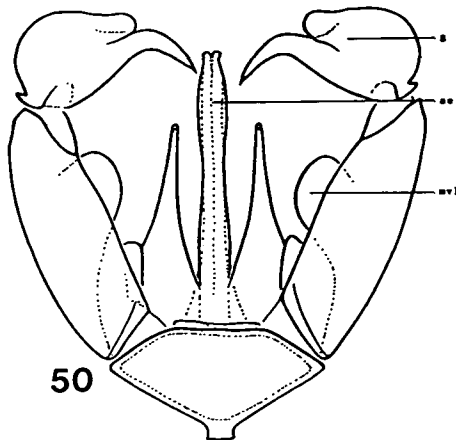
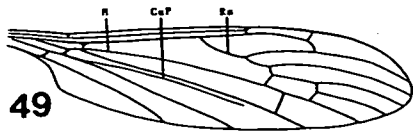
Distribution: Queensland (CY); known only from type locality.

Name: Yeranda (= Australian Aboriginal word for "black cockatoo") refers to the dark colouration.

### Subgenus *Paralibnotes* ALEXANDER (Figs 34, 49, 50, 140)

*Paralibnotes* ALEXANDER, Insects Micronesia 12: 818 (1972).

Type species: *Limnobia bidentata* SKUSE 1890, by original designation.



**Definition:** Head: mouthparts shorter than remainder of head; flagellomeres of antennae not produced. Wing (Fig. 49): not particularly narrow at base or petiolate; branches of Rs and M not strongly deflected near margin; M double-branched; vein CuP present; no super-numerary crossveins. Male hypopygium (Fig. 50): meso-ventral lobe of gonocoxite (mvl) of moderate size; only one pair of gonostyli (g); proctiger not particularly modified; aedeagus (ae) very long and slender, apex not particularly modified.

**Distribution:** Australian region. In Australia: eastern.

Only one species in Australia:

*L. (P.) bidentata* (SKUSE).

Figs 49, 50. *Limnobia (Paralibnotes) bidentata* (SKUSE): 49: wing venation; - 50: male hypopygium, dorsal aspect. Abbreviations: ae = aedeagus; g = gonostylus; mvl = meso-ventral lobe of gonocoxite.

### *Limnobia (Paralibnotes) bidentata* (SKUSE) (Figs 34, 49, 50, 140)

*Limnobia bidentata* SKUSE, Proc. Linn. Soc. N.S.W. 4: 782 (1890).

*Limnobia semitristis* ALEXANDER, Ann. Mag. nat. Hist. (9) 13: 180 (1924).

*Limnobia bidentata* (SKUSE); ALEXANDER, Ann. nat. Hist. (9) 13: 181 (1924).

*Limnobia (Limnobia) semitristis* ALEXANDER; ALEXANDER, Proc. Linn. Soc. N.S.W. 60: 60 (1935).

*Limnobia (Limnobia) bidentata* (SKUSE); ALEXANDER, Studia ent. 14: 304 (1971).

*Limnobia (Paralibnotes) bidentata* (SKUSE); ALEXANDER, Insects Micronesia 12: 747 (1972).

**Primary types:** 18 syntypes (♂♂, ♀♀), of *Limnobia bidentata* SKUSE: New South Wales, Gosford, Woronora and Manly, near Sydney, Skuse, and Blue Moun-

tains, Masters, Jan. to Mar. (supposedly in ANIC); not found. Holotype ♂ of *Limonia semitristis* ALEXANDER: Queensland, Kuranda, 30.11.1920, A.P. Dodd (NMNH); seen.

Published records: Queensland: Kuranda (ALEXANDER 1924b: 181); Brisbane, Coloundra, Sandgate (all ALEXANDER 1920a: 53). New South Wales: Gosford, Woronora and Manly, nr Sydney; Blue Mts (all SKUSE 1890: 783).

Previous illustrations: SKUSE 1890: Pl.xxiv, Fig. 51 (male hypopygium).

Genitalia: Male hypopygium, Figs 34, 50, 140.

Remarks: Not very similar to any other described Australian species. Diagnostic characters: as above, under *Paralibnotes* ALEX.

New records: Queensland: Ban Ban Ra., via Coalstoun Lakes (ANIC); N Bluff Ra., Biggenden (ANIC); SW Bluff Ra., 2000-2300 ft, Biggenden (ANIC); Booboonda Ra., via Mt Perry (ANIC); Brisbane (ANIC); Brown Lake, Stradbroke Is. (ANIC); Bundaberg (ANIC); Electra S. F., ca 26 km S of Bundaberg (ANIC); Emu Vale area (ANIC); Gordon Ck area, Claudie R. dist. (ANIC); Palm Is. (ANIC); Pine Ck, S of Bundaberg (ANIC). New South Wales: 9 km SE Batemans Bay (ANIC); Bawley Point (ANIC); Goondera Ridge, Royal N. P. (ANIC).

Distribution: Queensland (CY, NEQ, SEQ), New South Wales (SEN).

### **Subgenus *Metalibnotes* ALEXANDER (Figs 33, 51, 52, 141)**

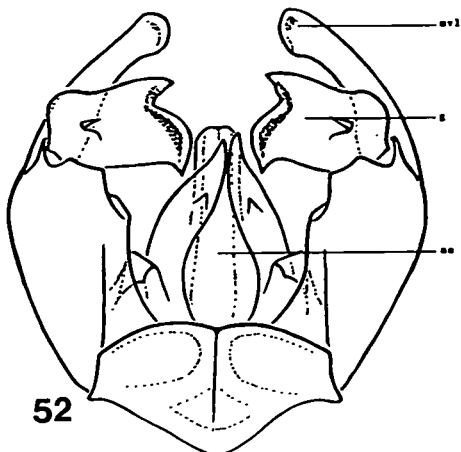
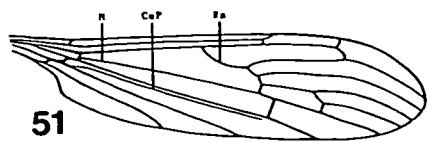
*Metalibnotes* ALEXANDER, Insects Micronesia 12: 809 (1972).

Type species: *Teucholabis fijiensis* ALEXANDER 1914, by original designation.

OSTERBROEK (1989) did not record species of *Limonia* (*Metalibnotes*) from Australia. However, *Limonia semiermis* ALEX., listed under *Limonia* s. str. by OOSTERBROEK (1989), definitely belongs in *Limonia* (*Metalibnotes*).

Definition: Head: mouthparts shorter than remainder of head; flagellomeres of antennae not produced. Wings (Fig. 51): not particularly narrow at base or petiolate; branches of Rs and M not strongly deflected near margin; M double-branched; vein CuP present; no supernumerary crossveins.





Male hypopygium (Fig. 52): meso-ventral lobe of gonocoxite (mvl) very large, reaching well beyond apex of gonocoxites; only one pair of gonostyli (g); proctiger not particularly modified; apex of aedeagus (ae) not particularly modified.

Distribution: Australian region. In Australia: eastern, including Lord Howe Island.

Only one species in Australia:

*L. (M.) semiermis* (ALEX.).

Figs 51, 52. *Limonia (Metalibnotes) semiermis semiermis* (ALEX.):  
51: wing venation; - 52: male hypopygium, dorsal aspect. Abbreviations: ae = aedeagus; g = gonostylus; mvl = meso-ventral lobe of gonocoxite.

***Limonia (Metalibnotes) semiermis* (ALEXANDER) (Figs 33, 51, 52, 141)**

Remarks: Two subspecies are known. Diagnostic characters: as above, under subgenus *Metalibnotes* ALEX.

Only one subspecies in Australia:

*L. (M.) semiermis* (ALEX.).

***Limonia (Metalibnotes) semiermis semiermis* (ALEXANDER)  
(Figs 33, 51, 52, 141)**

*Limnobia semiermis* ALEXANDER, Ann. Mag. nat. Hist. (9) 8: 551 (1921).

*Limonia (Libnotes) semiermis semiermis* (ALEXANDER); ALEXANDER, Trans. R. ent. Soc. Lond. 99: 375 (1948).

*Limonia (Limonia) semiermis semiermis* (ALEXANDER); ALEXANDER, Studia ent. 14: 305 (1971).

Primary type: Holotype ♂: Queensland: Kuranda, Cairns Dist., 1100 ft, Apr. 1921, A.P. Dodd (NMNH); seen.

Published records: Queensland: Kuranda, Cairns Dist., 1100 ft (ALEXANDER 1921d: 552).

Previously known only from male.

Description of female: Structure and colouration much as described for male (ALEXANDER 1921d). Wing length 7,7 mm.

Genitalia: Male hypopygium, Figs 33, 52, 141.

Remarks: Not similar to any other described Australian species. Diagnostic characters: as above, under *Metalibnotes* ALEX.

New records: Queensland: Moses Ck, 4 km N by E of Mt Finnigan (ANIC); Shiptons Flat (ANIC); 11 km ENE of Mt Tozer (ANIC); Wongabel, 8 km S Atherton (GT). New South Wales: Lorien Ref., 3 km N Lansdowne, nr Taree (GT). Lord Howe Island: no other data (ANIC).

Distribution: Queensland (CY, NEQ), New South Wales (NEN), Lord Howe Island.

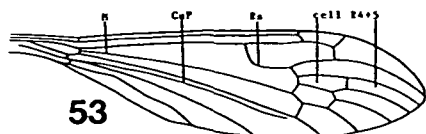
### Subgenus *Dapanoptera* WESTWOOD (Figs 27, 53, 54, 142, 143)

*Dapanoptera* WESTWOOD, Trans. ent. Soc. Lond.: 365 (1881) (as genus).

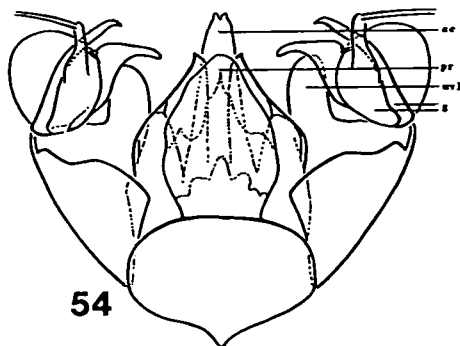
Type species: *Limnobia plenipennis* WALKER 1865, by original designation.

The genus *Dapanoptera* was proposed by WESTWOOD (1881) for four species previously described under *Limnobia* MEIGEN. At the present, *Dapanoptera* is generally regarded as a subgenus of *Limonia* (e. g. OOSTERBROEK & JONAS 1986, OOSTERBROEK 1889). A single species, *Dapanoptera richmondiana*, described by SKUSE (1896), was hitherto known from Australia. Only recently material from Australia's tropical north has been found to include two more distinct phenae of *D. richmondiana* and a second species of *Dapanoptera* which are described as new.

Definition: Head: mouthparts shorter than remainder of head; flagellomeres of antennae not produced. Wings (Fig. 53): Rs strongly arcuated; branches of Rs and M not strongly deflected near wing margin; M double-branched; vein CuP present; a supernumerary crossvein in cell R4+5; wing pattern heavy and extensive. Male hypopygium (Fig. 54): meso-ventral lobe of gonocoxite (mvl) not unusually large; two pairs of gonostyli (g); proctiger (pr) not particularly modified; apex of aedeagus (ae) not particularly modified.



53



54

Figs 53, 54. *Limonia (Dapanoptera) richmondiana richmondiana* (SKUSE): 53: wing venation; - 54: male hypopygium, dorsal aspect. Abbreviations: ae = aedeagus; g = gonostyli; mvl = meso-ventral lobe of gonocoxite; pr = proctiger.

**Distribution:** Australian region. In Australia: eastern (mainly north-eastern).

**Species in Australia:**

*L. (D.) hipmilita* sp. n.

*L. (D.) richmondiana* (SKUSE).

***Limonia (Dapanoptera) richmondiana* (SKUSE) (Figs 27, 53, 54, 142)**

**Remarks:** Similar to *L. hipmilita* sp. n. Diagnostic characters: wings strongly suffused with golden, and with large and small brownish black patches and small silvery patches, and one shining white spot near apex.

Three subspecies are recognized:

*L. (D.) r. nooroobunda* ssp. n.

*L. (D.) r. pangarinda* ssp. n.

*L. (D.) r. richmondiana* (SKUSE).

***Limonia (Dapanoptera) richmondiana richmondiana* (SKUSE) (Figs 27, 53, 54, 142)**

*Dapanoptera richmondiana* SKUSE, Rec. Aust. Mus. 2: 109 (1896).

*Limonia (Dapanoptera) richmondiana* (SKUSE); ALEXANDER, Rec. S. Aust. Mus. 8: 597 (1947c).

**Primary types:** 3 syntypes, (♂♂, ♀♀): New South Wales, Dunoon, Upper Richmond River, March, Helms (supposedly in AM); not found.

**Published records:** New South Wales: Dunoon, Upper Richmond R. (SKUSE 1896: 109).

**Previous illustrations:** SKUSE 1896: on p. 109 (wing).

**Genitalia:** Male hypopygium, Figs 54, 142.

Remarks: Very similar to *L. richmondiana noorobunda* ssp. n. and *L. richmondiana pangarinda* ssp. n. Diagnostic characters: synthorax all orange; large dark patches at about midlength of wing distally connected (mostly) or aligned.

New records: Queensland: 6 mi. N of Kuranda (AM); Montville (UQ); Mt Tamborine (UQ); Peel Island (UQ).

Distribution: Queensland (NEQ, SEQ), New South Wales (NEN).

***Limonia (Dapanoptera) richmondiana nooroobunda* spec. nov.**

Description: Head largely blackish grey; rostrum, palps, scape and pedicel greyish- to brownish black, flagellum orange. pronotum dark brownish grey; synthorax orange to pale reddish brown. Legs orange except for apex of femora and tibiae, and terminal two tarsal segments and claws, which are greyish brown to black. Wings strongly suffused with golden, and with large and small black patches, small silvery patches, and one shining white spot near apex; the two large dark patches at about midlength of wing not connected or aligned. Halteres with stem orange and knob greyish brown. Abdominal tergites and sternites greyish orange, orange with black pattern, or black; male hypopygium largely black, female cerci and valves dark brown. Wing length, male 8,5-8,9 mm, female 7,9-8,9 mm.

Genitalia: Male hypopygium much as in typical *L. richmondiana* (SKUSE).

Remarks: Very similar to *L. r. richmondiana* (SKUSE) and *L. richmondiana pangarinda* ssp.n.. Diagnostic characters: thorax all orange; large dark patches at about midlength of wing distally not connected or aligned.

Material examined: Holotype ♂: Iron Range, 7.5.1975, M.S. Moulds (AM); Paratypes: Queensland: 1♂, Claudie River, near Mount Lamond, 3.6.1966, D.K. McAlpine (AM). 1♀, 12°45'S/143°17'E, 9 km ENE of Mount Tozer, 5-10.7.1986, D.H. Colless (ANIC); 1♀, 12°43'S/143°18'E, 11 km ENE of Mount Tozer, 11-16.7.1986, D.H. Colless (ANIC).

Distribution: Queensland (CY).

Name: Noorobunda is an Australian Aboriginal word for "morning".

***Limonia (Dapanoptera) richmondiana pangarinda* subspec. nov.**

Description: Head largely greyish- to brownish black; rostrum, palps, scape and pedicel blackish brown, flagellum orange. Pronotum dark greyish brown; synthoracic terga dark orange to pale reddish brown; pleura brownish black. Legs orange except for black apex of femora and tibiae and terminal two tarsal segments and claws which

are greyish brown. Wings strongly suffused with golden, and with large and small brownish black patches and small silvery patches, and one shining white spot near apex; the two large dark patches at about midlength of wing connected or aligned. Halteres with stem pale orange and knob greyish brown. Abdominal tergites and sternites orange, orange with black pattern, or black; male hypopygium largely black, female terminalia brown. Wing length, male 9,0-10,6 mm, female 8, 4 mm.

**Genitalia:** Male hypopygium much as in typical *L. richmondiana* (SKUSE).

**Remarks:** Very similar to *L. r. richmondiana* (SKUSE) and *L. richmondiana nooroobunda* ssp. n. Diagnostic characters: synthoracic pleura brownish black; large dark patches at about midlength of wing connected or aligned.

**Material examined:** Holotype ♂: Queensland, Mt Edith Forest Rd, 1.5 km off Danbulla Rd, 6.5.1967, D.H. Colless (ANIC). Paratypes: Queensland: 2♂♂, same data as holotype (ANIC); 1♀, 15°50'S/145°20'E, Gap Ck, 5 km ESE Mt Finnigan (ANIC); 1♂, Windsor Tableland, Forestry Hut, 1060 m, pans, 16-17.4.1994, D. Bickel (GT).

**Distribution:** Queensland (CY, NEQ).

**Name:** Pangarinda is an Australian Aboriginal word for "evening".

***Limonia (Dapanoptera) hipmilita* spec. nov. (Fig. 143)**

**Description (♂):** Head largely brownish grey; rostrum, palps, scape and pedicel brownish black, flagellum orange. Thorax orange. Legs orange except for black apex of femora and tibiae and terminal three tarsal segments and claws which are greyish brown. Wings silvery hyaline, with large patches of orange, greyish brown and blackish brown, and with two shining white spots near apex. Halteres with stem orange and knob brownish black. Abdomen orange except for hypopygium which is largely brownish black.. Wing length 7,4 mm.

**Genitalia:** Hypopygium, Fig. 143.

**Remarks:** Similar to *L. richmondiana* (SKUSE). Diagnostic characters: wings silvery hyaline, with large patches of orange, greyish brown and blackish brown, and with two shining white spots near apex.

**Material examined:** Holotype ♂: Queensland, 15°03'S/145°09'E, 3 km NE of Mount Webb, malaise trap, 1.5.1981, D.H. Colless (ANIC).

**Distribution:** Queensland (CY); known only from type locality.

**Name:** Hipmilita is an Australian Aboriginal word for "mirage".

**Subgenus *Dicranomyia* STEPHENS (Figs 41, 44, 55, 56, 144-206)**

*Furcomyia* MEIGEN, Systematische Beschreibung der bekannten zweiflügeligen Insekten 1: 133 (1818) (as genus) (published in synonymy and unavailable).

*Dicranomyia* STEPHENS, A systematic catalogue of British insects: being an attempt to arrange all the hitherto discovered indigenous insects in accordance with their natural affinities. Containing also the reference to every English writer on entomology, and to the principal foreign authors. With all the published British genera to the present time. Part II. Insecta Haustellata: 243 (1829) (as genus).

*Glochina* MEIGEN, Systematische Beschreibung der bekannten zweiflügeligen Insekten 6: 280 (1830) (as genus).

*Siagona* MEIGEN, Systematische Beschreibung der bekannten zweiflügeligen Insekten 6: pl.65; fig. 5, 6, 7 (1830) (as genus).

*Ataracta* LOEW, Programm K. Realschule zu Meseritz: 38 (1850) (fossil).

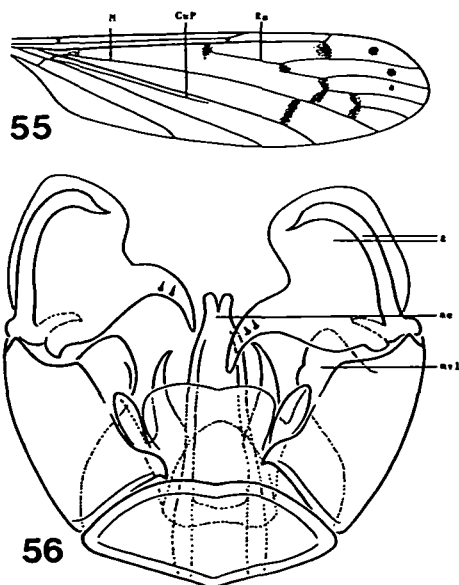
*Numantia* BIGOT, Anns Soc. ent. Fr. (3) 2: 470 (1854) (as genus).

*Telecephala* PIERRE, Bull. Soc. Sci. nat. Maroc. 1: 21 (1922) (as genus).

*Tedotea* SANTOS ABREU, Mems R. Acad. Cienc. Artes Barcelona 18: 111 (1923) (as genus).

Type species of *Furcomyia* MEIGEN: *Limonia lutea* MEIGEN 1818 (= *Limnobia mitis* MEIGEN 1830), by monotypy. Type species of *Dicranomyia* STEPHENS: *Limnobia modesta* MEIGEN 1818, designated by COQUILLET 1910: 533. Type species of *Glochina* MEIGEN: *Glochina sericata* MEIGEN 1830, by monotypy. Type species of *Siagona* MEIGEN: *Glochina sericata* MEIGEN 1830, by monotypy. Type species of *Numantia* BIGOT: *Limonia fusca* MEIGEN 1804, designated by COQUILLET 1910: 576. Type species of *Telecephala* PIERRE: *Limnobia longicollis* MACQUART 1846, by monotypy. Type species of *Tedotea* SANTOS ABREU: *Tedotea domestica* SANTOS ABREU 1923 (= *Limnobia vicina* MACQUART 1838), by monotypy.

OOSTERBROEK (1989) listed 39 species of *Limonia* (*Dicranomyia*) from Australia. In the present study six of these, namely *L. canithorax* ALEX., *L. inhonora* (ALEX.), *L. ochrirostris* (ALEX.), *L. subdorsalis* (ALEX.), *L. viridiventris* (SKUSE) and *L. wellingtonia* (ALEX.), are found to be synonyms, whereas *L. sedata* is considered to belong in *Limonia* (*Atypophthalmus*). Eight species listed by OOSTERBROEK (1989) under *Limonia* s. str. and under "unplaced species of *Limonia*", are transferred to *Limonia* (*Dicranomyia*). They are *L. annulipes*, *L. cinctitibia*, *L. clarki*, *L. gemina*, *L. inanis*, *L. incisuralis*, *L. zonata* and *L. perpulchra*. In addition 24 species are described as new.



Figs 55, 56. *Limonia (Dicranomyia) unjeeburra* sp. n.: 55: wing venation; - 56: male hypopygium, dorsal aspect. Abbreviations: ae = aedeagus; g = gonostyli; mvl = meso-ventral lobe of gonocoxite.

**Definition:** Head: mouthparts shorter than remainder of head; flagellomeres of antennae not produced. Wing (Fig. 55): not particularly narrow at base or petiolate; branches of Rs and M not strongly deflected near wing margin; M double-branched; vein CuP present; no supernumerary crossveins. Male hypopygium (Fig. 56): meso-ventral lobe of gonocoxite (mvl) usually of moderate size; two pairs of gonostyli (g); ventral gonostylus usually with two, at least with one, or with several, strong spines on rostral prolongation; proctiger not strongly modified; aedeagus (ae) with apex not particularly modified.

**Distribution:** All zoogeographic regions. In Australia: eastern, southern, western, northern.

#### Species in Australia:

*L. (D.) aequispina* (ALEX.)  
*L. (D.) albistigma* (ALEX.)  
*L. (D.) annulipes* (SKUSE)  
*L. (D.) appa* sp. n.  
*L. (D.) auripennis* (SKUSE)  
*L. (D.) balli* sp. n.  
*L. (D.) boorana* sp. n.  
*L. (D.) brevirama* (ALEX.)  
*L. (D.) bugledichae* sp. n.  
*L. (D.) bunyip* sp. n.  
*L. (D.) cinctitibia* ALEX.  
*L. (D.) clarki* ALEX.  
*L. (D.) cuneata* (SKUSE)  
*L. (D.) cunninghamensis* ALEX.  
*L. (D.) dicksoniae* ALEX.  
*L. (D.) dorrigensis* ALEX.

*L. (D.) dorsalis* (SKUSE)  
*L. (D.) etnurra* sp. n.  
*L. (D.) fata* sp. n.  
*L. (D.) flagellifera* (ALEX.)  
*L. (D.) flavidella* ALEX.  
*L. (D.) fragilis* sp. n.  
*L. (D.) fullawayi* (ALEX.)  
*L. (D.) gemina* ALEX.  
*L. (D.) helmsi* (SKUSE)  
*L. (D.) idonea* (ALEX.)  
*L. (D.) illingworthi* (ALEX.)  
*L. (D.) inanis* ALEX.  
*L. (D.) incisuralis* (SKUSE)  
*L. (D.) kallakurre* sp. n.  
*L. (D.) kowinka* sp. n.  
*L. (D.) kulin* ALEX.

- |                                      |                                    |
|--------------------------------------|------------------------------------|
| <i>L. (D.) kurnai</i> ALEX.          | <i>L. (D.) punctulatella</i> ALEX. |
| <i>L. (D.) lagunta</i> sp. n.        | <i>L. (D.) remota</i> (SKUSE)      |
| <i>L. (D.) loarinna</i> sp. n.       | <i>L. (D.) saxatilis</i> (SKUSE)   |
| <i>L. (D.) marina</i> (SKUSE)        | <i>L. (D.) saxemarina</i> ALEX.    |
| <i>L. (D.) millemurro</i> sp. n.     | <i>L. (D.) sordida</i> (BRUN.)     |
| <i>L. (D.) motepa</i> sp. n.         | <i>L. (D.) submarina</i> sp. n.    |
| <i>L. (D.) muta</i> ALEX.            | <i>L. (D.) substricta</i> (ALEX.)  |
| <i>L. (D.) nullanulla</i> sp. n.     | <i>L. (D.) ungieeburra</i> sp. n.  |
| <i>L. (D.) obscura</i> (SKUSE)       | <i>L. (D.) validistyla</i> ALEX.   |
| <i>L. (D.) obscuripennis</i> (SKUSE) | <i>L. (D.) wattamolla</i> sp. n.   |
| <i>L. (D.) octacantha</i> ALEX.      | <i>L. (D.) whitei</i> (ALEX.)      |
| <i>L. (D.) omi</i> sp. n.            | <i>L. (D.) williamsae</i> sp. n.   |
| <i>L. (D.) opima</i> (ALEX.)         | <i>L. (D.) woggoon</i> sp. n.      |
| <i>L. (D.) panthera</i> sp. n.       | <i>L. (D.) wundurra</i> sp. n.     |
| <i>L. (D.) perpulchra</i> ALEX.      | <i>L. (D.) yerrawar</i> sp. n.     |
| <i>L. (D.) punctipennis</i> (SKUSE)  | <i>L. (D.) zonata</i> (SKUSE).     |

### ***Limonia (Dicranomyia) aequispina* (ALEXANDER)**

*Dicranomyia aequispina* ALEXANDER, Ann. Mag. nat. Hist. (10) 1: 587 (1928).

*Limonia (Dicranomyia) aequispina* (ALEXANDER); OOSTERBROEK & JONAS, Catalogue of the Australian-Oceanian Tipulidae (Insecta, Diptera): 59 (1986).

Primary type: Holotype ♂: Tasmania, National Park, 16.12.1922, A. Tonnoir (ANIC); seen; genitalia missing.

Published records: Tasmania: National Park (ALEXANDER 1928a: 587). Known only from male.

Original description: Length 5 mm, wing length 6,2 mm. Closely related to *L. wellingtonia* (ALEX.) in the silvery anterior vertex, elongate halteres, and other features, differing as follows: The silvery anterior vertex is bordered behind by a transverse black area, the remainder of the vertex and the occiput dark brown. Pronotum dark brown. Praescutum not blackened, shiny reddish, with faint greenish tints. Wings with Sc1 longer, about 4/5 of Rs; m-cu at fork of M. Male hypopygium with the mesal face of the basistyle with two unequal fleshy lobes, as in *L. wellingtonia* (ALEX.). Rostral prolongation of the ventral dististyle with two slender spines, the more basal only a trifle longer and stouter than the distal spine, the two placed close together, the distance between them at base less than a quarter of the length of the shortest.



**Remarks:** Apparently similar to *L. cuneata* (SKUSE) [= *L. wellingtonia* (ALEX.)]. Diagnostic characters (male): very little difference in size between the rostral spines of the ventral gonostylus and not much distance between them.

**New records:** None.

**Distribution:** Tasmania; known only from the type locality.

***Limonia (Dicranomyia) cuneata* (SKUSE) (Fig. 144)**

*Dicranomyia cuneata* SKUSE, Proc. Linn. Soc. N.S.W. 4: 772 (1890).

*Dicranomyia wellingtonia* ALEXANDER, Ann. Mag. nat. Hist. (10) 1: 586 (1928).

*Limonia (Dicranomyia) cuneata* (SKUSE); OOSTERBROEK & JONAS, Catalogue of the Australian Oceanian Tipulidae (Insecta, Diptera): 61 (1986).

**Primary types:** Holotype ♂ of *Dicranomyia cuneata* SKUSE: New South Wales, Blue Mountains, Skuse (ANIC); seen. Holotype ♂ of *Dicranomyia wellingtonia* ALEXANDER: Tasmania, Mount Wellington, 25.11.1922, A. Tonnoir (ANIC); seen.

**Published records:** New South Wales: Blue Mts (SKUSE 1890: 773). Victoria: Sassafras, Dandenong Ra. (ALEXANDER 1928a: 587). Tasmania. Adventure Bay; Fern Tree, Mt Wellington; Mt Wellington (all ALEXANDER 1928a: 587).

**Previous illustrations:** SKUSE 1890, Pl. XXI, fig. 5 (wing).

**Genitalia:** Male hypopygium, Fig. 144.

**Remarks:** Apparently similar to *L. aequispina* (ALEX.). Diagnostic characters (male): marked difference in size between the rostral spines of ventral gonostylus and considerable distance between them.

**New records:** New South Wales: Barrington Tops (GT); Black Mtn, A.C.T. (ANIC); Brown Mtn, nr Bega (ANIC); Bundanoon (GT); Carrington Falls (GT); Clyde Mtn (ANIC); Clyde Mtn, 2300 ft (ANIC); Katoomba (AM); Mt Dromedary (GT); Mt Wilson, Blue Mts (GT). Victoria: Acheron Way, 1900 ft (ANIC); Belgrave (NMNH); Ben Cairn (ANIC); Cape Otway (ANIC); Cement Ck (ANIC); Hordern Vale (ANIC); Kinglake (ANIC); Millgrove, 500-1000 ft (NMNH); Spring Hill, 4000 ft (ANIC); Toorong Falls (ANIC); Warburton (MV). Tasmania: Hot Springs Ck (GT); Mt Wellington (ANIC); Mt Wellington, 720 m (GT); Mt Wellington, Shoabridge Bend, 600 m (GT); Port Davey Track, nr Mueller Ra. (MV); Russell Falls (ANIC).

**Distribution:** New South Wales (SEN), Victoria, Tasmania.

***Limonia (Dicranomyia) albistigma* (ALEXANDER) (Fig. 145)**

*Dicranomyia albistigma* ALEXANDER, Ann. Mag. nat. Hist. (10) 1: 580 (1928).

*Limonia (Dicranomyia) albistigma* (ALEXANDER); OOSTERBROEK & JONAS, Catalogue of the Australian-Oceanian Tipulidae (Insecta, Diptera): 60 (1986).

**Primary type:** Holotype ♂: Tasmania, Mount Wellington, 30.11.1922, A. Tonnoir (ANIC); seen.

**Published records:** Tasmania: Cradle Valley; Hartz Mts; Mt Field; Mt Wellington (all ALEXANDER 1928a: 582).

**Genitalia:** Male hypopygium, Fig. 145.

**Remarks:** Very similar to *L. lagunta* sp. n. Diagnostic characters: scutellum brown; tergite 9 of male rather short and wide; rostral prologation of ventral gonostylus narrow, the two spines originating from different levels.

**New records:** Tasmania: Cradle Valley, 950 m (ANIC); Mt Reed, 800 m (ANIC); top Mt Wellington (ANIC); National Park (NMNH); 8 km N of Queenstown (ANIC).

**Distribution:** Tasmania.

***Limonia (Dicranomyia) lagunta* spec. nov. (Fig. 146)**

**Remarks:** Very similar to *L. albistigma* ALEX. Diagnostic characters: scutellum dull yellow; tergite 9 of male rather long and narrow; rostral prolongation of ventral gonostylus wide, the two spines originating from the same level.

**Subspecies in Australia:**

*L. (D.) l. lagunta* ssp. n.

*L. (D.) l. makoo* ssp. n.

***Limonia (Dicranomyia) lagunta lagunta* spec. et subspec. nov. (Fig. 146)**

**Description:** Head largely greyish black; rostrum pale greyish brown; palps and antennae dark greyish brown. Thorax largely dark greyish brown, only scutellum and an adjacent broad stripe along midline of postscutum dull yellow. Coxae greyish brown; trochanters greyish yellow; femora from pale greyish brown (at base) to blackish brown (at apex); tibiae, tarsi and claws blackish brown. Wings subhyaline, with indistinct brown clouds, notably along Rs and CuA and in apical region; pterostigma area, or at least part of it, yellowish white. Sc ending about opposite origin of Rs; Sc1 about as long as basal section of R4+5; Rs strongly arcuated near origin, 1,5-2 times as long as basal section of R4+5; dm closed; bscu at or very close to fork of M. Halteres with stem greyish yellow and knob greyish brown. Abdomen largely dark greyish brown. Wing length, male 8,9-9,2 mm, female 9,0 mm.

**Genitalia:** Male hypopygium, Fig. 146.

**Remarks:** Very similar to *L. lagunta makoo* ssp.n. Diagnostic characters: size large (wing length 8,9-9,2 mm); colouration dark with pattern distinct.

**Material examined:** Holotype ♂: Tasmania, 41°38'S/145°57'E, Cradle Valley, 950 m, 28.11.1988, P.B. McQuillan, E.S. Nielsen (ANIC). Paratypes: 1 ♂, 1 ♀, same data as holotype (ANIC).

**Distribution:** Tasmania; known only from type locality.

**Name:** Lagunta (= Tasmanian Aboriginal word for "Tasmanian Tiger") refers to the colouration.

***Limonia (Dicranomyia) lagunta makoo* subsp. nov.**

**Description:** Head largely greyish black; rostrum, palps and antennae dark greyish brown. Thorax largely greyish brown; scutellum greyish yellow, much of post-scutum, mediotergite and laterotergites yellowish brown. Legs pale to dark greyish brown. Wings brownish subhyaline without any darker clouds; venation as in typical *L. lagunta*. Halteres with stem greyish yellow and knob greyish brown. Abdomen largely greyish brown; much of female terminalia yellowish brown. Wing length, male 6,6-7,3 mm. female 6,9-7,6 mm.

**Genitalia:** Male hypopygium much as in typical *L. lagunta*.

**Remarks:** Most similar to typical *L. lagunta*. Diagnostic characters: size small (wing length 6,6-7,6 mm); colouration rather pale with pattern indistinct.

**Material examined:** Holotype ♂: Tasmania, 43°22'S/146°09'E, Celery Tops Island, Bathurst Harbour, light trap, 28-29.11.1991, I. Naumann (ANIC). Paratypes: 2 ♂♂, 6 ♀♀, same data as holotype (ANIC).

**Distribution:** Tasmania; known only from type locality.

**Name:** Makoo (= Australian Aboriginal word for "cloud") refers to the indistinct pattern.

***Limonia (Dicranomyia) remota* (SKUSE) (Fig. 147)**

*Dicranomyia remota* SKUSE, Proc. Linn. Soc. N.S.W. 4: 766 (1890).

*Limonia (Dicranomyia) remota* (SKUSE); OOSTERBROEK & JONAS, Catalogue of the Australian-Oceanian Tipulidae (Insecta, Diptera); 66 (1986).

**Primary type:** Holotype ♀: New South Wales, Middle Harbour, near Sydney, Sept., Skuse (ANIC); seen.

**Published records:** New South Wales: Middle Harbour, nr Sydney (SKUSE 1890: 767).

Previously known only from the female.

**Description of male:** Structure and colouration much as described for the female (SKUSE 1890). Wing length 6,9-7,8 mm.

**Genitalia:** Hypopygium, Fig. 147.

**Remarks:** Similar to *L. albistigma* (ALEX.) and *L. lagunta* sp.n. Diagnostic characters (male): tergite 9 bilobed; mesal lobe of parameres with lateral subapical tooth.

**New records:** Queensland: 2 km E Mt Norman, 1000 m (NMNH). New South Wales: nr Barren Ground (GT); Batemans Bay (ANIC); Black Mtn, A.C.T. (ANIC); Calga (GT); Charleyong (ANIC); Engadine (GT); Fitzroy Falls, 2500 ft (ANIC); Heathcote Brook (GT); Jervis Bay (ANIC); Linden, Blue Mts (GT); 7 km E Lithgow (GT); Mongarlowe (ANIC); New England N. P., 4500 ft (ANIC); Sydney (ANIC). Victoria: Buckland's, Gippsland (ANIC); E. Gippsland, 15 mi. of Orbost (ANIC); Elphinstone (ANIC); Fern-tree Gully (NMNH); Gisborne (ANIC); Grampians (ANIC); 5 N Grampians (ANIC); In-veloch (ANIC); Maroondah (ANIC); Mirranatwa (ANIC); Mt Drummer, E. Gippsland (ANIC); Otway, Benwerrin (ANIC); Ringwood (MV); Rocky R., Murrungowar (ANIC). Tasmania: Burnie (NMNH); Eaglehawk Neck (ANIC); Mt Wellington (ANIC); St Patrick R. (ANIC). South Australia: Aldgate (ANIC).

**Distribution:** Queensland (SEQ), New South Wales (NEN, SEN), Victoria, Tasmania, South Australia (SES).

### ***Limonia (Dicranomyia) auripennis* (SKUSE) (Fig. 148)**

*Dicranomyia auripennis* SKUSE, Proc. Linn. Soc. N.S.W. 4: 769 (1890).

*Limonia (Dicranomyia) auripennis* (SKUSE); ALEXANDER, Ann. Mag. nat. Hist. (10) 12: 338 (1933).

*Limonia (Dicranomyia) canithorax* ALEXANDER, Ann. Mag. nat. Hist. (10) 12: 337 (1933).

*Limonia (Dicranomyia) auratipennis* OOSTERBROEK & JONAS; OOSTERBROEK & JONAS, Catalogue of the Australian-Oceanian Tipulidae (Insecta, Diptera): 60 (1986) (unjustified replacement name.)

**Primary types:** Lectotype ♂, by present designation, of *Dicranomyia auripennis* SKUSE: New South Wales, Mossman's Bay, near Sydney, Sept., Skuse (ANIC); seen; additionally labelled "Lectotype ♂ *Dicranomyia auripennis* SKUSE, designated by G. Theischinger 1994". Holotype ♂ of *Limonia canithorax* ALEXANDER: New South Wales, Mount Victoria, Blue Mountains, 20-30.10.1930, F.E. Wilson (MV); seen.

**Published records:** New South Wales: Mossman's Bay, near Sydney; Blue Mts (both SKUSE 1890: 769); Mt Victoria, Blue Mts (ALEXANDER 1933b: 338).

Previously known only from male.

**Description of female:** Structure and colouration much as described for male (SKUSE 1890, ALEXANDER 1933b). Wing length 7,3-7,8 mm.

**Genitalia:** Male hypopygium, Fig. 148.

Remarks: Most similar to *L. helmsi* (SKUSE). Diagnostic characters: colouration from yellow to pale brown; male with rostral prolongation of ventral gonostylus short and slightly flattened.

New records: New South Wales: Blackheath, Blue Mts (NMNH); Brooklana, E Dorrigo (NMNH); Fitzroy Falls, 2500ft (ANIC); Heathcote Brook, Royal N. P. (GT); Megalong Valley (MV, NMNH); Mt Banda Banda, 1200 m (GT); Uloola Ck, Royal N. P. (GT); Waterfall, National Falls, Royal N. P. (GT); Wentworth Falls, Blue Mts (GT, NMNH).

Distribution: New South Wales (NEN, SEN).

***Limonia (Dicranomyia) helmsi* (SKUSE) (Fig. 149)**

*Dicranomyia helmsi* SKUSE, Proc. Linn. Soc. N.S.W. 4: 763 (1890).

*Limonia (Dicranomyia) helmsi* (SKUSE); ALEXANDER, Ann. Mag. nat. Hist. (10) 5: 153 (1930).

Primary type: Lectotype ♂, by present designation, of *Dicranomyia helmsi* SKUSE: New South Wales, Mount Kosciusko, 5000 ft, March, Helms (AM); seen; genitalia missing; additionally labelled "Lectotype ♂ *Dicranomyia helmsi* SKUSE, designated by G. Theischinger 1994".

Published records: New South Wales: Mt Kosciusko, 5000 ft (SKUSE 1890: 764).

Genitalia: Male hypopygium, Fig. 149.

Remarks: Very similar to *L. auripennis* (SKUSE). Diagnostic characters: colouration largely dark greyish brown; male with rostral prolongation of ventral gonostylus rather long and not flattened.

New records: New South Wales: Alpine Ck (ANIC); 7 km E Lithgow, Blue Mts (GT); New England N. P., 4500 ft (ANIC); Perisher Ck-Smiggin, 1500-1650 m (GT); N Schlink Pass, 1500 m (GT).

Distribution: New South Wales (NEN, SEN).

***Limonia (Dicranomyia) muta* ALEXANDER (Fig. 150)**

*Limonia (Dicranomyia) muta* ALEXANDER, Ann. Mag. nat. Hist. (10) 19: 340 (1937).

Primary type: Holotype ♂: Victoria, Belgrave, in tree-fern gully. 31.3.1929, F.E. Wilson (MV); seen.

Published records: Victoria: Belgrave; Macedon (both ALEXANDER 1937: 341).

Previously known only from male.

Description of female: Structure and colouration much as described for male (ALEXANDER 1937). Wing length 6,1-6,6 mm.

**Genitalia:** Male Hypopygium, Fig. 150.

**Remarks:** Very similar to *L. fata* sp. n. Diagnostic characters: thoracic pleura greyish yellow to pale greyish brown; tergite 9 of male posteriorly with moderately wide and deep excision; rostral prolongation of ventral gonostylus slender.

**New records:** New South Wales: Charlotte Pass, Snowy Mts (NMNH); Hartley Vale (GT); Kanangra Walls (GT). Victoria: Cascades nr Marysville (GT); Hordern Vale (ANIC); Lake Mt (ANIC); Mt Baw Baw, 3100 ft (ANIC); Mt Baw Baw, 3800 ft (ANIC); Mt Baw Baw, 4400 ft (ANIC); Spring Hill, 4000 ft (ANIC); Toorong Falls (ANIC). Tasmania: Arm R. (GT); Collinsvale, "Fairy Glen", 300 m (AM); Corinna (GT); Franklin R. (ANIC); nr summit of Hartz Mts (GT); Helyer R./Murchison Hwy (GT); Patons Rd, S of Lemonthyme (GT); 10 mi. E of Strahan (ANIC); Wetcave, nr Mole Ck (GT).

**Distribution:** New South Wales (SEN), Victoria, Tasmania.

***Limonia (Dicranomyia) fata* spec. nov. (Fig. 151)**

**Description:** Head largely greyish black; rostrum greyish yellow to greyish brown; palps dark greyish brown; antennae greyish- to blackish brown, scape and pedicel markedly paler than flagellum. Thorax with scutum largely brownish black; scutellum, mediotergite and laterotergites greyish brown; pleura greyish- to blackish brown. Legs pale greyish- to blackish brown. Wings subhyaline, with subrectangular greyish brown patch in pterostigma area; Sc ending at or very close to origin of Rs; Sc1 1/2-3/4 length of Rs; Rs 1-1,5 times as long as basal section of R4+5; bscu at or very close to fork of M. Halteres with knob and base of stem yellowish grey, rest of stem greyish brown. Abdomen dark greyish brown. Wing length, male 6,7-6,9 mm, female 6,4-8,5 mm.

**Genitalia:** Male hypopygium, Fig. 151.

**Remarks:** Very similar to *L. muta* ALEX. Diagnostic characters: thoracic pleura greyish- to blackish brown; tergite 9 of male widely and shallowly excised posteriorly; rostral prolongation of ventral gonostylus plump.

**Material examined:** Holotype ♂: Tasmania, Ben Lomond, 3.3.1994, G. Theischinger (ANIC). Paratypes: 1♂, 2♀, Tasmania, Arm River, 6.3.1994, G. Theischinger (GT).

**Distribution:** Tasmania.

**Name:** Fata is an arbitrary combination of letters; to be treated as a noun in apposition.

***Limonia (Dicranomyia) dorsalis* (SKUSE) (Fig. 152)**

*Dicranomyia dorsalis* SKUSE, Proc. Linn. Soc. N.S.W. 4: 767 (1890).

*Dicranomyia viridiventris* SKUSE, Proc. Linn. Soc. N.S.W. 4: 772 (1890).

*Dicranomyia subdorsalis* ALEXANDER, Ann. Mag. nat. Hist. (10) 1: 579 (1928).

*Limonia (Dicranomyia) dorsalis* (SKUSE); ALEXANDER, Ann. Mag. nat. Hist. (10) 12: 344 (1933).

Primary types: Lectotype ♂, by present designation, of *Dicranomyia dorsalis* SKUSE: New South Wales, Berowra, Masters and Skuse (ANIC); seen; additionally labelled "Lectotype ♂ *Dicranomyia dorsalis* SKUSE, designated by G. Theischinger 1994". Lectotype ♂, by present designation, of *Dicranomyia viridiventris* SKUSE: New South Wales, Middle Harbour, near Sydney, Skuse (ANIC); seen; additionally labelled "Lectotype ♂ *Dicranomyia viridiventris* SKUSE, designated by G. Theischinger 1994". Holotype ♂ of *Dicranomyia subdorsalis* ALEXANDER: Tasmania, Adventure Bay, 30.12.1922, A. Tonnoir (ANIC); seen; genitalia supposedly on slide, but not found.

Published records: New South Wales: generally distributed (SKUSE 1890: 768); Middle Harbour, near Sydney; Knapsack Gully, Blue Mts (both SKUSE 1890: 772). Tasmania: Adventure Bay (ALEXANDER 1928a: 580).

Genitalia: Male hypopygium, Fig. 152.

Remarks: Very similar *L. brevirama* (ALEX.), *L. flavidella* ALEX. and *L. kurnai* ALEX. Diagnostic characters: thorax of mature individuals pale, distinctly and extensively marked with very dark; cell dm closed; male with ventral gonostylus very large. There are significant differences, even in the male genitalia, between individuals and populations. However, definitions of sensible units are at this stage impossible.

New records: Queensland: Burpengary (NMNH); Conondale Ra., Bundaroo Ck (GT); nr Kenilworth (GT); Kenilworth-Jimna (GT); Lobster Ck, nr Kenilworth (GT); cks from Mt Haigh into Tinaroo Dam (GT). New South Wales: Audley (GT); ck nr Audley (GT); nr Audley (GT); Barrington Tops (GT); Batemans Bay (ANIC); Berowra (ANIC); Berowra Heights (GT); Blue Mts (ANIC); Bola Ck, Royal N. P. (AM); Brooklana, E Dorrigo, 2000 ft (NMNH); Bundeena (GT); Calga (GT); Carrington Falls (GT); Castlecrag, Sydney (AM); Coombadjah Ck, Washpool N. P. (GT); Deep Ck, Narrabeen (ANIC); Engadine (GT); Fitzroy Falls, 2500 ft (ANIC); Galston Gorge (GT); Glenbrook, Blue Mts (GT); Gordon, Sydney (GT); Hartley Vale (GT); Heathcote Brook (GT); Kuringai Chase (GT); Kurrajong (AM); Lawson (ANIC); Lucas Heights (GT); cks nr Lucas Heights (GT); Macquarie Pass (GT); Macquarie Rivulet (GT); Mill Ck, N of Sydney (GT); Minnamurra Falls (GT); Minna Haha Falls, Katoomba (GT); Mongarlowe R., Clyde Mtn (ANIC); Mt Dromedary (GT); Muogammara Sanctuary (GT); Narara (NMNH); New England N. P. (ANIC); Popran Ck, N of Sydney (GT); Rocky Crossing, Williams R. (GT); Royal N. P., Lady Carrington Drive (GT); Sassafras Gully, Springwood (AM); Somerby Falls, N of Sydney (GT); Spencer, N of Sydney (GT); St Ives, Sydney (GT); Sydney (ANIC); Terania Ck (GT); Waragamba Dam (GT); Watagan Forest (GT); Waterfall (ANIC, NMNH); Wattamolla (GT); Wilson R. Res., 15 km NW Bellangry, 244 m (GT); Woronora R., nr Heathcote (GT). Victoria: Acheron R. (ANIC); Aire R., 4 km NE of Glenaire (ANIC); Alfred N. P. (ANIC); Bell Bird Ck (ANIC); Bellet Ck, nr Marysville (GT); Bogong, Howmans (ANIC); Cann R., East Gippsland (ANIC); Cockatoo

(NMNH); Cumberland Ck, 3000 ft (ANIC); Diamond Ck, 15 km E of Gembrook (ANIC); Gippsland, Cabbage Tree Ck (ANIC); Grampians (MV); Martin Ck, Bonang Hwy (ANIC); Millgrove (NMNH); Rocky R., Murrungowar (ANIC); Warburton (NMNH); Warburton, 3000-3800 ft (NMNH); Wilson's Promontory, Roaring Meg Ck (MV). Tasmania: Adventure Bay (NMNH); Arm R. (GT); Arthur Plains (MV); Burnie (NMNH); Buxton R., nr Mayfield (MV); Condominion Ck, at Scotts Peak Rd (MV); Denison R., 200 m below Maxwell R. jn (MV); Duck R., 6 km SW Roger R. (MV); Flowerdale R., Meunna (MV); Frankland R. (GT); Franklin R.-Roaring Ck jn, 1 km above Gordon R. (MV); Gordon R., 0,5 km above Smith R. jn (MV); Gordon R., 0,5 km above Sprent R. jn (MV); Gordon R., ca 0,5 km below Second Split (MV); Gordon R., 1 km below Smith R. jn (MV); Guide Falls, nr Ridgley (MV); Hot Springs Ck (GT); Hot Springs Ck, Hastings Caves (MV); Meredith R., 12km from Corinna (ANIC); Nelson Bay R. (GT); Patons Rd, S of Lemonthyme (GT); Russell Falls, N. P. (MV); Sir John Falls, Cataract Ck, Gordon R. trib. (MV); St Patrick R., Targa (MV); Strahan (MV); Western Ck (GT); Wetcave, nr Mole Ck (GT).

**Distribution:** Queensland (NEQ, SEQ), New South Wales (NEN, SEN), Victoria, Tasmania.

***Limonia (Dicranomyia) brevirama* (ALEXANDER) (Fig. 153)**

*Dicranomyia brevirama* ALEXANDER, Rec. S. Aust. Mus. 2: 228 (1922).

*Dicranomyia ochrirostris* ALEXANDER, Ann. Mag. nat. Hist. (10) 1: 582 (1928).

*Limonia (Dicranomyia) brevirama* (ALEXANDER); OOSTERBROEK & JONAS, Catalogue of the Australian-Oceanian Tipulidae (Insecta: Diptera): 60 (1986).

**Primary types:** Holotype ♀ of *Dicranomyia brevirama* ALEXANDER: New South Wales, Lord Howe Island, A.M. Lea (SAM); not seen. Holotype ♂ of *Dicranomyia ochrirostris* ALEXANDER: Tasmania, Cradle Valley, 13.1.1923, A. Tonnoir (ANIC); seen.

**Published records:** Lord Howe Island (ALEXANDER 1922a: 229); New South Wales: Barrington Tops (ALEXANDER 1928b: 51); Wentworth Falls, Blue Mts (ALEXANDER 1928a: 583). Tasmania: Cradle Valley; Fern Tree, Mt Wellington; Hobart; King R.; Mt Wellington; National Park (all ALEXANDER 1928a: 583).

**Genitalia:** Male hypopygium, Fig. 153.

**Remarks:** Very similar to *L. dorsalis* (SKUSE), *L. flavidella* ALEX. and *L. kurnai* ALEX. Diagnostic characters: thorax of mature individuals rather uniformly yellowish brown, dark markings indistinct or not extensive; cell dm closed; male with ventral gonostylus very large.

**New records:** Queensland: Binna Burra (ANIC); Binna Burra, 2700 ft (ANIC); 2 mi. N of Cooroy, NE of Nambour (ANIC); Lamington N. P. (ANIC). New South Wales: Barokee-Cathedral Rock (GT); Barrington Tops (NMNH); Berowra (GT); Bruxner Park, Coffs Harbour (ANIC); Calga (GT); Chatswood (ANIC); Clyde Mtn, West Slope (ANIC); Dahlia Swamp, nr Woronora R. (GT); Engadine (GT); 20 mi. Glen Innes to Grafton Hwy (ANIC); 26-27 mi. Glen Innes to Grafton Hwy (ANIC); Gloucester Tops,



1300 m (GT); Hartley Vale (GT); Heathcote Brook (GT); Kangaroo Valley (GT); Minna Haha Falls, Katoomba (GT); Minnamurra Falls (GT); Mittagong (GT); Mt Gingera, A.C.T. (ANIC); Mt Keira (GT); Mt Wilson (GT); New England N. P. (ANIC); Porter's Dam Rd, 16 km NW of Milton (ANIC); Pretty Ck, Mt Kosciusko (ANIC); N Schlink Pass, 1500 m (GT); Snowy R. (ANIC); Tianjarra (GT); Wentworth Falls (GT). Lord Howe Island: Mt Gower summit, 2800 ft (ANIC); Mt Gower, ca 800 m (ANIC); no other data (ANIC). Victoria: Bogong (ANIC); Cement Ck, 1800 ft (ANIC); Cement Ck, nr Warburton (MV); Diamond Ck, 15 km E of Gembrook (ANIC); East Gippsland, Club Terrace (ANIC); Eurobin Falls, Mt Buffalo (ANIC); Foster (ANIC); Lake Mtn (ANIC); Lorne (ANIC); Mt Baw Baw (ANIC); Mt Baw Baw, 3800 ft (ANIC); Mt Baw Baw, 4400 ft (ANIC); Sherbrooke (ANIC); Spring Hill, 4000 ft (ANIC); Toorong Falls (ANIC); 15 S Treasure's, 3900 ft (ANIC); Walhalla (NMNH); Wilson's Promontory (ANIC); Wilson's Promontory, Chinaman's Ck (ANIC). Tasmania: Arm R. (GT); Canadian Ck (GT); Cradle Mt, 3000 ft (ANIC); cks nr Cradle Mtn (GT); nr Cradle Mtn, Pencil Ck, Pine Ck, 800 m (GT); Cradle Valley (NMNH); d'Entrecasteaux R., source below Mt Le Perouse, 840 m (MV); Forth R., S of Lemonthyme Stn (GT); Frankland R. (GT); Franklin R. - Roaring Ck jn, 1 km above Gordon R. (MV); Gordon R., 1 km below Smith R. jn (MV); Gordon R., ck 0,5 km below Second Split (MV); Guide R. Falls, nr Ridgley (MV); nr summit of Hartz Mts (GT); Hobart (NMNH); Huon-Picton R. jn (MV); Lightning Plains, Jane R., 400 m (GT); King R. (NMNH); below Maxwell Ridge, trib. of Picton R. above Reservoir Lakes (MV); Milkshake Hills Res. (GT); nr Mt Darwin, West Coast Ra. (GT); Mt Wellington (MV); Old-Collins R. jn (MV); Patons Rd, S of Lemonthyme (GT); Que R. area (GT); Sir John Falls, Cataract Ck, Gordon R. trib. (MV); 10 mi. E of Strahan (ANIC); cks nr Strathgordon (GT); Wandle R./Murchison Hwy (GT); Waratah (NMNH); Western Ck (GT).

**Distribution:** Queensland (SEQ), New South Wales (NEN, SEN), Lord Howe Island, Victoria, Tasmania.

***Limonia (Dicranomyia) kurnai* ALEXANDER (Fig. 154)**

*Limonia (Dicranomyia) kurnai* ALEXANDER, Ann. Mag. nat. Hist. (10) 12: 343 (1933).

**Primary type:** Holotype ♂: Victoria, Ringwood, March 1931, F.E. Wilson (MV); seen.

**Published records:** Victoria: Ringwood; Warburton (both ALEXANDER 1933b: 344).

**Genitalia:** Male hypopygium, Fig. 154.

**Remarks:** Similar to *L. dorsalis* (SKUSE). Diagnostic characters (male): ventral gonostylus not larger than gonocoxite.

**New records:** Victoria: Walhalla (NMNH).

**Distribution:** Victoria.

***Limonia (Dicranomyia) flavidella* ALEXANDER (Fig. 155)**

*Limonia (Dicranomyia) flavidella* ALEXANDER, Ann. Mag. nat. Hist. (10) 5: 153 (1930).

Primary type: Holotype ♂: Victoria, Millgrove, 1600-1700 ft, in a deeply shaded fern-gully, 7.4.1928, F.E. Wilson (MV); seen.

Published records: New South Wales: Eastern Dorrigo, 2000-3000 ft (ALEXANDER 1930b: 154). Victoria: Millgrove, 1600-1700 ft (ALEXANDER 1930b: 154).

Previously known only from male.

Description of female: Structure and colouration much as described for male (ALEXANDER 1930b). Wing length 5,4-6,3 mm.

Genitalia: Male hypopygium, Fig. 155.

Remarks: Similar to *L. dorsalis* (SKUSE), *L. brevirama* (ALEX.) and *L. kurnai* ALEX. Some individuals from north-eastern Queensland are markedly darker than individuals of other known populations. Diagnostic characters: colouration rather uniformly pale or darker; cell dm open.

New records: Queensland: Bartle Frere track, 200 m (GT); Binna Burra (ANIC); Green Mtn, Lamington N. P. (ANIC); 5-8 mi. Mt Lewis Rd off Mossman-Mt Molloy Rd (ANIC). New South Wales: Barrington House (ANIC); Clyde Mtn (ANIC); Dorrigo N. P. (ANIC); Macquarie Rivulet (GT); Mt Gibraltar N. P., 64 mi. W Grafton (AM). Victoria: Ben Cairn, nr Millgrove, 2900-3100 ft (NMNH); Toorloo Arm (ANIC); Toorong Falls (ANIC).

Distribution: Queensland (NEQ, SEQ), New South Wales (NEN, SEN), Victoria.

***Limonia (Dicranomyia) fragilis* spec. nov. (Fig. 156)**

Description (♂): Head largely greyish- to brownish black; rostrum, palps and antennae brown. Thoracic terga brown; pleura greyish- to brownish yellow. Coxae and trochanters greyish- to brownish yellow; femora from greyish yellow (at base) to greyish brown (at apex); tibiae, tarsi and claws greyish brown. Wings faintly suffused with greyish brown, only pterostigma area slightly darker; Sc ending just before origin of Rs; Sc1 about as long as basal section of R4+5; Rs not quite twice as long as basal section of R4+5; bscu immediately before fork of M. Halteres pale greyish brown. Abdominal tergites greyish brown, sternites greyish yellow. Wing length 5,6 mm.

Genitalia: Hypopygium, Fig. 156.

Female unknown.

Remarks: Similar to the species centred around and including *L. dorsalis* (SKUSE) (see there). Diagnostic characters (male): tergite 9 widely emarginate; meso-ventral

lobe of gonocoxite with small spiny branch; dorsal gonostylus only slightly arcuated and somewhat expanded towards apex; parameres with mesal lobe short.

Material examined: Holotype ♂: Tasmania, 10 mi. E of Strahan, 6.2.1967, E.F. Riek (ANIC).

Distribution: Tasmania; known only from the type locality.

Name: *Fragilis*, -e (= Latin for "fragile") refers to bulk and size of this species.

### ***Limonia (Dicranomyia) obscura* (SKUSE) (Fig. 157)**

*Dicranomyia obscura* SKUSE, Proc. Linn. Soc. N.S.W. 4: 764 (1890).

*Dicranomyia inculta* ALEXANDER, Ann. Mag. nat. Hist. (10) 1: 585 (1928).

*Limonia (Dicranomyia) obscura* (SKUSE); ALEXANDER, Ann. Mag. nat. Hist. (10) 12: 340 (1933).

Primary types: Lectotype ♂, by present designation, of *Dicranomyia obscura* SKUSE: New South Wales, Knapsack Gully, Blue Mountains, July to Sept., Masters and Skuse (ANIC); seen; additionally labelled "Lectotype ♂ *Dicranomyia obscura* SKUSE, designated by G. Theischinger 1994". Holotype ♂ of *Dicranomyia inculta* ALEXANDER: Victoria, Ferntree Gully, Dandenong Range, 25.10.1921, A. Tonnoir (ANIC); seen.

Published records: New South Wales: Barrington Tops (ALEXANDER 1928b: 51); Sydney; Knapsack Gully, Blue Mts (SKUSE 1890: 765). Victoria: Ferntree Gully, Dandenong Ra. (ALEXANDER 1928a: 586).

Genitalia: Male hypopygium, Fig. 157.

Remarks: Similar to the species centred around and including *L. validistyla* ALEX. (see there). Diagnostic characters (male): ventral gonostylus with rostral prolongation large; dorsal gonostylus slightly curved only.

New records: Queensland: Wongabel S. F. (ANIC). New South Wales: Barrington Tops (GT, NMNH); Bawley Point (ANIC); Berowra Heights (GT); Blackheath (NMNH); Black Mtn, A.C.T. (ANIC); Blue Mts (ANIC); Engadine (GT); Epping (GT); Garling Street, Lane Cove (GT); 5-7 km NE of Harrington (GT); Hornsby (ANIC); Lorient Ref., 3 km N Lansdowne, nr Taree (GT); Mongarlowe (ANIC); Mosman (ANIC); Mt Dromedary (GT); Narrabeen (ANIC); Popran Ck, N of Sydney (GT); Rockdale (GT); 7-mile Beach, nr Gerryong (GT); Sutherland Shire (GT); Sydney, Australian Museum (GT); 2 mi SW Tumorrana (ANIC); Wallaga Lake, Bermagui (ANIC). Victoria: Cape Otway (MV); Eltham (MV, NMNH); Gleneig R., 4 mi. NNE of Nelson (MV); Maroondah (ANIC); Melbourne (ANIC); Mt Baw Baw, 3100 ft (ANIC); Walhalla (NMNH); Wanchin Nth (ANIC); Warburton (NMNH); Wilson's Promontory (ANIC). Tasmania: Eaglehawk Neck (NMNH).

Distribution: Queensland (NEQ), New South Wales (NEN, SEN), Victoria, Tasmania.

***Limonia (Dicranomyia) validistyla* ALEXANDER (Fig. 158)**

*Limonia (Dicranomyia) validistyla* ALEXANDER, Ann. Mag. nat. Hist. (10) 12: 338 (1933).

Primary type: Holotype ♂: Victoria, Mount Donna Buang, above Warburton, 3000-4000 ft, 6.12.1931. F.E. Wilson (MV); seen.

Published records: Victoria: Mt Donna Buang, above Warburton, 3000- 4000 ft (ALEXANDER 1933b: 340).

Previously known only from male.

Description of female: Structure and colouration much as described for male (ALEXANDER 1933b). Wing length 7,3-7,5 mm.

Genitalia: Male hypopygium, Fig. 158.

Remarks: Similar to *L. appa* sp. n., *L. omi* sp. n., *L. yerrawar* sp. n., similar to *L. obscura* (SKUSE). Diagnostic characters (male): both spines on dorsal face of rostral prolongation of ventral gonostylus; dorsal gonostylus not evenly curved; a deep and narrow gap between narrow tapered mesal lobe and rather square lateral lobe of parameres.

New records: New South Wales: Barrington Tops (GT); Gibraltar Ck, A.C.T. (ANIC); Pretty Point Ck, Mt Kosciusko (ANIC). Victoria; Ben Cairn (ANIC); Grampians (ANIC).

Distribution: New South Wales (SEN), Victoria.

***Limonia (Dicranomyia) appa* spec. nov. (Fig. 159)**

Description: Head largely dark grey; rostrum, palps and antennae greyish- to blackish brown. Thoracic terga dark greyish brown; pleura grey. Coxae brownish grey; trochanters brownish yellow; femora from brownish yellow (at base) to greyish brown (before apex), the apex blackish brown; tibiae, tarsi and claws greyish- to blackish brown. Wings suffused with pale greyish brown, slightly more darkened at origin of Rs, along cord and along CuA; Sc ending very close to origin of Rs; Sc1 slightly longer than Sc2; Rs rather strongly arcuated near origin, about 1,5 times as long as basal section of R4+5; bscu at or very close to fork of M. Halteres with stem yellowish grey and knob blackish brown. Abdomen greyish- to blackish brown. Wing length, male 6,8-7,7 mm, female 7,8-8,5 mm.

Genitalia: Male hypopygium, Fig. 159.

Remarks: Very similar to *L. validistyla* ALEX. and the species centred around it (see there). Diagnostic characters (male): both spines on dorsal face of rostral prolongation of ventral gonostylus; dorsal gonostylus widely and evenly curved throughout;

parameres with wide, shallow notch between slightly tapered mesal lobe and rather rounded lateral lobe.

**Material examined:** Holotype ♂: New South Wales, New England National Park, 4500 ft, 15.10.1966, N. Dobrotworsky (ANIC). Paratypes: 2♂♂, 2♀♀, same data as holotype (ANIC, GT).

**Distribution:** New South Wales (NEN); known only from New England National Park.

**Name:** Appa (= Australian Aboriginal word for "crow") refers to the dark colouration.

***Limonia (Dicranomyia) omi* spec. nov. (Fig. 160)**

**Description (♂):** Head largely brownish grey; rostrum, palps and antennae greyish brown. Thorax greyish brown. Coxae greyish brown; trochanters greyish yellow; femora greyish yellow to greyish brown; remainder of legs greyish brown. Wings slightly suffused with pale greyish brown, markedly darker around origin of Rs and in pterostigma area; Sc ending very close to origin of Rs; Sc1 longer than Sc2; Rs almost twice as long as basal section of R4+5; bscu at or very close to fork of M. Halteres greyish yellow. Abdomen greyish brown. Wing length 5,8-6,0 mm.

**Genitalia:** Hypopygium, Fig. 160.

Female unknown.

**Remarks:** Very similar to the other species centred around and including *L. validistyla* ALEX. (see there). Diagnostic characters (male): base of ventral gonostylus more distinctly bilobed than in otherwise similar species; rostral prolongation of ventral gonostylus with one spine on dorsal face and one, somewhat elevated, on crest; dorsal gonostylus not evenly curved; mesal lobe of parameres rather parallel sided.

**Material examined:** Holotype ♂: Queensland, Bellenden Ker Range, Summit TV Stn, 1560 m, rainforest, malaise trap, 17.10.-5.11.1981, Earthwatch/Queensland Museum (QM). Paratypes: 2♂♂, same data as holotype (UQ).

**Distribution:** Queensland (NEQ); known only from type locality.

**Name:** Omi is an arbitrary combination of letters; to be treated as a noun in apposition.

***Limonia (Dicranomyia) yerrawar* spec. nov. (Fig. 161)**

**Description (♂):** Head largely dark grey; rostrum, palps and antennae greyish- to blackish brown. Thorax dark greyish brown. Coxae greyish brown; trochanters yellowish.

lowish brown; femora from yellowish brown (at base) to dark greyish brown (at apex); tibiae, tarsi and claws dark greyish brown. Wings slightly suffused with brownish grey; markedly darker brownish grey at origin and fork of Rs, in pterostigma area and along CuA; Sc ending close to origin of Rs; Sc1 longer than Sc2; Rs strongly arcuated near origin, about 1,5 times as long as basal section of R4+5; bscu at or very close to fork of M. Halteres greyish brown, stem paler than knob. Abdomen greyish brown. Wing length 6,3-7,5 mm.

**Genitalia:** Hypopygium, Fig. 161.

Female unknown.

**Remarks:** Very similar to the other species centred around and including *L. validistyla* ALEX. (see there). Diagnostic characters (male): ventral gonostylus with both spines of rostral prolongation somewhat elevated on crest; dorsal gonostylus not evenly curved; parameres with deep and narrow notch between parallel sided mesal lobe and lateral lobe.

**Material examined:** Holotype ♂: Victoria, Cabbage Tree Creek, 16.12.64, N. Dobrotworsky (ANIC). Paratypes: New South Wales: 1♂, Barrington House, 18.10.1966, N. Dobrotworsky (ANIC); 1♂, Macquarie Pass, light trap, 9.10.1969, Common & Upton (ANIC); 1♂, Macquarie Rivulet, 14.9.1987, G. Theischinger (GT). Victoria: 4♂♂, same data as holotype, 5♂♂, s. l., 18.11.1964, N. Dobrotworsky (ANIC); 1♂, Cement Creek, 1800ft, 21.12.1965, N. Dobrotworsky (ANIC); 1♂, Gippsland, Cabbage Tree Creek, 11.10.1967, N. Dobrotworsky (ANIC); 1♂, Marysville-Cumberland Creek, 24.11.1964, N. Dobrotworsky (ANIC); 1♂, Mount Baw Baw, 24.3.1964, N. Dobrotworsky (ANIC); 2♂♂, Mount Baw Baw, 3100 ft, 24.3.1964, N. Dobrotworsky (ANIC); 1♂, Toorongo Falls, 3.3.1965, N. Dobrotworsky (ANIC).

**Distribution:** New South Wales (SEN), Victoria.

**Name:** Yerrawar (= Australian Aboriginal word for "boomerang") refers to the shape of the dorsal gonostylus.

### ***Limonia (Dicranomyia) saxatilis* (SKUSE) (Fig. 162)**

*Dicranomyia saxatilis* SKUSE, Proc. Linn. Soc. N.S.W. 4: 762 (1890).

*Limomia (Limonia) saxatilis* (SKUSE); ALEXANDER, Ann. Mag. nat. Hist. (10) 13: 247, 249 (1934).

*Limonia (Dicranomyia) saxatilis* (SKUSE); ALEXANDER, Trans. R. ent. Soc. Lond 99: 376 (1948).

**Primary type:** Holotype ♀: New South Wales, Sydney, near Coogee Bay, Skuse (ANIC); seen.

**Published records:** New South Wales: Barrington Tops (ALEXANDER 1928b: 51); Sydney, near Coogee Bay (SKUSE 1890: 763).

Previously known only from female.

**Description of male:** Structure and colouration much as described for the female (SKUSE 1890). Wing length 6,1-9,0 mm.

**Genitalia:** Hypopygium, Fig. 162.

**Remarks:** Very similar to *L. annulipes* (SKUSE), *L. cinctitibia* ALEX., *L. etnurra* sp. n., *L. gemina* ALEX., *L. idonea* (ALEX.), *L. millemurro* sp. n. and *L. ungueeburra* sp. n. **Diagnostic characters:** wings with extensive but rather indistinct pale grey pattern on whitish hyaline back-ground; male with mesal lobe of parameres slightly widening or almost parallel sided for about 2/3 length.

**New records:** Queensland: Camp Mtn (ANIC); Cunningham Gap, 2500 ft (ANIC); Green Mtn, Lamington N. P. (ANIC); W of Highvale, nr Samford (ANIC); O'Reilly's (NMNH); Samford Valley (NMNH). New South Wales: Barrington House (ANIC); Barrington Tops (ANIC, NMNH); Bawley Point (ANIC); Blackheath (NMNH); Black Mtn, A.C.T. (ANIC); Blundell's Ck, A.C.T. (ANIC); Brown Mtn, Bega dist. (ANIC); Cathedral Rock N. P. (GT); Clyde Mtn, eastern foothills, 400 ft (ANIC); Colo R., 25 km N of Windsor (ANIC); 30 mi. W of Dorrigo, 4000 ft (ANIC); Dorrigo N. P. (ANIC); Dripping Rock, nr Boggabri (GT); Engadine (GT); Katoomba (AM); Little Nymboida R., Dorrigo-Coramba Rd (ANIC); Lorien Ref., 3 km N Lansdowne, nr Taree (GT); Nadgee, Nadgee R. (AM); Narooma (ANIC); New England N. P., 4500 ft (ANIC); Rutherford Ck, Brown Mtn (ANIC); Sydney (ANIC); Upper Allyn R., 1500 ft (ANIC); Werrikimbi N. P., Upper Hastings R. (ANIC). Victoria: Anglesea (ANIC); Barwon (ANIC); Cann R. (ANIC); Cape Otway (MV); Ferntree Gully (NMNH); Gleneig R., 4 mi. NNE of Nelson (MV); Grampians (NMNH); Hume Hwy, nr Seymour (AM); Latrobe R. Survey, Stn 5 (MV); Maroondah (ANIC); Marysville, Cumberland Ck (ANIC); Melbourne (MV, NMNH); 12 km SE Merrijig (MV); Mt Donna Buang (ANIC); Myrtleford (MV); Norrinbee (MV); Sherbrooke (ANIC); Thomson Dam (GT); Toorloo Arm (ANIC); Thurra R., Cape Everard (MV); Wallagaraugh (ANIC); Wanchin Nth (ANIC); Whisky Ck, Vic. Alps Rd (MV). Tasmania: Cradle Valley, 950 m (ANIC); 12 mi. S Deloraine, 2200 ft (ANIC); Eaglehawk Neck (NMNH); nr summit of Hartz Mts (GT); Huon-Picton R. jn (MV); Lake Pedder (MV); Mangalore (NMNH); Mt Reed, 800 m (ANIC); National Park (NMNH); Pelion Hut, 900 m (ANIC); Pelion Hut, 3 km S Mt Oakleigh (ANIC); Wet-cave, nr Mole Ck (GT). South Australia: Hahndorf (ANIC). Western Australia: Beedelup N. P., W of Pemberton (GT); Pemberton (NMNH); 24 NW Pemberton (ANIC); Porongurup Ra. (ANIC); Valley of Giants, Nornalup (ANIC).

**Distribution:** Queensland (SEQ); New South Wales (NEN, SEN), Victoria, Tasmania, South Australia (SES), Western Australia (SWA).

***Limonia (Dicranomyia) millemurro* spec. nov. (Fig. 163)**

**Description (♂):** Head largely grey; rostrum, palps and antennae greyish brown. Thorax greyish brown. Coxae greyish yellow to greyish brown; trochanters greyish yellow; femora greyish yellow to pale greyish brown, with ill-defined darker greyish brown subapical ring; remainder of legs greyish brown, with apex of tibiae darkened. Wings faintly suffused with pale greyish brown, only slightly darker patches in cell C

beyond R1/R2, in cell R/Rs, in pterostigma area and along crossveins; Sc ending close to origin of Rs; Sc1 markedly longer than Sc2; Rs 1,5-2 times as long as basal section of R4+5; bscu about its own length before fork of M. Halteres with stem pale greyish brown and knob blackish brown. Abdomen largely dark greyish-to blackish brown; terminalia yellowish brown. Wing length 5,7-6,5 mm.

**Genitalia:** Hypopygium, Fig. 163.

Female unknown.

**Remarks:** Very similar to the other species centred around and including *L. saxatilis* (SKUSE) (see there). Diagnostic characters (male): pattern of legs and wings indistinct; mesal lobe of parameres evenly tapered, slim.

**Material examined:** Holotype ♂: South Australia, 12 mi. NW of Millicent, 30.12.1966, Z. Liepa (ANIC). Paratypes: 2♂♂, same data as holotype (ANIC).

**Distribution:** South Australia (SES); known only from type locality.

**Name:** Millemurro (= Australian Aboriginal word for "pelican") refers to the large beak-like mediobasal lobe of the male gonocoxite.

### ***Limonia (Dicranomyia) annulipes* (SKUSE)**

*Dicranomyia annulipes* SKUSE, Proc. Linn. Soc. N.S.W. 4: 773 (1890).

*Limonia (Limonia) annulipes* (SKUSE); ALEXANDER, Ann. Mag. nat. Hist. (10) 13: 249, 250 (1934).

**Primary type:** Holotype ♂: New South Wales, Hexham Swamps, near Newcastle, Apr., Skuse (ANIC); seen.

**Published records:** New South Wales: Hexham Swamps, nr Newcastle (SKUSE 1890: 774). Known only from male.

**Genitalia:** Hypopygium extremely similar to that of *L. idonea* (ALEX.) (see Fig. 164); the rostral spines appear slightly smaller, but this could be due to smaller body size.

**Remarks:** Most similar to *L. idonea* (ALEX.), similar also to the other species centred around and including *L. saxatilis* (SKUSE) (see there). Diagnostic characters (male): size small (wing length 5,33 mm); leg and wing pattern rather indistinct; rostral spines of ventral gonostylus short.

**New records:** None.

**Distribution:** New South Wales (SEN); known only from Hexham Swamps near Newcastle.



***Limonia (Dicranomyia) idonea* (ALEXANDER) (Fig. 164)**

*Dicranomyia idonea* ALEXANDER, Rec. S. Aust. Mus. 2: 229 (1922).

*Limonia (Limonia) idonea* (ALEXANDER); ALEXANDER, Ann. Mag. nat. Hist. (10) 12: 249, 251 (1934).

*Limonia (Dicranomyia) idonea* (ALEXANDER); ALEXANDER, Trans. R. ent. Soc. Lond. 99: 376 (1948).

Primary type: Holotype ♀: Tasmania, King Island, A.M. Lea (SAM); not seen.

Published records: Tasmania: King Island (ALEXANDER 1922a: 230).

Previously known only from female.

Description of male: Structure and colouration much as described for female (ALEXANDER 1922a). Wing length 5,7-6,4 mm.

Genitalia: Hypopygium, Fig. 164.

Remarks: Very similar to *L. annulipes* (SKUSE), similar also to the other species centred around and including *L. saxatilis* (SKUSE) (see there). Diagnostic characters: leg and wing pattern distinct; rostral spines of ventral gonostylus of moderate size.

New records: Victoria: Belgrave (ANIC); Lower Tarwin (ANIC); Otway Peninsula, Hordern Vale (NMNH); Toorloo Arm (ANIC); Wilson's Promontory, Tea Tree Swamp (ANIC). Tasmania: Huon-Picton R. jn (ANIC); Patons Rd, S of Lemonthyme (GT).

Distribution: Victoria, Tasmania.

***Limonia (Dicranomyia) gemina* ALEXANDER (Fig. 165)**

*Limonia gemina* ALEXANDER, Ann. Mag. nat. Hist. (9) 13: 364 (1924).

*Limonia (Limonia) gemina* ALEXANDER; ALEXANDER Ann. Mag. nat. Hist. (10) 13: 249 (1934).

Primary type: Holotype ♂: New South Wales, Rous, Richmond River, 23.3.1923, V.J. Robinson (NMNH); seen.

Published records: New South Wales: Rous, Richmond R. (ALEXANDER 1924c: 365).  
Known only from male.

Genitalia: Male hypopygium, Fig. 165.

Remarks: Very similar to *L. ungueburra* sp. n. Similar also to the other species centred around and including *L. saxatilis* (SKUSE) (see there). Diagnostic characters (male): wings with prearcular cells pale yellow except along vein CuA which is dark brown as are cells C and Sc; cell R4+5 without dark spot.

New records: Queensland: Green Mountain, Lamington N.P. (ANIC). New South Wales: Mount Keira (GT).

**Distribution:** Queensland (SEQ), New South Wales (NEN, SEN).

***Limonia (Dicranomyia) ungjeeburra* spec. nov. (Figs 41, 44, 55, 56, 166)**

**Description:** Head largely dark greyish brown, including rostrum, palps and antennae. Thoracic terga largely yellowish brown with greyish brown pattern on prescutum, postscutum and scutellum; mediotergite and laterotergite not distinctly patterned but darker than other terga; pleura greyish brown, only ventral of wing base pale greyish yellow. Procoxa greyish yellow, meso- and metacoxa greyish brown; trochanters greyish yellow; profemur of female largely greyish brown with base, a ring at about 4/5 length and a partial subapical ring yellow; mesofemur of female greyish brown with base, a ring at about 5/6 length and a subapical ring yellow; pro- and mesotibia of female greyish yellow with apex dark greyish brown; segments 1 and 2 of pro- and mesotarsus of female greyish yellow with apex dark greyish brown, segment 3 greyish yellow in basal half and dark greyish brown in distal half, segments 4 and 5 almost entirely dark greyish brown; other leg segments missing. Wing venation greyish yellow to pale greyish brown, transverse sections of longitudinal veins and crossveins markedly darker than the rest; membrane hyaline, slightly suffused with greyish yellow to yellowish grey, darkened along crossveins; larger brownish grey patches at arculus, origin of Rs, basal to R2 (pterostigma) and at origin of R4+5; brownish grey spots in costal cell distal of R2 and R1+2, in distal 1/3 of cell R3 and in distal 1/2 of cell R4+5. Halteres dull yellow. Abdominal tergites 1-7 greyish yellow with base dark brownish grey to black; tergite 8 yellow medially, black laterally; tergite 9 grey; sides of segments 1-7 largely greyish brown; sternites 1, 2, 7 and 8 largely greyish brown and greyish yellow; sternites 3-6 largely pale greyish yellow, laterally greyish brown. Wing length, male 5,3-5,5 mm, female 5,3-5,6 mm.

**Genitalia:** Male hypopygium, Figs 44, 56, 166.

**Remarks:** Very similar to *L. gemina* ALEX., similar also to the other species centred around and including *L. saxatilis* (SKUSE) (see there). Diagnostic characters: cells C and Sc pale greyish yellow; a dark spot in cell R4+5.

**Material examined:** Holotype ♂: Queensland, Cape Tribulation, Earthwatch Australia (ANIC). Paratypes: Queensland: 1♂, 2♀, same data as holotype (ANIC, GT); 1♀, The Boulders, Babinda, 10.5.1967, D.H. Colless (ANIC); 1♀, 17°17'S/145°34'E, Curtain Fig, Mar. 1988, D.C.F. Rentz (ANIC); 1♂, Palmerston National Park, 23 km E by N of Ravenshoe, 14.11.1981, D.H. Colless (ANIC).

**Distribution:** Queensland (NEQ).

**Name:** Ungjeeburra is an Australian Aboriginal word for "crane"; to be treated as a noun in apposition.

***Limonia (Dicranomyia) cinctitibia* ALEXANDER (Fig. 167)**

*Limonia (Limonia) cinctitibia* ALEXANDER, Ann. Mag. nat Hist. (10) 13: 249 (1934).

Primary type: Holotype ♀: New South Wales, A.C.T., Blundell's, 7.1.1930, A.L. Tonnoir (NMNH); seen.

Published records: New South Wales: A.C.T., Blundell's (ALEXANDER 1934a: 250).

Previously known only from female.

Description of male: Structure and colouration much as described for female (ALEXANDER 1934a). Wing length 6,5-7,7 mm.

Genitalia: Hypopygium, Fig. 167.

Remarks: Similar to the other species centred around and including *L. saxatilis* (SKUSE) (see there). Diagnostic characters: legs conspicuously banded with black and yellow; wings with four large and conspicuous dark patches along costal margin; male with mesal lobe of parameres wide, slightly tapered and with small apical point.

New records: New South Wales: Blundell's, A.C.T. (ANIC); Tidbinbilla, A.C.T. (ANIC). Victoria: Bogong (ANIC).

Distribution: New South Wales (SEN), Victoria.

***Limonia (Dicranomyia) etnurra* spec. nov. (Fig. 168)**

Description: Head largely blackish grey; rostrum, palps and antennae greyish- to blackish brown. Thorax greyish brown to blackish grey. Coxae yellowish- to pale greyish brown; trochanters brownish yellow; femora largely greyish yellow to greyish brown, a pale greyish yellow ring followed by a subapical blackish brown ring; tibiae and tarsal segments 1-3 greyish yellow with apex black; tarsal segments 4 and 5 and claws black. Wings slightly suffused with brownish grey; distinctly darker patches just distal of arculus, at about 2/3 length of cell R, at the end of Sc, at origin and fork of Rs, in pterostigma area, along all crossveins and near margin in all radial, medial and cubital cells. Halteres pale greyish brown. Abdomen largely dark greyish brown. Wing length, male 6,2-6,4 mm, female 6,2-7,3 mm.

Genitalia: Male hypopygium, Fig. 168.

Remarks: Similar to the other species centred around and including *L. saxatilis* (SKUSE) (see there). Diagnostic characters (male): a distinct mesal lobe at base of gonocoxite; three spines on rostral prolongation of ventral gonostylus.

**Material examined:** Holotype ♂: Western Australia: Busselton, 6.10.1965, N.Dobrotworsky (ANIC). Paratypes: Western Australia: 1♀, 8 mi. N of Bunbury, 1.10.1970, D.H. Colless (ANIC); 1♂, 1♀, 27 mi. N of Bunbury (coast road, 1.10.1970, D.H. Colless (ANIC); 1♀, Cape Le Grand, 17.10.1965, N. Dobrotworsky (ANIC); 1♀, Crawley, 5.5.1934, K.R. Norris (ANIC); 1♂, William Bay, W of Denmark, 10.10.1970, D.H. Colless (ANIC).

**Distribution:** Western Australia (SWA).

**Name:** Etnurra (= Australian Aboriginal word for "spear tree") refers to the unusual number of spines on the rostral prologation of the ventral gonostylus.

***Limonia (Dicranomyia) punctipennis* (SKUSE) (Figs 169, 170)**

**Remarks:** Similar to *L. balli* sp. n., *L. fullawayi* (ALEX.), *L. kulin* ALEX., *L. punctulatella* ALEX. and *L. williamsae* sp. n. Diagnostic characters (male): ventral gonostylus of moderate size, two rostral spines set at moderate distance from apex; apex of dorsal gonostylus not slender or evenly tapered.

**Subspecies in Australia:**

*L. (D.) p. occidentalis* (ALEX.)

*L. (D.) p. punctipennis* (SKUSE).

***Limonia (Dicranomyia) punctipennis punctipennis* (SKUSE) (Fig. 169)**

*Dicranomyia punctipennis* SKUSE, Proc. Linn. Soc. N.S.W. 4: 761 (1890).

*Limonia (Dicranomyia) punctipennis* (SKUSE); ALEXANDER, Ann. Mag. nat. Hist. (10) 12: 336 (1933).

**Primary type:** Lectotype ♀, by present designation, of *Dicranomyia punctipennis* SKUSE: New South Wales, Knapsack Gully, July to Sept., Masters and Skuse (ANIC); seen; additionally labelled "Lectotype ♀ *Dicranomyia punctipennis* SKUSE, designated by G. Theischinger 1994".

**Published records:** New South Wales: Berowra; Blue Mts: Knapsack Gully: Waterloo Swamps, nr Sydney (all SKUSE 1890: 762).

Previously known only from female.

**Description of male:** Structure and colouration much as described for female (SKUSE 1890). Wing length 5,4-8,0 mm.

**Genitalia:** Hypopygium, Fig. 169.

**Remarks:** Very similar to *L. punctipennis occidentalis* (ALEX.). Diagnostic characters: wing pattern rather distinct.

New records: Queensland: Stanthorpe (ANIC). New South Wales: 9 mi. E of Armidale (ANIC); Bendemeer (ANIC); Berry's Bay/Sydney (ANIC); Black Mtn, A.C.T. (ANIC); Blundell's, A.C.T. (ANIC); Canberra (A.C.T.); Coffs Harbour (ANIC); 15 mi. S Ebor (ANIC); Elizabeth Bay (ANIC); 5-7 km NE of Harrington (GT); Jervis Bay (ANIC); Kiandra, 2100 ft (ANIC); Kiandra 4500 ft (ANIC); Kiandra, Alpine Ck (ANIC); 0,5 km SE Lansdowne (GT); Lion Is., Hawkesbury (ANIC); Moonbi (ANIC); Mt Royal, Barrington Tops (GT); Sutherland Shire (GT); Sydney (ANIC); Warrumbungles (ANIC); Wentworth Falls (NMNH). Victoria: Apollo Bay (ANIC, MV); Balnarring (ANIC, NMNH); Barnawartha (ANIC); Black Mt, 2830 ft (ANIC); Bundoora (MV); Cape Otway (MV); Cohuna (ANIC); Culloden, 320 ft (ANIC); Echuca (ANIC); Elmore (ANIC); Elphinstone (ANIC); 5 mi. S of Gelantipy (ANIC); Gelibrand (MV); 5 E Genoa (ANIC); Gisborne (ANIC); Gleneig R., 4 mi. NNE of Nelson (MV); Grampians (NMNH); Gurdies (ANIC); Harcourt (ANIC); Inveloch (ANIC); Lower Tarwin (ANIC); Meredith (ANIC); 12 km SE Merrijig, Howqua R. (MV); Mongalora (ANIC); Mt Buffalo, 4500 ft (ANIC); Point Lonsdale Beach (ANIC); Ravenswood (ANIC); Stradbroke (ANIC); Stratford (ANIC); 10 mi. E of Stratford (ANIC); Wallagaraugh (ANIC); 7,5 mi. SW Walwa (ANIC); Wilson's Promontory (ANIC). Tasmania: Eaglehawk Neck (ANIC); Erith Is., Kent Group Is. (ANIC); Hibbs Lagoon Ck (GT); National Park (NMNH); Patrick R. (NMNH); Roseberry (MV); South Esk R., Evandale (MV); Wilmot (NMNH). South Australia: Kuitpo (MV); Nooltana Ck, 13 km NW by N of Hawker (ANIC); Rotchester, 4 km N Brinkworth (MV); Tapanappa (MV).

Distribution: Queensland (SEQ), New South Wales (NEN, SEN), Victoria, Tasmania, South Australia (SES).

***Limonia (Dicranomyia) punctipennis occidentalis* (ALEXANDER) (Fig. 170)**

*Dicranomyia punctipennis occidentalis* ALEXANDER, Rec. S.Aust. Mus. 2: 227 (1922).

*Limonia (Dicranomyia) punctipennis occidentalis* (ALEXANDER); ALEXANDER, Bull. Bernice P. Bishop Mus. 172: 197 (1942).

Primary type: Holotype ♂: Western Australia, Warren River, W.D. Dodd (SAM); not seen.

Published records: Western Australia: Warren R. (ALEXANDER 1922a: 227).

Genitalia: Male hypopygium, Fig. 170.

Remarks: Very similar to *L. punctipennis punctipennis* (SKUSE). Diagnostic characters: wing pattern rather indistinct; ventral gonostylus of male with base rather large.

New records: Western Australia: Busselton (ANIC); 9 mi. SE of Busselton (ANIC); nr Conspicuous Cliff, S of Nornalup (GT); Darlington (ANIC); Deep Dene, Karridale (ANIC); Dewars Pool (ANIC); 15 E Esperance (ANIC); 13 mi. E Geraldton (ANIC); 23,5 mi. E Geraldton (ANIC); 1 mi. E of Jewel Cave (ANIC); Ludlow Forest (ANIC); Mandijong (ANIC); 5 W Meckering (ANIC); Moore R. (ANIC); 8 N Mt Burker (ANIC); Noongar (ANIC); Perth (ANIC); Porongurup Ra. (ANIC); Stirling Ra. (ANIC); Upper Swan (WAM).

Distribution: Western Australia (SWA).

***Limonia (Dicranomyia) williamsae* spec. nov. (Fig. 171)**

**Description:** Head largely grey; rostrum, palps and antennae greyish- to blackish brown. Thoracic terga largely grey; prescutum striped with blackish brown; pleura dark grey. Legs pale to dark greyish brown. Wings greyish subhyaline; small indistinct grey marks in pterostigma area and at distal bend of A2 in cell A1; Sc ending very close to origin of Rs; Sc1 markedly longer than Sc2; Rs hardly longer than basal section of R4+5; bscu usually at fork of M. Halteres pale greyish brown. Abdomen largely dark greyish brown. Wing length, male 6,5-8,5 mm, female 8,2 mm.

**Genitalia:** Male hypopygium, Fig. 171.

**Remarks:** Similar to the other species centred around and including *L. punctipennis* (SKUSE) (see there). Diagnostic characters: wing pattern very restricted and inconspicuous; ventral gonostylus of male with two spines very close to the rather obtuse apex of ventral prolongation; dorsal gonostylus with apex slender and evenly tapered.

**Material examined:** Holotype ♂: New South Wales, Fitzroy Falls, 3600 ft, 15.11.1967, N. Dobrotworsky (ANIC). Paratypes: Queensland: 1♂, 1♀, 2km E of Mt Norman, 1000 m, 7.10.1972, Hemmingsen (NMNH); 1♂, 1♀, Searys Ck, Cooloola N. P., 18.5.1990, G. Theischinger (GT). New South Wales: 7♂♂, 3♀♀, nr Barren Ground, 13.10.1986, G. Theischinger and L. Muller (GT); 1♂, Blackheath, Oct. 1930, F.E. Wilson (NMNH); 1♂, Boonoo Boonoo Swamp, Nov. 1992, G. Theischinger (GT); 5♂♂, 2♀♀, Bulli, 18.9.1987, G. Theischinger (GT); 1♂, 34°55'S/150°31'E, near Burrawang, Wingecarribee Swamp, 16.12.1992, E. Bugledich (ANIC); 2♂♂, Calga, 3.10.1976, G. Theischinger (GT); 1♂, 1♀, Engadine, 1987, G. Theischinger (GT); 3♂♂, 1♀, same data as holotype (ANIC); 1♀, Hartley Vale, 11.2.1988, G. Theischinger (GT); 1♂, Heathcote, 7.7.1989, G. Theischinger (GT); 1♂, Heathcote Brook, 10.9.1980, G. Theischinger (GT); 12♂♂, 1♀, Jervis Bay, A.C.T., 3.5.1980, G. Theischinger (GT); 1♂, Lucas Heights, 8.8.1989, G. Theischinger (GT); 1♂, creeks nr Lucas Heights, 15.9.1986, G. Theischinger and L. Muller (GT); 1♀, New England National Park, 15.10.1966, N. Dobrotworsky (ANIC); 5♂♂, 1♀, Olinda, Apr. 1979, G. Theischinger (GT); 1♂, Rotary Lookout, 22 km NW of Milton, 9.2.1974, Z. Liepa (ANIC); 1♂, 1♀, Stoney Creek, 77 km N of Windsor, 7.10.1974, Z. Liepa (ANIC); 1♂, Wentworth Falls, 18.11.1921, A. Tonnoir (ANIC); 6♂♂, Woronora R., nr Heathcote, May 1987, G. Theischinger (GT). Tasmania: 1♂, Apsley River, Bicheno, 9.11.1972, A. Neboiss (MV); 13♂♂, Butler Gorge, 22.2.1994, G. Theischinger (GT); 6♂♂, Magnet Ck, nr Waratah, 10.2.1994, G. Theischinger (GT); 1♂, nr Mt Darwin, West Coast Ra., 12-23.2.1994, G. Theischinger (GT). Western Australia: 4♂♂, 3♀♀, Busselton, 6.10.1965, N. Dobrotworsky (ANIC); 2♂♂, 1♀, Cape Le Grand, 17.10.1965, N. Dobrotworsky (ANIC); 1♀, Crawley, 7.8.1953, L. Byass (ANIC); 1♂, Denmark, 11.10.1965, N. Dobrotworsky (ANIC); 4♂♂, 2♀♀, Dewars Pool, 1.10.1965, N. Dobrotworsky (ANIC); 2♂♂, 2♀♀, 13 mi. E Geraldton, 24.9.1964, G.L. Bush (ANIC); 1♂, 23,5 mi. E Geraldton, 24.9.1964, G.L. Bush (ANIC); 2♂♂, Jarrahdale, 4.10.1965, N. Dobrotworsky (ANIC); 2♂♂, 2♀♀, Mandijong, 4.10.1965, N. Dobrotworsky (ANIC); 1♂, Mandijong, Medulla Ck, 4.10.65, N. Dobrotworsky (ANIC); 1♂, 5 W Meckering, 30.9.1965, N. Dobrotworsky (ANIC); 4♂♂, 1♀, Mt Burker, 14.10.1965, N. Dobrotworsky (ANIC); 1 sp., 1♀, North Bannister, 4.10.1965, N. Dobrotworsky (ANIC); 1♂, 24 NW Pemberton, 9.10.1965, N. Dobrotworsky (ANIC); 8♂♂, 1♀, Porongurup Range, 11.10.1965, N. Dobrotworsky (ANIC, GT); 1♂, Quarram, 11.10.1965, N. Dobrotworsky (ANIC); 1♂, Shannon Mill, 10.10.1965, N. Dobrotworsky (ANIC); 6♂♂, 2♀♀, Upper Swan, 27.10.1965, L.E. Koch (WAM).

**Distribution:** Queensland (SEQ), New South Wales (NEN, SEN), Tasmania, Western Australia (SWA).

**Name:** Dedication to Ms Holly B. Williams of Washington, D.C.

***Limonia (Dicranomyia) kulin* ALEXANDER (Fig. 172)**

*Limonia (Dicranomyia) kulin* ALEXANDER, Ann. Mag. nat. Hist (10) 12: 336 (1933).

**Primary type:** Holotype ♂: New South Wales, Narooma, 25.11.1930, A.L. Tonnoir (ANIC); seen.

**Published records:** New South Wales: Catherine's Ck, nr Yass (ALEXANDER 1944: 5); Narooma (ALEXANDER 1933b: 337). Victoria: mts above Millgrove (ALEXANDER 1933b: 337).

**Genitalia:** Male hypopygium, Fig. 172.

**Remarks:** Most similar to *L. fullawayi* (ALEX.). Diagnostic characters: large size (wing length 6-8 mm); cells C and Sc not variegated. ALEXANDER (1944) includes the following biological note: "Larvae were taken at Catherine's Creek, in wet moss; from these three adults emerged. Larvae pupated inside shiny cases and the pupal skins may be inside these cases. I think the larvae live in the cases; they become very active and restless when these latter are broken. Miss K. English."

**New records:** Queensland: Brisbane (ANIC); Darra (ANIC). New South Wales: Black Bog, Yass (NMNH); Black Mtn, A.C.T. (ANIC); Bawley Point (ANIC); 14 mi. S Ebor (ANIC); Engadine (GT); 5-7 km NE Harrington (GT); 0,5 km SE Lansdowne (GT); Lion Is., Hawkesbury (ANIC); Macquarie Pass (ANIC); Mt Royal, Barrington Tops (GT); N.E. University, Armidale (ANIC); Perisher Ck, 1600 m (GT); Sutherland Shire (GT); Sydney (ANIC); Sydney University (ANIC); Wattamolla (GT). Victoria: Harcourt (ANIC); 12 km SE Merrijig, Howqua R. (MV); Millgrove (NMNH); Ravenswood (ANIC). Tasmania: Erith Is., Kent Group Is. (ANIC). South Australia: Mitcham (ANIC).

**Distribution:** Queensland (SEQ). New South Wales (NEN, SEN), Victoria, Tasmania, South Australia (SES).

***Limonia (Dicranomyia) fullawayi* (ALEXANDER) (Fig. 173)**

*Dicranomyia fullawayi* ALEXANDER, Can. Ent. 47: 79 (1915).

*Limonia (Dicranomyia) fullawayi* (ALEXANDER); ALEXANDER, Philipp. J. Sci. 43: 516 (1930).

*Limonia (Dicranomyia) magnistyla* ALEXANDER, Proc. Linn. Soc. N.S.W. 60: 62 (1935).

**Primary types:** Holotype ♂ of *Dicranomyia fullawayi* ALEXANDER: Guam, Ladrones, D.T. Fullaway (NMNH); not seen. Holotype ♂ of *Limonia magnistyla* ALEXANDER: New Britain, Rabaul, Feb. 1933, F.H. Taylor (NMNH); not seen.

**Published records for Australia:** Eastern Australia (ALEXANDER 1972: 764).

Previous illustrations: ALEXANDER 1935: Fig. 14 (male hypopygium); ALEXANDER 1940: Fig. 19 (male hypopygium); ALEXANDER 1972: Fig. 38 (male hypopygium).

Genitalia: Male hypopygium, Fig. 173.

Remarks: Very similar to *L. kulin* ALEX. Diagnostic characters: small size (wing length 4-5 mm); cells C and Sc distinctly variegated.

New records: Queensland: Bartle Frere track, 200 m (GT); Earl Hill, N of Cairns (ANIC); Rocky Ck, 7 mi. N of Atherton (ANIC).

Distribution: Wide-spread in the Pacific. In Australia: Queensland (NEQ).

***Limonia (Dicranomyia) balli* spec. nov. (Fig. 174)**

Description (♂): Head largely dark grey; rostrum, palps and antennae dark greyish brown. Thorax greyish brown. Coxae dark greyish brown; remainder of legs pale to dark greyish brown, with apex of femora slightly more darkened. Wings slightly suffused with yellowish grey; significantly and richly spotted along anterior longitudinal veins (C- CuA), at all vein intersections, in cell C, at about midlength of cell A1, and at end of veins A1 and A2; Sc ending very close to origin of Rs; Sc1 very short, subequal in length to Sc2; Rs slightly longer than basal section R4+5; bscu close to fork of M. Halteres with stem greyish yellow and knob greyish brown. Abdomen pale to dark greyish brown. Wing length 4,9-5,7 mm.

Genitalia: Hypopygium, Fig. 174.

Female unknown.

Remarks: Similar to the other species centred around and including *L. punctipennis* (SKUSE) (see there). Diagnostic characters (male): rostral prologation of ventral gonostylus slim and with only one spine near apex.

Material examined: Holotype ♂: Queensland, Freshwater Creek, W of Cairns, 16.7.1993, M. Ball (ANIC). Paratype: 1♂, Queensland, 15°29'S/145°16'E, Mount Cook National Park, 12.5.1981, malaise trap, D.H. Colless (ANIC).

Distribution: Queensland (CY, NEQ).

Name: Dedicated to Mr M. Ball of Sydney, one of the collectors of this species.

***Limonia (Dicranomyia) punctulatella* ALEXANDER (Fig. 175)**

*Limonia (Dicranomyia) punctulatella* ALEXANDER, Ann. Mag. nat. Hist. (10) 12: 335 (1933).

Primary type: Holotype ♂: Queensland, Babinda, Cairns district, Oct. 1920, J.F. Illingworth (NMNH); seen.



Published records: Queensland: Babinda, Cairns dist. (ALEXANDER 1933b: 336).

Previously known only from male.

Description of female: Structure and colouration much as described for male (ALEXANDER 1933b). Wing length 7,1 mm.

Genitalia: Male hypopygium, Fig. 175.

Remarks: Similar to the other species centred around and including *L. punctipennis* (SKUSE) (see there). Diagnostic characters (male): considerable distance between the two rostral spines of ventral gonostylus.

New records: Queensland: Birthday Ck, 6 km NW by W of Paluma (ANIC); Freshwater Ck, W of Cairns (GT); Josephine Ck (GT); Mt Haigh, 21 km NE by E of Atherton (ANIC).

Distribution: Queensland (NEQ).

### *Limonia (Dicranomyia) bugledichae* spec. nov. (Fig. 176)

Description: Head largely grey; rostrum and palps blackish brown except for terminal palpal segment which is yellowish white; scape and pedicel brown; flagellum greyish yellow and greyish brown, beginning from segment 1, every other segment and segment 12 dark. Thoracic terga largely dark reddish brown; only pronotum, sides of prescutum, part of mediotergite and much of laterotergites greyish yellow; pleura pale greyish yellow with a wide, more dorsal, and a narrow more ventral black longitudinal stripe, the narrow stripe crossing part of coxae. Coxae pale greyish yellow and black; remainder of legs largely pale greyish- to brownish yellow, only a broad subapical to apical ring in pro- and mesotibia black and apex of metafemur, and terminal two tarsal segments and claws of all legs dark greyish brown. Wings suffused with whitish grey and indistinctly mottled with many greyish brown spots all over; larger and markedly darker patches at origin and fork of Rs, at end of Sc, R and R3 and just before the end of A2; Sc ending about opposite 1/2 length of Rs; Sc1 markedly longer than Sc2; Rs almost straight, 1,2-1,4 times length of basal section of R4+5; dm closed; bscu at or very close to fork of M. Halteres greyish yellow. Abdomen greyish yellow to greyish brown. Wing length, male 5,6-6,1 mm, female 6,2-6,7 mm.

Genitalia: Male hypopygium, Fig. 176.

Remarks: Very similar to *L. nullanulla* sp. n. Diagnostic characters: tibiae pale, tarsi largely pale; rostral prolongation of ventral gonostylus of male with 3 rather long, thick and straight spines.

**Material examined:** Holotype ♂: Queensland, 15°50'S/145°20'E, Gap Creek, 5km ESE Mount Finnigan, at light, 13.5.1981, D.H. Colless (ANIC). Paratypes: Queensland: 1♂, same locality and collector as holotype, malaise trap, 15.5.1981 (ANIC); 1♂, The Boulders, Babinda, 10.5.1967, D.H. Colless (ANIC); 1♀, Bramston Beach, near Innisfail, open savannah, 30.4.1967, D.H. Colless (ANIC); 1♀, 15°50'S/145°20'E, Cedar Bay National Park, Gap Creek, 150 m, rainforest, rocky stream, pans, 14-15.4.1994, D. Bickel (GT); 1♀, 1,5 km SE Kuranda, 16- 17.5.1980, I.D. Naumann, J.C. Cardale (ANIC); 1♀, 15°47'S/145°14'E, Shiptons Flat, malaise trap, 17.5.1981, D.H. Colless (ANIC).

**Distribution:** Queensland (CY, NEQ).

**Name:** Dedication to Ms Eva-Marie Bugledich of Canberra who is very successfully curating the Tipulidae in the ANIC.

***Limonia (Dicranomyia) nullanulla spec. nov. (Figs 177-179)***

**Remarks:** Very similar to *L. bugledichae* sp. n. Diagnostic characters: legs with tibiae and tarsi uniformly greyish brown; male with 2-4 spines on rostral prolongation, the spines short, thin and slightly curved.

Subspecies in Australia:

*L. (D.) n. mendolo* ssp. n.

*L. (D.) n. nullanulla* ssp. n.

*L. (D.) n. pita* ssp. n.

***Limonia (Dicranomyia) nullanulla nullanulla spec. et subspec. nov. (Fig. 177)***

**Description:** Head largely grey; rostrum and palps blackish brown except for the terminal palpal segment which is yellowish white; scape and pedicel brown; flagellum greyish yellow and greyish brown, beginning from segment 1, every other segment and segment 12 dark. Thoracic terga largely dark reddish brown; only pronotum and lateral edges of prescutum greyish yellow; pleura pale greyish yellow with a wide, more dorsal, and a narrow more ventral black longitudinal stripe, the narrow stripe crossing part of coxae. Coxae pale greyish yellow and black; trochanters and basal 1/2-3/4 of femora greyish- to pale brownish yellow; remainder of legs rather uniformly dark greyish brown. Wings suffused with whitish grey and indistinctly mottled with many greyish brown spots all over; larger and markedly darker patches at origin and fork of Rs, at end of Sc, R and R3 and just before the end of A2; Sc ending about opposite 1/2 length of Rs; Sc1 markedly longer than Sc2; Rs almost straight, 1,2-1,4 times length of basal section of R4+5; dm closed; bscu at or very close to fork of M. Halteres greyish

yellow. Abdomen greyish yellow to greyish brown. Wing length, male 6,1 mm, female 5,5-6,7 mm.

**Genitalia:** Male hypopygium, Fig. 177.

**Remarks:** Very similar to *L. nullanulla mendolo* ssp. n. and *L. nullanulla pita* ssp. n. Diagnostic characters: tibiae uniformly dark greyish brown; base of ventral gonostylus of male large, rostral prolongation short, 3 rostral spines.

**Material examined:** Holotype ♂: Queensland, 18 km N of Ravenshoe, near The Craters, at light, 28.11.1981, D.H. Colless (ANIC). Paratypes: Queensland: 1 ♀, Ingham, light trap, 9.8.1960, K.L. Harley (ANIC); 1 ♀, Innisfail, light trap, 13.6.1963, H. Standfast (ANIC).

**Distribution:** Queensland (NEQ).

**Name:** Nullanulla (= Australian Aboriginal word for "club with heavy head") refers to the shape of the dorsal gonostylus.

***Limonia (Dicranomyia) nullanulla mendolo* subspec. nov. (Fig. 178)**

**Description:** Structure and colouration much as given above for *L. n. nullanulla*. Wing length, male 5,4 mm, female 5,7 mm.

**Genitalia:** Male hypopygium, Fig. 178.

**Remarks:** Very similar to typical *L. nullanulla* and to *L. nullanulla pita* ssp. n. Diagnostic characters: tibiae uniformly dark greyish brown; base of ventral gonostylus of male small, rostral prolongation long, 2-3 rostral spines.

**Material examined:** Holotype ♂: Queensland, 15°50'S/145°20'E, Gap Creek, 5 km ESE Mount Finnigan, malaise trap, 14.5.1981, D.H. Colless (ANIC). Paratypes: 1 ♀, 13°44'S/143°20'E, 11 km W by N Bald Hill, McIlwraith Range, 500 m, ex yellow trays, 26.6.-13.7.1989, I.D. Naumann (ANIC); 1 ♀, Moses Creek, 4 km N by E of Mount Finnigan, malaise trap, 15.10.1980, D.H. Colless (ANIC).

**Distribution:** Queensland (CY).

**Name:** Mendolo (= Australian Aboriginal word for "nose") refers to the large rostral prolongation of the ventral gonostylus of male.

***Limonia (Dicranomyia) nullanulla pita* subspec. nov. (Fig. 179)**

**Description (♂):** Structure and colouration much as given above for typical *L. nullanulla*. Wing length 5,3 mm.

**Genitalia:** Hypopygium, Fig. 179.

Female unknown.

Remarks: Very similar to typical *L. nullanulla* and to *L. nullanulla mendolo*. Diagnostic characters (male): tibiae with apex slightly more darkened than rest; base of ventral gonostylus large, rostral prolongation short, 4 rostral spines.

Material examined: Holotype ♂: Northern Territory, Cooper Creek, 11 km S by W of Nimbuwah Rock, 3.6.1973, D.H. Colless (ANIC).

Distribution: Northern Territory (NNT).

Name: Pita (= Australian Aboriginal word for "four-pointed spear") refers to the four rostral spines of the ventral gonostylus.

### ***Limonia (Dicranomyia) incisuralis* (SKUSE) (Fig. 180)**

*Dicranomyia incisuralis* SKUSE, Proc. Linn. Soc. N.S.W. 4: 770 (1890).

*Limonia (Limonia) incisuralis* (SKUSE); ALEXANDER, Ann. Mag. nat. Hist. (10) 5: 147 (1930).

Primary type: Lectotype ♀, by present designation, of *Dicranomyia incisuralis* SKUSE: New South Wales, Sydney, Jan., Masters (ANIC); seen; additionally labelled "Lectotype ♀ *Dicranomyia incisuralis* SKUSE, designated by G. Theischinger 1994".

Published records: New South Wales: Wheeney Ck, Hawkesbury dist; Syney; Berowra (all SKUSE 1890: 771).

Previously known only from female.

Description of male: Structure and colouration much as described for female (SKUSE 1890). Wing length 4,1-5,5 mm.

Genitalia: Hypopygium, Fig. 180.

Remarks: Very similar to *L. motepa* sp. n. Diagnostic characters (male): rostral prolongation of ventral gonostylus with apical beak, the spines not widely separated at base; dorsal gonostylus strongly curved.

New records: Queensland: Bunya Mts, Burtonswell (ANIC); Cunningham Gap (ANIC); Green Mtn, Lamington N. P. (ANIC); Lamington N. P. (ANIC). New South Wales: Batemans Bay (ANIC); Batemans Bay, 1200 ft (ANIC); Blackheath (MV); Black Mtn, A.C.T. (ANIC); Bodalla (ANIC); "Bolaro", 16 km WNW Batemans Bay (GT); Brown Mtn, nr Nimmitabel, 1200 m (GT); Bruxner Park (ANIC); ca 2 mi. NW of Bruxner Park (ANIC); Buckenbowra R., 14 km W Batemans Bay (GT); Clyde Mtn (ANIC); 37 km WSW of Coramba (ANIC); Dorrigo (NMNH); Dorrigo N. P. (ANIC); Dorrigo N. P., 2700 ft (ANIC); Dorrigo N. P., Never Never area (GT); 18 mi. Dorrigo-Coramba Rd (ANIC); 33 mi. Dorrigo-Coramba Rd (ANIC); Engadine (GT); 26-27 mi. Glen Innes to Grafton Hwy (ANIC); Hartley Vale (GT); Heathcote Brook (GT); Katoomba (AM); 15 mi. W of Kiandra, 3000 ft (ANIC); Kosciusko N. P., Diggers Ck (GT); Lady Carrington Drive, Royal N. P. (GT); 7 km E of Lithgow (GT); Lorient Ref., 3 km N Lansdowne, nr Taree (GT); Lucas Heights (GT); Macquarie Pass (GT); Macquarie Rivulet (GT); Mangrove Mts, N of Sydney (GT); Mt Barrington, 1100 ft (ANIC); Mt Dromedary (GT); Mt Tomah (NMNH); Mt Wilson, Blue Mts (GT); Nadgee N. Res., nr Eden (GT); Nanack Fire Rd, 29 mi. Dorrigo-Coramba (ANIC); Narara (ANIC); Otford (AM); Somersby Falls

(GT); Termeil (ANIC); Upper Allyn R. (ANIC); Wollombi Ck, Basin (GT). Victoria: Acheron Gap, 830 m, ca 15 km NNE Warburton (ANIC); Acheron R. (ANIC); Alfred N. P. (ANIC); Apollo Bay, Paradise (ANIC); Barwon (ANIC); Belgrave (NMNH); Bell Bird Ck (ANIC); 10 km S of Bonang (ANIC); Bonang Hwy (ANIC); Bonang Hwy- Bendoc Rd jn (ANIC); Boolarra (ANIC); Cann R. (ANIC); Cape Otway (ANIC); Cement Ck (ANIC); Cement Ck, nr Warburton (ANIC); Cumberland Ck (ANIC); Cumberland Ck, 3000 ft (ANIC); East Gippsland, Club Terrace, 1200 ft (ANIC); Ferntree Gully (MV); 5 N Foster (ANIC); Gleneig R., NNE of Nelson (MV); Grampians (ANIC, NMNH); Healesville (NMNH); Lilly Pilly Gully, Wilson's Promontory (ANIC); Lorne (ANIC); Ma- roondah (ANIC); Marysville (ANIC); Marysville, Cumberland Ck (ANIC); Martin Ck, Bonang Hwy (GT); 5 km SE of Mirimbah (MV); Mt Baw Baw, 3600 ft (ANIC); Mt Baw Baw, 3800 ft (ANIC); Mt Baw Baw, 4000 ft (ANIC); Mt Donna Buang, 2300 ft (ANIC); Mt Drummer, East Gippsland (ANIC); Myrtleford (MV); Olinda (NMNH); Otway, Benwerrin (ANIC); Sherbrooke (ANIC); Thurra R., Gippsland (ANIC); Toorong Falls (ANIC); Wallagarough (ANIC); Wanchin Nth (ANIC); Warburton (NMNH); White Bridge, Mt Buller Rd (MV); Wilson's Promontory (ANIC); Wilson's Promontory, Chinaman's Ck (ANIC); Woori Yallock (ANIC); Young's Ck, 12 km N of Orbost (ANIC). Tasmania: Burnie (ANIC); Eaglehawk Neck (ANIC); Franklin R., Lyell Hwy (ANIC); Franklin R., Proina Cave (ANIC); 4 mi. E Murdunna (ANIC); Russell Falls (ANIC); 10 mi. E Strahan (ANIC); Tullah (ANIC).

**Distribution:** Queensland (SEQ), New South Wales (NEN, SEN), Victoria, Tasmania.

***Limonia (Dicranomyia) motepa spec. nov. (Fig. 181)***

**Description (♂):** Head largely grey; rostrum and palps blackish brown; antennae greyish brown. Thorax largely greyish brown; sides of prescutum pale grey; pleura with brownish black dorsal stripe, and with area around spiracle whitish grey. Coxae and trochanters brownish yellow; remainder of legs pale to dark greyish brown. Wings subhyaline with large circular blackish brown mark in pterostigma area; Sc ending about opposite 1/5 length of Rs; Sc1 and Sc2 subequal in length; Rs strongly arcuated near origin and with spur at kink, 2-3 times as long as basal section of R4+5; bscu very close to fork of M. Halteres largely greyish brown, stem markedly paler at base. Abdomen greyish brown with indication of darker and paler rings. Wing length 4,4 mm.

**Genitalia:** Hypopygium, Fig. 181.

Female unknown.

**Remarks:** Very similar to *L. incisuralis* (SKUSE). Diagnostic characters (male): rostral prolongation of ventral gonostylus without apical beak, the spines widely separated at base; dorsal gonostylus only slightly curved.

**Material examined:** Holotype ♂: Queensland, Birthday Creek, 6 km NW by W of Paluma, 25.9.1980, D.H. Colless (ANIC).

**Distribution:** Queensland (NEQ); known only from type locality.

**Name:** Motepa (= Australian Aboriginal word for "child") refers to the small size.

***Limonia (Dicranomyia) zonata* (SKUSE) (Fig. 182)**

*Dicranomyia zonata* SKUSE, Proc. Linn. Soc. N.S.W. 4: 770 (1890).

*Limonia (Limonia) zonata* (SKUSE); ALEXANDER, Ann. Mag. nat. Hist. (10) 5: 147 (1930).

Primary type: Holotype ♂: New South Wales, Blue Mountains, Skuse (ANIC); seen.

Published records: New South Wales: Blue Mts (SKUSE 1890: 770). Tasmania: Wilmot (ALEXANDER 1922b: 582).

Previously known only from male.

Description of female: Structure and colouration much as described for male (SKUSE 1890). Wing length 5,1-6,7 mm.

Genitalia: Male hypopygium, Fig. 182.

Remarks: Similar to *L. incisuralis* (SKUSE) and *L. motepa* sp. n. Diagnostic characters: pterostigma elongate-oval; male with rostral spines of ventral gonostylus broad-based and of unequal length.

New records: New South Wales: Brown Mtn, nr Bega (ANIC); Brown Mtn, nr Nimmitabel, 1200 m (GT); Bull's Head, A.C.T. (ANIC); nr Durras (ANIC); Jenolan S. F. (GT); Katoomba (AM); Mt Banda Banda, 1200 m (ANIC, GT); Sheepstation Ck, Araluen (ANIC). Victoria: Acheron Way (ANIC); Beech Forest (MV); Beech Forest, Otways (NMNH); 10 mi. E of Beech Forest (ANIC); Bellel Ck, nr Marysville (GT); Cameron Ck, nr Marysville (GT); Cape Otway (ANIC); Cement Ck (GT); 6 km NE of Erica (ANIC); Hordern Vale (ANIC); Lorne, Dean Marsh (ANIC); Marysville (MV); Mt Baw Baw (ANIC); Mt Baw Baw, 4400 ft (ANIC); Mt Erica (GT); Myrtleford (MV); Sherbrooke (ANIC); Spring Hill (ANIC); Taggerty R. (GT); Tarra R. Park (ANIC); Turtons Pass (ANIC); Warburton, 2150 ft (ANIC). Tasmania: Arthur Plains (MV); W Arthur Plains (MV); Barrow Ck, 8 km NE Nunamara (ANIC); Condominion Ck, at Scotts Peak Rd (MV); Corinna (GT); Cradle Valley (NMNH); Double-Barrel Ck, Lyell Hwy (GT); East Blakes Opening (MV); Flinders Ck, 3 mi. Murdunna (ANIC); Fortescue Bay, Tasman Pen. (GT); Franklin R. (ANIC); Helyer Gorge (ANIC); Helyer Gorge/Murchison Hwy (GT); Marakoopa Caves, nr Mole Creek (AM); Melaleuca Ck, nr Melaleuca (NMNH); Mt Farrel (ANIC, NMNH); Mt Wellington (ANIC); Mt Wellington, 720 m (GT); 4 mi. E of Murdunna (ANIC); 4 mi. NW of Pyengana (ANIC); Queenstown (ANIC); Russell Falls (ANIC); 7 mi. W Roseberry (ANIC); 10 mi. E of Strahan (ANIC); Wilmot (NMNH); Zeehan- Renison Bell SR, N of Zeehan (GT).

Distribution: New South Wales (NEN, SEN), Victoria, Tasmania.

***Limonia (Dicranomyia) clarki* ALEXANDER (Fig. 183)**

*Limonia (Limonia) clarki* ALEXANDER, Ann. Mag. nat. Hist. (10) 5: 145 (1930).

Primary type: Holotype ♂: Western Australia, Mundaring, 23.8.1926, E.W. Ferguson (supposedly in ANIC); not found.

Published records: Western Australia: Balingup; Donnybrook; Mundaring; Pemberton (all ALEXANDER 1930b: 146).

Genitalia: Male hypopygium, Fig. 183.

Remarks: Similar to *L. incisuralis* (SKUSE), *L. motepa* sp. n. and *L. zonata* (SKUSE). Diagnostic characters (male): dorsal gonostylus very thin and widely and evenly arched.

New records: Western Australia: Albany (ANIC); Augusta (ANIC); Beaufort R., 33 km SW Wagin (ANIC); Beedelup N. P. (ANIC); Bibra Lake (ANIC); Busselton (ANIC); Channybearup nr Pemberton (ANIC); 11 mi. SW Collie (ANIC); Darlington (ANIC); Denmark (ANIC); Dewars Pool (ANIC); Forestdale (ANIC); Gingin (ANIC); Glen Forrest WAM); Jarrahdale (ANIC); 3 mi. SW of Karridale (ANIC); Kendenup (ANIC); Kings Park (WAM); Mammoth Cave, 46 km S Yallingup (WAM); Mandijong (ANIC); 6 mi. SW of Mandijong (ANIC); Mt Chudalup, S of Northcliffe (ANIC); Noongar (ANIC); Nornalup N. P. (ANIC); Nth Banister (ANIC); Northcliffe (ANIC); Nunnup (ANIC); 7 mi. N by E of Pemberton (ANIC); 24 NW Pemberton (ANIC); Perth (ANIC); Pimelia nr Pemberton (ANIC); Porongurup Ra. (ANIC); Quarram (ANIC); Red Hill (WAM); Rest Point, Walpole (ANIC); Roleystone (ANIC); Shannon Mill (ANIC); Stirling Ra. (ANIC); Stirling Ra. N. P., White Gum Flat (GT); Stirling Ra., Red Gum Pass (ANIC); Toolbrunup Camp, Stirling Ra. N. P. (ANIC); vic. Samson Dam, E Waroona (ANIC); 24 mi. NW of Walpole (ANIC); Whistlepipe Gully, Forrestfield (Perth) (WAM); Yeagerup (ANIC).

Distribution: Western Australia (SWA).

***Limonia (Dicranomyia) illingworthi* (ALEXANDER) (Fig. 184)**

*Dicranomyia illingworthi* ALEXANDER, Ann. ent. Soc. Am. 7: 239 (1914).

*Dicranomyia rapae* ALEXANDER, Ann. Mag. nat. Hist. (9) 13: 36 (1924).

*Limonia (Dicranomyia) illingworthi* (ALEXANDER); ALEXANDER, Encycl. ent., Dipt. 5: 89 (1929).

Primary types: Holotype ♂ of *Dicranomyia illingworthi* ALEXANDER: Fiji Is., Nadi, 28.7.1913, c. u. (NMNH); seen. Holotype ♀ of *Dicranomyia rapae* ALEXANDER: Rapa, Nov. 1921, A.M. Stokes (BPBM); not seen.

Published records for Australia. Queensland: Meringa, nr Cairns (ALEXANDER 1920c: 93).

Previous illustrations: ALEXANDER 1929c: Fig. 8 (male hypopygium); ALEXANDER 1972: Fig. 45 (male hypopygium); ALEXANDER 1973a: Fig. 3 (wing venation), Fig. 8 (male hypopygium).

Genitalia: Male hypopygium, Fig. 184.

Remarks: Very similar to *L. sordida* BRUN., *L. woggoon* sp. n. and, possibly, *L. dorrigenis* ALEX. Diagnostic characters (male): tergite 9 rather trapezoid-shaped; gonocoxite with short mesal brush and without hairy apical wart; meso-ventral lobe of gonocoxite moderately long, rather obtuse; apex of mesal lobe of parameres and rostral prolongation of ventral gonostylus not narrow.

New records: Queensland: W Bluff Ra., Hidden Canyon, via Biggenden (ANIC); Brisbane (UQ); Coppermine Ck, 67.5 km N of Marlborough (ANIC); Mt Moffat (GT); 6,5 km SE of Mt Nebo, ca 1500 ft (ANIC); Rockpool Gorge, Mt Walsh N. P., Biggenden (ANIC). New South Wales: Dorrigo N. P. (ANIC); Epping (GT); 5-7 km NE of Harrington (GT); 3 km N Lansdowne (GT); New England University, Armidale (ANIC).

Distribution: Wide-spread in the Pacific. In Australia: Queensland (NEQ, SEQ, SIQ), New South Wales (NEN, SEN).

### *Limonia (Dicranomyia) sordida* (BRUNETTI) (Fig. 185)

Two subspecies are known.

Only one subspecies in Australia:

*L. (D.) s.sordida* (BRUN.).

### *Limonia (Dicranomyia) sordida sordida* (BRUNETTI) (Fig. 185)

*Dicranomyia sordida* BRUNETTI, Diptera Nematocera (excluding Chironomidae and Culicidae). In: SHIPLEY, A.E. (Ed.), The fauna of British India, including Ceylon and Burma: 382 (1912).

*Dicranomyia innocens* BRUNETTI, Diptera Nematocera (excluding Chironomidae and Culicidae). In: SHIPLEY, A.E. (Ed.), The fauna of British India, including Ceylon and Burma: 568 (1912).

*Dicranomyia tattakae* ALEXANDER, Philipp. J. Sci. 22: 469 (1923).

*Limonia (Dicranomyia) sordida* (BRUNETTI); ALEXANDER, Encycl. ent., Dipt. 5: 89 (1929).

Primary types: 3 syntypes (1♂, 2♀ ♀), of *Dicranomyia sordida* BRUNETTI: India, Kurseong, 4. and 9.9.1909, Annandale and India, Darjiling, 7.8.1909, Boiva (IM); not seen. 5 syntypes (4♂ ♂, 1♀ ♀), of *Dicranomyia innocens* BRUNETTI: India, Almora, Kumaon, 18-25.6.1911, Paiva (IM); not seen. Holotype ♂ of *Dicranomyia tattakae* ALEXANDER: Taiwan, Tattaka, ca 7400 ft, 16.8.1921, T. Esaki (NMNH); not seen.



Published records for Australia: None.

Previous illustrations: ALEXANDER 1929c: Fig. 7 (male hypopygium); ALEXANDER 1972: Fig. 46 (male hypopygium).

Genitalia: Male hypopygium, Fig. 185.

Remarks: Very similar to *L. illingworthi* (ALEX.), *L. woggoon* sp. n. and, possibly, *L. dorrigenis* ALEX. Diagnostic characters (male): posterior margin of tergite 9 evenly rounded; gonocoxite with long mesal brush and with well developed hairy apical wart; meso-ventral lobe of gonocoxite long, narrow, rather pointed; apex of mesal lobe of parameres and rostral prolongation of ventral gonostylus not narrow.

New records: Lord Howe Island: Erskine Ck, 800 ft (ANIC); Mt Lidgebird, foothills (ANIC); Old Settlement (ANIC); Salmon Beach (ANIC); forest nr Soldier Ck (ANIC).

Distribution: Wide-spread in the Pacific. In Australia: known only from Lord Howe Island.

***Limonia (Dicranomyia) woggoon* spec. nov. (Fig. 186)**

Description (♂): Head largely greyish brown, including rostrum, palps and antennae. Thorax greyish brown. Coxae greyish brown; trochanters dull yellow; profemur greyish yellow with greyish brown subapical ring; other leg segments missing. Wings yellowish hyaline; a greyish brown patch each, at arculus, halfway between arculus and origin of Rs, at origin of Rs and in pterostigma area; Sc ending about opposite origin of Rs; Sc1 markedly longer than Sc2; Rs more than 1,5 times length of basal section of R4+5; dm closed; bscu at or very close to fork of M. Halteres with stem greyish yellow and knob whitish yellow. Abdomen largely dull yellow. Wing length 6,5 mm.

Genitalia: Hypopygium, Fig. 186.

Female unknown.

Remarks: Very similar to *L. illingworthi* ALEX., *L. sordida* (BRUNETTI) and, possibly, *L. dorrigenis* ALEX. Diagnostic characters (male): posterior margin of tergite 9 almost straight; gonocoxite with long mesal brush and without any apical wart; meso-ventral lobe of gonocoxite long, narrow, subrectangular; apex of mesal lobe of parameres and rostral prolongation of ventral gonostylus narrow.

Material examined: Holotype ♂: Queensland, Bellenden Ker Range, Summit TV Stn, 1560 m, rainforest, malaise trap, 17.10.-5.11.1981, Earthwatch/Queensland Museum (QM).

Distribution: Queensland (NEQ); known only from type locality.

**Name:** Woggoon (= Australian Aboriginal word for "brush turkey") refers to the mesal brush on the male gonocoxite.

***Limonia (Dicranomyia) dorrigenis* ALEXANDER**

*Limonia (Dicranomyia) dorrigenis* ALEXANDER, Ann. Mag. nat. Hist. (10) 5: 152 (1930).

**Primary type:** Holotype ♂: New South Wales, Brooklana, Eastern Dorrigo, ca 2000 ft, 10.2.1929, W. Heron (NMNH); seen.

**Published records:** New South Wales: Brooklana, Eastern Dorrigo, ca 2000 ft (ALEXANDER 1930b: 153). Known only from male.

**Original description:** Length about 3,2 mm, wing 4,1 mm. Rostrum, palpi, and antennae black; flagellar segments oval. Head dark grey. Mesonotal praescutum yellowish grey, with three brown stripes; scutal lobes darkened; remainder of mesonotum more brownish grey. Pleura dark greyish brown. Legs with the fore and middle coxae extensively dark brown, the hind coxa chiefly obscure yellow; trochanters reddish; remainder of legs brown, the tarsal segments passing into dark brown. Wings greyish, the oval stigma a little darker than the ground colour; veins dark brown. Venation: Sc1 ending about opposite the origin of Rs, the latter nearly three times the basal section of R4+5; cell 1st M2 elongate, longer than the veins issuing from it; m-cu more than 1/2 its length before fork of M. Halteres yellow, the knobs infuscated. Abdominal tergites dark brown, the sternites more yellowish; hypopygium brownish yellow. Male hypopygium with the tergite transverse, the caudal margin evenly and convexly rounded, with a marginal series of setae, including a median pair that are longer and stouter. Basistyle relatively small, the ventro-mesal lobe very stout, terminating in a dense brush of setae; on face of style a small finger-like lobe that is tufted with setae that are considerably longer than the lobe itself; a small group of three or four strong setae near the apical mesal portion of the basistyle. Dorsal dististyle a gently curved rod that is slightly expanded on outer half, thence gradually narrowed to a long apical spine. Ventral dististyle fleshy, including the broad rostral prolongation; the two rostral spines placed side by side, subequal in length, arising from tubercles. Gonapophyses with the mesal apical lobe very broad, the outer margin weakly toothed, the lobe merging gradually with the main body of the apophysis.

**Remarks:** Apparently similar to *L. illingworthi* (ALEX.), *L. sordida* (BRUN.) and *L. woggoon* sp. n. Diagnostic characters (male): small size (wing length 4,1 mm); wings with only pterostigma darkened; mesal lobe of parameres very broad.

**New records:** None.

**Distribution:** New South Wales (NEN); known only from type locality.

***Limonia (Dicranomyia) flagellifera* (ALEXANDER) (Fig. 187)**

*Dicranomyia flagellifer* ALEXANDER, Ann. Mag. nat. Hist. (10) 1: 588 (1928).

*Limonia (Dicranomyia) flagellifer* (ALEXANDER); ALEXANDER, Ann. Mag. nat. Hist. (10) 12: 341 (1933).

*Limonia (Dicranomyia) flagellifera* (ALEXANDER); OOSTERBROEK, in: Catalog of the Diptera of the Australian and Oceanian Regions: 70 (1989).

Primary type: Holotype ♂: Tasmania, Fern Tree, Mount Wellington, 12.11.1922, A. Tonnoir (ANIC); seen.

Published records: New South Wales: Mt Wilson, Blue Mts (ALEXANDER 1928a: 589). Tasmania: Fern Tree, Mt Wellington (ALEXANDER 1928a: 589).

Previously known only from male.

Description of female: Structure and colouration much as described for male (ALEXANDER 1928a). Wing length 9,2 mm.

Genitalia: Male hypopygium, Fig. 187.

Remarks: Similar to *L. substricta* (ALEX). Diagnostic characters (male): proximal rostral spine of ventral gonostylus bent and extremely long.

New records: Queensland: Cunningham Gap, 2500 ft (ANIC); Green Mtn, Lamington N. P. (ANIC). New South Wales: Brown Mtn, Bega dist. (ANIC); Brown Mtn, nr Nimmitabel, 1200 m (GT); Carrington Falls (GT); Clyde Mtn (ANIC); Katoomba (AM); Mt Hyland N. P. (GT); Mt Wilson, Blue Mts (GT, NMNH); Nadgee S. F., Maxwell's Ck, 400 m (GT); Nightcap N. P., Goonimbar Rd, nr Nimbin (GT). Victoria: Acheron Gap, 830 m, ca 15 km NNE Warburton (ANIC); Belgrave (NMNH); Grampians (NMNH); Mt Donna Buang, 2300 ft (ANIC); Sherbrooke (ANIC); Walhalla (NMNH); Wilson's Promontory (ANIC); Young's Ck, 12 km N of Orbost, Bonang Hwy (ANIC). Tasmania: Mt Wellington (ANIC).

Distribution: Queensland (SEQ), New South Wales (NEN, SEN), Victoria, Tasmania.

***Limonia (Dicranomyia) substricta* (ALEXANDER) (Fig. 188)**

*Dicranomyia substricta* ALEXANDER, Ann. Mag. nat. Hist. (10) 1: 583 (1928).

*Limonia (Dicranomyia) substricta* (ALEXANDER); OOSTERBROEK & JONAS, Catalogue of the Australian-Oceanian Tipulidae (Insecta, Diptera): 68 (1986).

Primary type: Holotype ♂: Tasmania, Adventure Bay, 24.12.1922, A. Tonnoir (ANIC); seen; genitalia supposedly on slide, but not found.

Published records: Tasmania: Adventure Bay; Eagle Hawk Neck, Tasman Peninsula; Mt Wellington (all ALEXANDER 1928a: 585).

Genitalia: Male hypopygium, Fig. 188.

**Remarks:** Similar to *L. flagellifera* (ALEX.). Diagnostic characters (male): rostral spines of ventral gonostylus on tubercles of very unequal length.

**New records:** Tasmania: Flinders Ck, 3 mi. Murdunna (ANIC); nr Waldheim Chalet (ANIC).

**Distribution:** Tasmania.

***Limonia (Dicranomyia) opima* (ALEXANDER) (Fig. 189)**

*Dicranomyia opima* ALEXANDER, Ann. Mag. nat. Hist. (9) 8: 549 (1921).

*Limonia (Limonia) opima* (ALEXANDER); ALEXANDER, Ann. Mag. nat. Hist. (11) 14: 403 (1947).

*Limonia (Dicranomyia) opima* (ALEXANDER); OOSTERBROEK & JONAS, Catalogue of the Australian-Oceanian Tipulidae (Insecta, Diptera): 65 (1986).

**Primary type:** Holotype ♂: Queensland, Gordonvale, Cairns district, Jan. 1921, A.P. Dodd (NMNH); seen.

**Published records:** Queensland: Gordonvale Cairns dist. (ALEXANDER 1921d: 550).

Previously known only from male.

**Description of female:** Structure and colouration much as described for male (ALEXANDER 1921d). Wing length 5,4-6,5 mm.

**Genitalia:** Male hypopygium, Fig. 189.

**Remarks:** Very similar to *L. perpulchra* ALEX. Diagnostic characters: central portion of wing subhyaline; dark patches at the end of A1 and A2 well-defined and conspicuous.

**New records:** Queensland: Birthday Ck, 6 km NW by W of Paluma (ANIC); The Boulders, Babinda (ANIC); Mt Edith Forest Rd, 1 mi. off Danbulla Rd (ANIC); Mt Edith, 4-7 mi. off Danbulla Rd (ANIC); E of Mt Edith, 800 m (GT); Mt Windsor Tableland, Forestry Hut, 1060 m (GT); Ringrose N. P. (The Crater) (ANIC); Wongabel S. F. (ANIC); Yungaburra (S. F. 452) (ANIC).

**Distribution:** Queensland (NEQ).

***Limonia (Dicranomyia) perpulchra* ALEXANDER (Fig. 190)**

*Limonia perpulchra* ALEXANDER, Ann. Mag. nat. Hist. (10) 1: 577 (1928).

*Limonia* (?subgenus) *perpulchra* ALEXANDER; OOSTERBROEK & JONAS, Catalogue of the Australian-Oceanian Tipulidae (Insecta, Diptera): 92 (1986).

**Primary type:** Holotype ♂: Tasmania, Mount Farrel, 8.2.1923, A. Tonnoir (ANIC); seen.

**Published records:** Tasmania: Mt Farrel; Strahan (both ALEXANDER 1928a: 579).

**Genitalia:** Male hypopygium, Fig. 190.

**Remarks:** Very similar to *L. opima* (ALEX.). Diagnostic characters: central portion of wing grey; dark patches at the end of A1 and A2 not well-defined and inconspicuous.

**New records:** New South Wales: Blundell's Ck, A.C.T. (ANIC); Brooklana, E Dorriggo, 2000 ft (NMNH); Brown Mtn, Bega dist. (ANIC); Bull's Head, A.C.T. (ANIC); Comboyne-Wingham Rd, 10 km SSW Comboyne (GT); Cudmirrah Faunal Res., nr NNE Milton (ANIC); 34 mi. Dorriggo-Coramba Rd (ANIC); 36 mi. Dorriggo-Coramba Rd (ANIC); 26-27 mi. Glen Innes to Grafton Hwy (ANIC); Heathcote Brook (GT); Kanangra Boyd (GT); Kanangra Boyd N. P., Mt Kanangra, 1100 m (GT); Kanangra Brook (GT); Lorien Ref., 3 km N Lansdowne, nr Taree (GT); Manly Reservoir, Sydney (ANIC); Mc Garr's Ck, Kuringai Chase (ANIC); 5 mi. S of Monga (ANIC); Sydney, Cumberland S. F. (AM); Upper Allyn R. (ANIC). Victoria: Bayswater (MV); Cement Ck, nr Warburton (MV); Maroondah (ANIC); Trafalgar (MV); mts above Warburton (NMNH); Young's Ck, 12 km N of Orbost, Bonang Hwy (ANIC). Tasmania: Claytons, Bathurst Harbour (ANIC); Helyer R./Murchison Hwy (GT).

**Distribution:** New South Wales (NEN, SEN), Victoria, Tasmania.

***Limonia (Dicranomyia) panthera spec. nov.***

**Description** (♀): Head largely greyish brown, including rostrum, palps and flagellum of antennae; scape and pedicel pale brownish yellow. Thoracic terga largely dark greyish brown, except for the lateral margin of prescutum which is pale greyish yellow; pleura dark greyish brown. Coxae pale to dark greyish brown; trochanters greyish yellow; remainder of legs pale to dark greyish brown. Wings strongly suffused with pale brownish grey and mottled with many small black spots almost all over; larger black patches halfway between arculus and origin of Rs, at origin and fork of Rs and in pterostigma area; Sc ending about opposite 1/2 length of Rs; Sc1 and Sc2 subequal in length; Rs strongly arcuated near origin, about four times as long as basal section of R4+5; dm closed; bscu at or very close to fork of M. Halteres with stem pale greyish brown and knob brownish black. Abdomen largely dark greyish brown; terminalia brown. Wing length 4,5 mm.

**Genitalia:** Cerci and hypogynial valves sharply pointed.

**Male unknown.**

**Remarks:** Not similar to any other described Australian species. Diagnostic characters: small size (wing length 4,5 mm); strongly mottled wings.

**Material examined:** Holotype ♀: Queensland, 5 mi. Tinaroo Falls, 26.4.1967, at light, D.H. Colless (ANIC).

**Distribution:** Queensland (NEQ).

**Name:** *Panthera* (= Latin for "panther") refers to the unusually mottled wings.

***Limonia (Dicranomyia) boorana* spec. nov. (Fig. 191)**

**Description** (♂): Head largely grey; rostrum yellowish- to pale greyish brown, palps and antennae dark greyish brown. Thorax largely dark greyish brown, only side of prescutum somewhat paler. Coxae greyish brown; trochanters brownish- to greyish yellow; remainder of legs pale to dark greyish brown, with apex of femora and tibiae slightly more darkened. Wings suffused with brownish grey; a dark brownish grey square patch in pterostigma area; Sc ending slightly beyond origin of Rs; Sc1 markedly longer than Sc2; Rs slightly arcuated, hardly 1 1/2 times as long as basal section of R4+5; bscu very close to fork of M. Halteres pale to dark brownish grey. Abdominal tergites dark brownish grey, sternites somewhat paler. Wing length 6,0 mm.

**Genitalia**: Hypopygium, Fig. 191.

Female unknown.

**Remarks**: Not similar to any other described Australian species. Diagnostic characters (male): tergite 9 widely and shallowly emarginate; rostral prolongation of ventral gonostylus short and with only one short subcylindrical spine.

**Material examined**: Holotype ♂: New South Wales, Macquarie Rivulet, 4.1.1990, G. Theischinger (ANIC). Paratype: 1♂, New South Wales, Dorrigo National Park, 2400 ft, 11.11.1967, N. Dobrotworsky (ANIC).

**Distribution**: New South Wales (NEN, SEN).

**Name**: Boorana (= Australian Aboriginal word for "smoke") refers to the infuscated wing membrane.

***Limonia (Dicranomyia) bunyip* spec. nov. (Fig. 192)**

**Description**: Head largely blackish brown; rostrum, palps and antennae greyish brown. Thorax largely dark greyish brown; scutellum pale greyish brown. Coxae greyish brown; trochanters greyish yellow; femora from greyish yellow (at base) to dark greyish brown (at apex); tibiae, tarsi and claws dark greyish brown. Wings slightly suffused with brown; Sc ending very close to origin of Rs; Sc1 about as long as basal section of R4+5; Rs about 1,5 times as long as basal section of R4+5; bscu very close to fork of M. Halteres greyish- to brownish yellow. Abdomen largely greyish brown; cerci and valves of female blackish brown. Wing length, male 9,3 mm, female 10,5 mm.

**Genitalia**: Male hypopygium, Fig. 192.

**Remarks:** Not similar to any other described Australian species. Diagnostic characters (male): tergite 9 long and rather narrow, distinctly bilobed; rostral prolongation of ventral gonostylus very short and obtuse.

**Material examined:** Holotype ♂: Victoria, Bunyip Creek, Mount Buffalo, 1490 m, 2.4.1989, sweeping, J.E. Brittain (ANIC). Paratype: 1 ♀, same data as holotype (ANIC).

**Distribution:** Victoria, known only from type locality.

**Name:** From Bunyip Creek, in Victoria; to be treated as a noun in apposition.

***Limonia (Dicranomyia) loarina* spec. nov. (Fig. 193)**

**Description:** Head largely blackish grey; rostrum, palps and antennae greyish brown. Thoracic terga blackish brown; pleura greyish brown. Legs greyish brown. Wings whitish hyaline with extensive grey patches along most veins, and most notably at origin and fork of Rs and in pterostigma area; Sc ending slightly beyond origin of Rs; Sc1 markedly longer than Sc2; Rs strongly arcuated near origin, slightly more than twice as long as basal section of R4+5; cell dm open by atrophy of m- m; bscu at or very close to fork of M. Halteres with base of stem and knob greyish yellow, rest greyish brown. Abdomen largely greyish brown; cerci and valves of female very short, brown to blackish brown. Wing length, male 5,8-7,0 mm, female 6,3-7,1 mm.

**Genitalia:** Male hypopygium, Fig. 193.

**Remarks:** Not similar to any other described Australian species. Diagnostic characters: very extensive grey pattern on whitish hyaline background; ventral gonostylus of male with one large arched, apically directed spine and several exceptionally thick bristles.

**Material examined:** Holotype ♂: Tasmania, Frankland River, 25.2.1994, G. Theischinger (ANIC). Paratypes: Tasmania: 2 ♂ ♂, 1 ♀, same data as holotype (GT); 2 ♂ ♂, 2 ♀ ♀, Esperance Forest, 1.3.1994, G. Theischinger (GT); 1 ♂, 2 ♀ ♀, Western Creek, 7.3.1994, G. Theischinger (GT).

**Distribution:** Tasmania.

**Name:** Loarina (= Tasmanian Aboriginal word for "Tasmanian Tiger") refers to the colouration.

***Limonia (Dicranomyia) cunninghamensis* ALEXANDER (Fig. 194)**

*Limonia (Dicranomyia) cunninghamensis* ALEXANDER, Ann. Mag. nat. Hist. (10) 12: 341 (1933).

**Primary type:** Holotype ♂: Victoria, Ben Cairn, near Millgrove, in beech-gully, 2900-3200 ft, 9.2.1929, F.E. Wilson (MV); seen.

Published records: Victoria: Ben Cairn, nr Millgrove, 2900-3200 ft (ALEXANDER 1933b: 342).

Genitalia: Male hypopygium, Fig. 194.

Remarks: Not similar to any other described Australian species. Diagnostic characters: colouration generally rather pale; male with rostral spines of ventral gonostylus strongly divergent.

New records: Queensland: Green Mountain, Lamington N. P. (ANIC). New South Wales: Cockerawombeeba Ck, 23 km WNW Bellangry, 730 m (GT). Victoria: Toorongo Falls (ANIC); Toorongo Falls, 1000 ft (ANIC).

Distribution: Queensland (SEQ), New South Wales (NEN), Victoria.

***Limonia (Dicranomyia) dicksoniae* ALEXANDER (Fig. 195)**

*Limonia (Dicranomyia) dicksoniae* ALEXANDER, Ann. Mag. nat. Hist. (10) 5: 150 (1930).

Primary type: Holotype ♂: Victoria, Ferntree Gully, 15.4.1928, F.E. Wilson (MV); seen.

Published records: Victoria: Ferntree Gully; Ringwood (both ALEXANDER 1930b: 152).

Genitalia: Male hypopygium, Fig. 195.

Remarks: Not similar to any other described Australian species. Diagnostic characters (male): tergite 9 profoundly bilobed; gonocoxite with meso-dorsal lobe set with bristles; meso-ventral lobe of gonocoxite very long.

New records: New South Wales: Black Mtn, A.C.T. (ANIC). Victoria: Harcourt (ANIC); Healesville (ANIC); Walhalla (NMNH); Warburton (NMNH); Woodend (ANIC); You Yangs (ANIC).

Distribution: New South Wales (SEN), Victoria.

***Limonia (Dicranomyia) inanis* ALEXANDER**

*Limonia (Limonia) inanis* ALEXANDER, Ann. Mag. nat. Hist. (10) 13: 247 (1934).

Primary type: Holotype ♂: New South Wales, Blackheath, Blue Mountains, 20-30.10.1930, F.E. Wilson (MV); seen.

Published records: New South Wales: Blackheath, Blue Mts; Hawkesbury R. (both ALEXANDER 1934a: 249).

Original Description: Male: length about 6 mm, wing 7 mm; female: length about 7 mm, wing 7 mm. Rostrum and palpi black. Antennae black throughout; flagellar segments subglobular, the outer ones a trifle longer. Head light grey. Mesonotal praescutum black, with a greyish bloom on sides, more yellowish on central portion and including the usual interspaces; a relatively narrow dull black median stripe, the



lateral stripes short; interspaces lined more or less distinctly with more blackish streaks; posterior sclerites of notum pruinose, the scutellum paler grey. Pleura heavily dusted with grey. Legs with the coxae dark pruinose; trochanters yellow; femora obscure yellow basally, passing into more brownish yellow; fore femora with a broad black ring that is terminal in position or nearly so, middle and hind femora with a narrow black ring that is distinctly subterminal, being about twice as wide as the yellow apex beyond; all femora with the black ring preceded by a clear yellow annulus; tibiae and basal three tarsal segments obscure yellow, the tips narrowly blackened; terminal two tarsal segments black. Wings relatively broad, whitish, with a restricted brown pattern of moderate intensity; cell C clear, Sc clouded on basal half; prearcular region pale; brown clouds at stigma; origin of Rs and tip of Sc, this area confluent with a paler cloud in cell R beneath Rs; a cloud in cell R at midlength of vein R; cord and outer end of cell 1st M2 narrowly seamed with brown; a conspicuous wash in outer radial field, involving cells R3 and R5; very pale washes along vein Cu in cell M and in cell 2nd A; veins dark brown, somewhat paler in the ground-areas. Venation: Sc1 ending opposite or just beyond  $\frac{1}{3}$  the length of Rs, Sc2 a short distance from its tip; Rs and basal section of R4+5 in approximate alignment, the inner end of cell R5 not conspicuously arcuated; m more arcuated than basal section of M3; m-cu at or very close to fork of M. Halteres small, pale yellow throughout. Abdomen brownish black, sparsely pruinose, the incisures paler; hypopygium yellow. Male hypopygium with the tergite narrowed outwardly, its caudal margin with a deep U-shaped notch, the lateral lobes thus formed relatively narrow, their tips obtuse. Ventral dististyle large and fleshy, the spines of the rostral prolongation elongate, placed at near midlength of prolongation, the longest subequal to or exceeding in length the prolongation itself; spines arising close together, the outer more strongly curved and a little shorter, sessile; inner spine nearly straight, arising from a short enlarged base. Dorsal dististyle strongly curved, the tip darkened. Mesal-apical lobe of gonapophysis darkened, narrow and straight.

**Remarks:** Similarity cannot be assessed at the present (no fresh material available). ALEXANDER (1934a) considers *L. saxatilis* (SKUSE) as nearest ally of *L. inanis*, a view not shared by me. Diagnostic characters (male): tergite 9 strongly bilobed, the lobes narrow; rostral spines of ventral gonostylus of considerable length.

**New records:** None.

**Distribution:** New South Wales (SEN).

***Limonia (Dicranomyia) kowinka* spec. nov. (Fig. 196)**

**Description:** Head largely brownish- to blackish grey; rostrum, palps and antennae greyish brown. Thorax largely greyish brown; prescutum with brownish yellow spot each side. Coxae greyish brown; trochanters greyish yellow; femora greyish- to brownish yellow with blackish brown subapical ring; tibiae and tarsal segments 1 and 2 greyish yellow with apex blackish brown; tarsal segments 3-5 and claws blackish brown. Wings slightly suffused with greyish yellow; marked with blackish brown, most notably in area of humeral crossvein, at origin and fork of Rs, in pterostigma area, along cord and distal veins of dm, along CuA and at the end of R3. Sc ending about opposite to 1/3-1/2 length of Rs; Sc1 markedly longer than Sc2; Rs almost twice as long as basal section of R4+5; bscu at or very close to fork of M. Halteres with stem yellowish grey and knob whitish yellow. Abdomen largely greyish yellow to dark greyish brown; base of hypogynial valves black. Wing length, male 5,4-6,6 mm, female 6,1-7,3 mm.

**Genitalia:** Male hypopygium, Fig. 196.

**Remarks:** Not similar to any other described Australian species. Diagnostic characters: distinct wing and leg pattern as described above; tergite 9 of male with long tapered lobes.

**Material examined:** Holotype ♂: New South Wales, 0,5 km SE Lansdowne, 0-10 m, mangrove/riverine rainforest, malaise trap, 7-21.3.1993, G. Williams (ANIC). Paratypes: 250♂♂, 250♀♀, New South Wales, 0.5 km SE Lansdowne, 0-10 m, mangrove/riverine rainforest, malaise trap, 1992- 1993, G. Williams (GT).

**Distribution:** New South Wales (NEN); known only from type locality.

**Name:** Kowinka is an Australian Aboriginal word for "red mangrove"; the species was collected from mangrove.

***Limonia (Dicranomyia) obscuripennis* (SKUSE) (Fig. 197)**

*Dicranomyia obscuripennis* SKUSE, Proc. Linn. Soc. N.S.W. 4: 768 (1890).

*Limonia obscuripennis* (SKUSE); ALEXANDER, Proc. Linn. Soc. N.S.W. 53: 51 (1928).

*Limonia (Dicranomyia) obscuripennis* (SKUSE); OOSTERBROEK & JONAS, Catalogue of the Australian-Oceanian Tipulidae (Insecta, Diptera): 65 (1986).

**Primary type:** Holotype ♂: New South Wales, Elizabeth Bay, near Sydney, Aug., Skuse (ANIC); seen.

Published records: New South Wales: Barrington Tops (ALEXANDER 1928b: 51); Elizabeth Bay, nr Sydney (SKUSE 1890: 769).

Previously known only from male.

Description of female: Structure and colouration much as described for male (SKUSE 1890). Wing length 5,8 mm.

Genitalia: Male hypopygium, Fig. 197.

Remarks: Not particularly similar to any other described Australian species. Diagnostic characters (male): two long spines between base and rostral prolongation of ventral gonostylus; mesal lobe of parameres wide and apically rounded.

New records: Queensland: Austral Forest, via Bulburin (ANIC); Binna Burra (ANIC); Brooklana, E Dorrigo NMNH); Green Mtn, Lamington N. P. (ANIC); Lamington N. P. (ANIC); Mt Tamborine (ANIC); New South Wales: Barrington Tops (GT, NMNH); Clyde Mtn (ANIC); Dorrigo N. P., 2700 ft (ANIC); Gloucester Tops, 1280 m (GT); Mt Wilson (GT); Termeil (ANIC). Victoria: Acheron Gap, 830 m, ca 15 km NNE Warburton (ANIC); Belgrave (NMNH); Cape Otway (ANIC); Cement Ck (ANIC); Cumberland Ck (ANIC); 5 East Genoa (ANIC); Millgrove (ANIC); Mt Donna Buang (ANIC); Mt Donna Buang, 3800-4000 ft (NMNH); Thurra R., Gippsland (ANIC); Warburton (NMNH). Tasmania: Arve R., nr Hartz Mts Rd (ANIC); National Park (ANIC, NMNH); Waratah (NMNH).

Distribution: Queensland (SEQ), New South Wales (NEN, SEN), Victoria, Tasmania.

### *Limonia (Dicranomyia) octacantha* ALEXANDER (Fig. 198)

*Limonia (Dicranomyia) octacantha* ALEXANDER, Ann. Mag. nat. Hist. (10) 12: 340 (1933).

Primary type: Holotype ♂: Victoria, Mount Donna Buang, above Warburton, 3000-4000 ft, April 1931, F.E. Wilson (MV); seen.

Published records: Victoria: Mt Donna Buang, above Warburton, 3000- 4000 ft (ALEXANDER 1933b: 341).

Previously known only from male.

Description of female: Structure and colouration much as described for male (ALEXANDER 1933b). Wing length 9,2 mm.

Genitalia: Male hypopygium, Fig. 198.

Remarks: Not very similar to any other described species. Diagnostic characters (male): two long spines on rostral prolongation of ventral gonostylus and usually two long spines between base and prolongation.

New records: Queensland: Coomera R., Lamington N. P. (ANIC). New South Wales: Black Mtn Res., A.C.T. (ANIC); "Wyora", Goodradigbee R. (GT). Victoria: Crib Point (WAM).

Distribution: Queensland (SEQ), New South Wales (SEN), Victoria.

***Limonia (Dicranomyia) whitei* (ALEXANDER) (Fig. 199)**

**Remarks:** Not similar to any other described Australian species. Diagnostic characters: colouration almost uniformly greyish- to blackish brown; male with tergite 9 distinctly bilobed; ventral gonostylus very large, base of dorsal gonostylus very broad.

**Subspecies in Australia:**

*L. (D.) w. monacha* ALEX.

*L. (D.) w. whitei* (ALEX.).

***Limonia (Dicranomyia) whitei whitei* (ALEXANDER) (Fig. 199)**

*Dicranomyia whitei* ALEXANDER, Ann. Mag. nat. Hist. (9) 8: 547 (1921).

*Limonia (Dicranomyia) whitei* (ALEXANDER); ALEXANDER, Ann. Mag. nat. Hist. (10) 5: 152 (1930).

**Primary type:** Holotype ♂: Tasmania, Mangalore, 25.9.1912 (BMNH); not seen.

**Published records:** Tasmania: Mangalore (ALEXANDER 1921d: 547).

Previously known only from male.

**Description of female:** Structure and colouration much as described for male (ALEXANDER 1921d). Wing length 6,8-8,0 mm.

**Genitalia:** Male hypopygium, Fig. 199.

**Remarks:** Very similar to *L. whitei monacha* ALEX. Diagnostic characters (male): spines of distal prolongation of ventral gonostylus slender, the distance between them at their bases not more than 1/5 to 1/4 their length.

**New records:** New South Wales: Bawley Point (ANIC); Blundell's Ck, A.C.T. (ANIC); Bull's Head, A.C.T. (ANIC); Bundanoon (GT); Bundanoon, Fairy Bower (GT); Gibraltar Falls, A.C.T. (ANIC); Heathcote Brook (GT); Katoomba (AM); Lorien Ref., 3 km N Lansdowne, nr Taree (GT); Lucas Heights (GT); Macquarie Pass (GT); Macquarie Rivulet (GT); Mt Kaputar (GT); Mt Kosciusko (GT). Victoria: Acheron Way (ANIC); 5 mi. S of Barramunga (ANIC); Belgrave (NMNH); Buxton (ANIC); Cann R., East Gippsland (ANIC); Cape Otway (ANIC); Cranbourne (ANIC); Croydon (NMNH); East Gippsland, 15 mi of Orbost (ANIC); Ferntree Gully (NMNH); Grampians (ANIC, MV, NMNH); Hastings (ANIC); Lorne (ANIC); Macedon (NMNH); Maroondah (ANIC); Melbourne (ANIC); Melbourne, 34 Russell St (ANIC); Middle Ck, Ferntree Falls, Mt Buangor (MV); Mt Donna Buang, Warburton, 3000-4000 ft (NMNH); Mt Drummer, East Gippsland (ANIC); Mt William (ANIC); Narbetong, Acheron R. (ANIC); Otway, Ben Werrin (ANIC); Rocky R., Murrungowar (ANIC); Sherbrooke (ANIC); Tallangatta, 5 mi. NW George Ck (ANIC); Thurra R., Gippsland (ANIC); Wanchin Nth (ANIC); Wartook Res. (ANIC); Woori Yallock (ANIC). Tasmania: Clarence R., 9 km E Derwent Bridge (MV); Fern Tree (ANIC); Pelion Hut, 3 km S Mt Oakleigh (ANIC); St Patrick R. (NMNH).

**Distribution:** New South Wales (NEN, SEN), Victoria, Tasmania.

***Limonia (Dicranomyia) whitei monacha* ALEXANDER**

*Limonia (Dicranomyia) whitei brevispinula* ALEXANDER, Ann. Mag. nat. Hist. (10) 12: 344 (1933) (preoccupied by ALEXANDER 1930).

*Limonia (Dicranomyia) whitei monacha* ALEXANDER, Rec. Indian Mus. 50: 326 (1952)(new name).

Primary type: Holotype ♂: New South Wales, Brooklana, Eastern Dorrigo, ca 2000 ft, Oct.-Nov. 1929, W. Heron (NMNH); seen.

Published records: New South Wales: Brooklana, Eastern Dorrigo, ca 2000 ft (ALEXANDER 1933b: 345). Known only from male.

Original Description: Length about 6 mm; wing 7 mm. Close to typical *L. whitei* (ALEXANDER), differing especially in the structure of the male hypopygium. Rostrum obscure ochreous; palpi black. Humeral region of praescutum strongly tinged with reddish brown. Male hypopygium with the spines of the rostral prolongation of the ventral dististyle very short, the distance between them at their bases not more than one-fourth to one-fifth their length.

Remarks: Very similar to *L. whitei whitei* (ALEX.). Diagnostic characters (male): spines of rostral prolongation of ventral gonostylus very short, the distance between them about 1/2 their length.

New records: None.

Distribution: New South Wales (NEN).

***Limonia (Dicranomyia) pitoa* spec. nov. (Fig. 200)**

Description: Head largely brownish grey; rostrum, palps and antennae greyish brown. Thorax greyish brown, terga somewhat darker than pleura. Legs pale to dark greyish brown. Wings slightly suffused with brown; Sc ending very close to origin of Rs; Sc1 and Sc2 subequal in length; R2 forming an arch originating distal of R1; Rs about twice as long as basal section of R4+5. Halteres greyish brown. Abdomen greyish brown; female terminalia yellowish- to blackish brown, cerci and valves darkest. Wing length, male 6,2 mm, female 7,0 mm.

Genitalia: Male hypopygium, Fig. 200.

Remarks: Not similar to any other described Australian species. Diagnostic characters: R2 originating some distance distal of R1; male with tergite 9 subrectangular, ventral gonostylus roughly semicircular in outline and dorsal gonostylus almost straight.

Material examined: Holotype ♂: New South Wales, 20 km S of Bermagui, Mimososa Rocks, low tide, 14.1.1977, C. McCubbin (ANIC). Paratype: 1 ♀, same data as holotype (ANIC).

Distribution: New South Wales (SEN); known only from type locality.

**Name:** Pitoa (= Australian Aboriginal word for "moon") refers to the shape of the ventral gonostylus.

***Limonia (Dicranomyia) marina* (SKUSE) (Fig. 201)**

*Dicranomyia marina* SKUSE, Proc. Linn. Soc. N.S.W. 4: 765 (1890).

*Dicranomyia inhonora* ALEXANDER, Rec. S. Aust. Mus. 2: 227 (1922).

*Limonia (Dicranomyia) marina* (SKUSE); ALEXANDER, Proc. Linn. Soc. N.S.W. 69: 5 (1944).

**Primary types:** Lectotype ♂, by present designation, of *Dicranomyia marina* SKUSE: New South Wales, Manly near Sydney, March, Skuse (ANIC); seen; additionally labelled "Lectotype ♂ *Dicranomyia marina* SKUSE, designated by G. Theischinger 1994". Holotype ♂ of *Dicranomyia inhonora* ALEXANDER: South Australia, Port Lincoln (SAM); not seen.

**Published records:** New South Wales: Manly, nr Sydney (SKUSE 1890: 766); off South Head, Sydney (ALEXANDER 1944: 5). Lord Howe Island (ALEXANDER 1922a: 228). Tasmania: King Island (ALEXANDER 1922a: 228). South Australia: Port Lincoln (ALEXANDER 1922a: 228).

**Previous illustrations:** SKUSE 1890, Pl. XXI, fig. 3 (wing).

**Genitalia:** Male hypopygium, Fig. 201.

**Remarks:** Similar to *L. submarina* sp. n. Diagnostic characters (male): tergite 9 without median notch; ventral gonostylus appearing larger than gonocoxite; dorsal gonostylus strongly curved.

**New records:** Queensland: Bundaberg (ANIC); Fisher Is. (ANIC). New South Wales: Bawley Point (ANIC); Bendalong (AM); Bottle and Glass Rocks, Vaucluse (AM); Broulee, 7 mi. NE Moruya (ANIC); Bulli Jetty (ANIC); Bundeena nr Sydney (AM); Jervis Bay (ANIC); Kurnell, Sydney (GT); Long Reef (AM); Nambucca Head (ANIC); North Bondi (AM); Wattamaolla (GT); Wollongong (NMNH). Lord Howe Island: n. o. d. (ANIC, MV); Blinky Beach (ANIC); nr Johnson's Beach (ANIC); Salmon Beach (ANIC); forest nr Soldier Ck (ANIC). Victoria: Cape Otway (MV); Phillip Is (MV); Pt Lonsdale Beach (ANIC). Tasmania: Bicheno (ANIC); Erith Is., Kent Group Is. (ANIC); Flinders Is. (ANIC); King Is., Bass Strait (WAM); Melaleuca nr Bathurst Harbour (ANIC); Rupert Pt, 3 mi. N of Pieman R. (ANIC). South Australia: Long Gully, Robe dist. (AM). Western Australia: Cape Naturaliste (ANIC); 4 mi. W of Margaret R. (ANIC); Rottneet (ANIC). Northern Territory: Dangerous Reef (NTM).

**Distribution:** Queensland (NEQ, SEQ), New South Wales (NEN, SEN), Lord Howe Island, Victoria, Tasmania, South Australia (SES), Western Australia (SWA), Northern Territory (NNT).

***Limonia (Dicranomyia) submarina* spec. nov. (Fig. 202)**

**Description:** Head largely grey; rostrum, palps and antennae blackish grey. Thorax grey to blackish grey. Coxae brownish grey; remainder of legs dark greyish brown. Wings largely suffused with grey; four greyish black patches along anterior margin between arculus and (including) pterostigma area, and two darker patches along CuA; between those dark patches in places bright greyish yellow or whitish grey; Sc ending about opposite 1/6-1/4 length of Rs; Sc1 markedly longer than Sc2; Rs about four times as long as basal section of R4+5; cell A2 very wide. Halteres pale yellowish grey. Abdomen dark brownish grey. Wing length, male 6,6 mm, female 7,0-7,3 mm.

**Genitalia:** Male hypopygium, Fig. 202.

**Remarks:** Similar to *L. marina* (SKUSE). Diagnostic characters (male): tergite 9 with deep narrow median notch; ventral gonostylus appearing markedly smaller than gonocoxite; dorsal gonostylus only slightly curved.

**Material examined:** Holotype ♂: Western Australia, Rottnest, leg. H.E.P. Dr Paterson (ANIC). Paratypes: 2 ♀ ♀, same data as holotype (ANIC).

**Distribution:** Western Australia (SWA); known only from Rottnest.

**Name:** Submarinus 3 (Latinized composite adjective) in order to express the close affinity with *L. marina* (SKUSE).

***Limonia (Dicranomyia) wattamolla* spec. nov. (Fig. 203)**

**Description:** Head largely greyish yellow to greyish brown; rostrum, palps and antennae greyish yellow. Thorax greyish yellow. Coxae and trochanters greyish yellow; remainder of legs greyish yellow to pale greyish brown. Wings subhyaline; Sc ending about twice length of Rs before origin of Rs; Sc1 about as long as Rs; Rs strongly arcuated, usually subequal in length to basal section of R4+5; bscu at or very close to fork of M. Halteres greyish yellow. Abdomen greyish yellow. Wing length, male 4,8-5,5 mm, female 4,8-5,5 mm.

**Genitalia:** Male hypopygium, Fig. 203.

**Remarks:** Very similar to *L. wundurra* sp. n. Diagnostic characters: Rs and basal section of R4+5 subequal in length; male with rostral prolongation of ventral gonostylus long and narrow.

**Material examined:** Holotype ♂: New South Wales, Wattamolla Beach, 18.1.1980, G. Theischinger (ANIC). Paratypes: 11 ♂ ♂, 7 ♀ ♀, same data as holotype (GT).

**Distribution:** New South Wales (SEN); known only from Wattamolla Beach.

**Name:** From Wattamolla Beach, the type locality; to be treated as a noun in apposition.

***Limonia (Dicranomyia) wundurra* spec. nov. (Fig. 204)**

**Description:** Head largely brownish grey; rostrum, palps and antennae brown. Thorax yellowish brown. Legs yellowish- to pale greyish brown. Wings subhyaline; Sc ending about twice length of Rs before origin of Rs; Sc1 and Rs subequal in length; Rs strongly arcuated, markedly shorter than basal section of R4+5; bscu at or very close to fork of M. Halteres with stem brown and knob greyish brown. Abdomen greyish yellow to greyish brown; female terminalia dark yellowish brown. Wing length, male 4,8-5,4 mm, female 4,7-5,5 mm.

**Genitalia:** Male hypopygium, Fig. 204.

**Remarks:** Very similar to *L. wattamolla* sp. n. Diagnostic characters: Rs usually markedly shorter than basal section of R4+5; male with rostral prolongation of ventral gonostylus rather short and wide.

**Material examined:** Holotype ♂: Lord Howe Island, Clear Place, leaf litter, 6.2.1980, T. Kingston (ANIC). Paratypes: Lord Howe Island: 3 ♂♂, 1 ♀, same data as holotype (ANIC); 1 ♀, Blinky Beach, at light, 4.12.1966, E. Britton (ANIC); 4 ♀♀, Salmon Beach, Dec. 1970, Z. Liepa (ANIC); 1 ♀, settlement lights, 2.12.1993, P.S. Cranston (ANIC). Distribution. Lord Howe Island.

**Name:** Wundurra (= Australian Aboriginal word for "warrior") because of the long spear-like spine on the rostral prolongation of the ventral gonostylus.

***Limonia (Dicranomyia) saxemarina* ALEXANDER (Fig. 205)**

*Limonia (Dicranomyia) saxemarina* ALEXANDER, Ann. Mag. nat. Hist. (10) 19: 341 (1937).

**Primary type:** Holotype ♂: New South Wales, Lord Howe Island, North Bay, on rock by the sea-shore, 11.2.1934, V. Irwin-Smith (NMNH); seen.

**Published records:** New South Wales: Lord Howe Island, North Bay (ALEXANDER 1937: 342).

Previously known only from male.

**Description of female:** Structure and colouration much as described for male (ALEXANDER 1937). Wing length 5,7-7,0 mm.

**Genitalia:** Male hypopygium, Fig. 205.

**Remarks:** Extremely similar to *L. pontophila* which was described from the Caroline Islands (TOKUNAGA 1940); very similar to *L. kallakurre* sp. n. Diagnostic characters: large size (wing length 5,5-7,0 mm); colouration dark greyish- to blackish brown; Rs markedly longer than basal section of R4+5.



**New records:** Lord Howe Island: Clear Place (ANIC); Blinky Beach (ANIC); Salmon Beach (ANIC).

**Distribution in Australia:** Lord Howe Island.

***Limonia (Dicranomyia) kallakkure* spec. nov. (Fig. 206)**

**Description** ( $\delta$ ). Head largely yellowish grey; rostrum and palps greyish yellow, antennae brown. Thorax greyish yellow. Legs greyish yellow. Wings yellowish hyaline; Sc ending about length of Rs before origin of Rs; Rs and basal section of R4+5 subequal in length; bscu at or very close to fork of M; cell dm open by atrophy of m-m. Halteres greyish yellow. Abdominal tergites pale greyish brown, sternites pale greyish yellow. Wing length 4,1-4,9 mm.

**Genitalia:** Hypopygium, Fig. 206.

Female unknown.

**Remarks:** Most similar to *L. saxemarina* ALEX. Diagnostic characters (male): small size (wing length 4,1-4,9 mm); colouration greyish yellow; Rs about as long as basal section of R4+5.

**Material examined:** Holotype  $\delta$ : Queensland, Rot Island, Port Curtis, resting on roof of shore cave, 20.4.1962, E.N. Marks (QM). Paratype: 1  $\delta$ , Queensland, One Tree Island, Barrier Reef, May 1969, H. Heathwole (ANIC).

**Distribution:** Queensland (NEQ, SEQ).

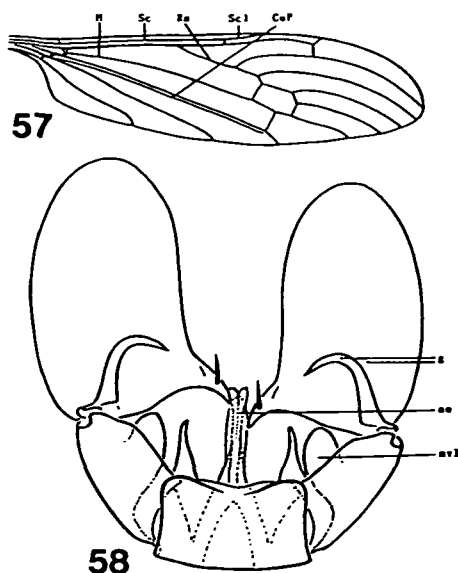
**Name:** Kallakkure (= Australian Aboriginal word for "island") refers to the distribution.

**Subgenus *Goniodineura* WULP (Figs 45, 46, 57, 58, 207)**

*Goniodineura* WULP, Tijdschr. Ent. **38**: 37 (1895) (as genus).

**Type species:** *Goniodineura nigriceps* WULP, 1895, by monotypy.

OOSTERBROEK (1989) listed, under subgenus *Goniodineura*, only a single species, *L. parvistigma* (ALEX.), from Australia. *L. tayloriana* ALEX., listed under *Limonia (Libnotes)* by OOSTERBROEK (1989), undoubtedly belongs in *Limonia (Goniodineura)*; it is considered a synonym of *L. parvistigma*.



Figs 57, 58. *Limonia (Goniodyneura) parvistigma* (ALEX.): 57: wing venation; - 58: male hypopygium, dorsal aspect. Abbreviations: ae = aedeagus; g = gonostyli; mvl = meso-ventral lobe of gonocoxite.

**Definition:** Head: mouthparts shorter than remainder of head; flagellomeres of antennae not produced. Wing (Fig. 57): Sc long, ending beyond fork of Rs; Sc1 unusually long; branches of Rs and M not strongly deflected near margin; M double-branched; vein CuP present; no supernumerary crossveins. Male hypopygium (Fig.58): meso-ventral lobe of gonocoxite (mvl) of moderate size; two pairs of gonostyli (g); ventral gonostylus with one large and one small inconspicuous spine on rostral prolongation; proctiger not particularly modified; apex of aedeagus (ae) not particularly modified.

**Distribution:** Oriental and Australian regions. In Australia: north-eastern.

Only one species in Australia:

*L. (G.) parvistigma* (ALEX.).

### *Limonia (Goniodyneura) parvistigma* (ALEXANDER) (Figs 45, 46, 57, 58, 207)

*Libnotes parvistigma* ALEXANDER, Proc. R. Soc. Qd 32: 93 (1920).

*Limonia (Libnotes) tayloriana* ALEXANDER, Ann. Mag. nat. Hist. (10) 5: 149 (1930).

*Limonia (Goniodyneura) parvistigma* (ALEXANDER); ALEXANDER, Insects Micronesia 12: 786 (1972).

**Primary types:** Holotype ♀ of *Libnotes parvistigma* ALEXANDER: Queensland, Meringa, near Cairns, 1918, J.F. Illingworth (NMNH); seen. Holotype ♂ of *Limonia tayloriana* ALEXANDER: Queensland, Mossman, March 1927, F.H. Taylor (NMNH); seen.

**Published records:** Queensland: Meringa, nr Cairns (ALEXANDER 1920c: 94); Mossman (ALEXANDER 1930b: 150).

**Genitalia:** Male hypopygium, Figs 46, 58, 207.

**Remarks:** Not very similar to any other described Australian species. Diagnostic characters: as above, under subgenus *Goniodyneura* WULP.

**New records:** Queensland: Gordonvale (NMNH);

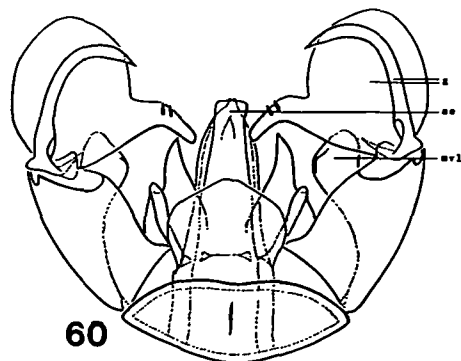
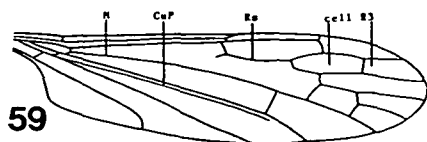
**Distribution:** Queensland (NEQ).

***Pandamyia* subgen. nov. (Figs 26, 59, 60, 208, 209)**

Type species: *Limonia nowankareena* spec. nov., by present designation.

According to ALEXANDER (1972) species of 26 subgenera of *Limonia* MEIGEN occur in the Oriental-Australasian regions. Only four of these subgenera, namely *Eurhipidia* ALEX., *Idioglochina* ALEX., *Rhipidia* MEIG., and *Zelandoglochina* ALEX., have some form of lobal branching of the flagellar segments of the antennae. Four other subgenera, namely *Dapanoptera* WEST., *Degeneromyia* ALEX., *Gressitomyia* ALEX. and *Laosa* ALEX., have supernumerary crossveins in cells R3 or R4+5. Subgenera with a combination of the above characters were unknown to ALEXANDER. In this paper, *Pandamyia* sg. n. is established for two Australian species with branched flagellar segments of the antennae and with a supernumerary crossvein in cell R3.

**Definition:** Head: mouthparts shorter than remainder of head; some flagellar segments of the male antennae strongly modified, double-branched, from heart-shaped to highly asymmetrical and with long branches. Wing (Fig. 59): not particularly narrow at base or petiolate; branches of Rs and M not strongly deflected near margin; M double-branched; vein CuP present; one additional crossvein in cell R 3. Male hypopygium (Fig. 60): meso-ventral lobe of gonocoxite (mvl) of moderate size; two pairs of gonostyli (g); proctiger and apex of aedeagus (ae) not particularly modified.



**Distribution:** Australian region. In Australia: north-eastern.

**Name:** A combination of panda (= Australian Aboriginal word for "heart") and myia (= Greek for "fly"); it refers to the shape of some flagellar segments of the male antennae.

**Species in Australia:**

*L. (P.) nowankareena* sp. n.

*L. (P.) uckillya* sp. n.

Figs 59, 60. *Limonia (Pandamyia) uckillya* sp. n.: 59: wing venation; - 60: male hypopygium, dorsal aspect. Abbreviations: ae = aedeagus; g = gonostyli; mvl = meso-ventral lobe of gonocoxite.

***Limonia (Pandamyia) nowankareena* spec. nov. (Fig. 208)**

**Description:** Head largely brownish- to blackish grey; rostrum, palps, scape and pedicel dark greyish brown, flagellum somewhat paler. Thorax greyish brown. Coxae and trochanters greyish yellow; femora from greyish yellow (at base) to greyish brown (at apex); tibiae, tarsi and claws greyish brown. Wings largely subhyaline, narrowly greyish brown along all transverse sections of longitudinal veins, along all crossveins and in pterostigma area; Rs with small spur at basal angulation. Halteres greyish brown, stem paler than knob. Abdomen largely dark greyish brown; female terminalia brown. Wing length, male 3,8-4,5 mm, female 4,7 mm.

**Genitalia:** Male hypopygium, Fig. 208.

**Remarks:** Very similar to *L. uckillya* sp. n. Diagnostic characters: small size (wing length 3,8-4,7 mm); inconspicuous leg and wing pattern; male with rostral prolongation of ventral gonostylus rather short.

**Material examined:** Holotype ♂: Queensland, 15°16'S/144°59'E, 14 km W by N of Hope Vale Mission, at light, 10.10.1980, D.H. Colless (ANIC). Paratypes: Queensland: 1 ♀, same data as holotype (ANIC); 1 ♂, 11°51'S/142°38'E, 12 km SSE Heathlands, at light, 15-26.1.1992, I. Naumann, T. Weir (ANIC); 1 ♂, 15°04'S/145°07'E, Mount Webb National Park, at light, 28.9.1980, D.H. Colless (ANIC).

**Distribution:** Queensland (CY).

**Name:** Nowankareena is an Australian Aboriginal word for "sister".

***Limonia (Pandamyia) uckillya* spec. nov. (Figs 26, 59, 60, 209)**

**Description (♂):** Head largely dark grey; rostrum and palps greyish brown; antennae greyish yellow to greyish brown. Legs largely greyish yellow; only a subapical ring in femora, apex of tibiae and of three basal tarsal segments, and all of two terminal tarsal segments and claws, blackish brown. Wings slightly suffused with yellowish- to greyish brown all over; dark patches just distal to arculus, at fork of Sc, at origin of Rs, in pterostigma area (including R1+2), at origin of R4+5, along r-m, along bscu, along proximal and distal veins of dm, in cell C distal to R2, in cell R3 distal to the additional crossvein and along end of A2; Rs with large spur at basal bend. Halteres with stem pale, knob dark greyish brown. Abdomen greyish brown, ringed with pale greyish yellow. Wing length 5,9 mm.

**Genitalia:** Hypopygium, Figs 60, 209.

Female unknown.

Remarks: Very similar to *L. nowankareena* sp. n. Diagnostic characters (male): large size (wing length 5,9 mm); conspicuous leg and wing pattern; rostral prolongation of ventral gonostylus rather long and narrow.

Material examined: Holotype ♂: Queensland, W of Highvale near Samford, 27°23'S/152°47'E, MV lamp, 19.9.1986, G. Daniels (QM).

Distribution: Queensland (SEQ).

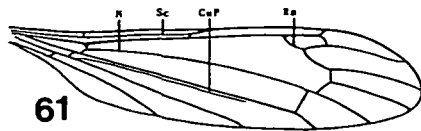
Name: Uckillya is an Australian Aboriginal word for "brother".

### Subgenus *Nealexandriaria* ALEXANDER (Figs 25, 61, 62, 210, 211)

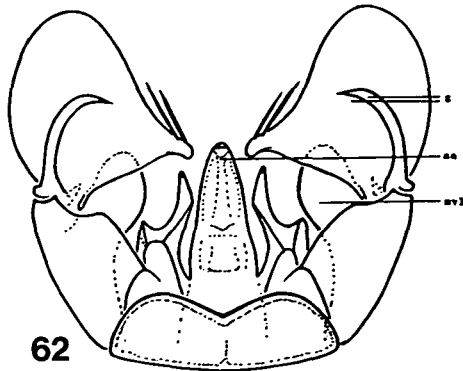
*Nealexandriaria* ALEXANDER, Philipp. J. Sci. 95: 107 (1967).

Type species: *Limonia tecta* ALEXANDER, by original designation.

OOSTERBROEK (1989) did not record species of *Limonia* (*Nealexandriaria*) from Australia. However, during this study two very small, brightly colored and previously undescribed species of *Limonia* (*Nealexandriaria*) were found in material collected in northern Australia.



61



62

Figs 61, 62. *Limonia* (*Nealexandriaria*) *milkurli* sp. n.: 61: wing venation; - 62: male hypopygium, dorsal aspect. Abbreviations: ae = aedeagus; g = gonostyli; mvl = meso-ventral lobe of gonocoxite.

Definition: Head: mouthparts shorter than remainder of head; flagellomeres of antennae not produced. Wing (Fig. 61): not particularly narrow or petiolate at base; Sc ending some distance before origin of Rs; branches of Rs and M not strongly deflected near margin; M single-branched; vein CuP present; no supernumerary crossveins. Male hypopygium (Fig. 62): meso-ventral lobe of gonocoxite (mvl) not unusually large; two pairs of gonostyli (g); ventral gonostylus differentiated into large base and short rostral prolongation, two rostral spines; proctiger and apex of aedeagus (ae) not particularly modified.

Distribution: Oriental and Australian regions. In Australia: northern.

Species in Australia:

*L. (N.) ludmilla* sp. n.

*L. (N.) milkurli* sp. n.

***Limonia (Nealexandriaria) milkurli* spec. nov. (Figs 25, 61, 62, 210)**

**Description:** Head largely pale greyish brown; rostrum pale greyish brown, palps and antennae dark greyish brown. Thorax greyish orange. Coxae and trochanters pale greyish orange; femora from greyish orange (at base) to dark greyish brown (at apex); tibiae, tarsi and claws dark greyish brown. Wings subhyaline with greyish brown mark in pterostigma area; Rs ending almost twice length of Rs before origin of Rs; Sc1 markedly longer than Sc2; Rs distinctly shorter than basal section of R4+5; M single-branched; no dm formed; bscu at or very close to fork of M. Halteres greyish brown. Abdomen pale greyish orange. Wing length, male 3,9 mm, female 3,8-4,2 mm.

**Genitalia:** Male hypopygium, Figs 62, 210.

**Remarks:** Most similar to *L. ludmilla* sp. n. Diagnostic characters: colouration (orange); rostral prolongation of ventral gonostylus (male) small, with long spines, the apex obtuse.

**Material examined:** Holotype ♂: Queensland, 12°43'S/143°17'E, 9 km ENE of Mt Tozer, 5-10.7.1986, D.H. Colless (ANIC). Paratypes: 1♂, 7♀♀, 13°44'S/143°20'E, 11 km W by N Bald Hill, McIlwraith Range, 500 m, ex yellow trays, 26.6.-13.7.1989, I.D. Naumann (ANIC); 3♀♀, 12°44'S/143°14'E, 3 km ENE of Mount Tozer, 28.6.-4.7.1986, D.H. Colless (ANIC); 1♀, 12°43'S/143°18'E, 11 km ENE of Mount Tozer, 11-16.7.1986, D.H. Colless (ANIC).

**Distribution:** Queensland (CY).

**Name:** Milkurli (= Australian Aboriginal word for "orange") refers to the unusual colouration.

***Limonia (Nealexandriaria) ludmilla* spec. nov. (Fig. 211)**

**Description (♂):** Head including rostrum, palps and antennae greyish yellow. Thorax yellowish brown. Legs greyish yellow to pale greyish brown. Wings subhyaline; Sc ending about full length of Rs before origin of Rs; Sc1 much longer than Sc2; Rs slightly arcuated, subequal in length to basal section of R4+5; M single-branched; no dm formed; bscu at or very close to fork of M. Halteres with stem brownish yellow and knob greyish yellow. Abdomen greyish yellow. Wing length 4,5-4,7 mm.

**Genitalia:** Male hypopygium, Fig. 211.

**Remarks:** Similar to *L. milkurli* sp. n.; since the material of *L. ludmilla* is preserved in alcohol it is possible that this is also a mainly orange species. Diagnostic characters (male): ventral gonostylus spherical with short conical rostral prolongation; rostral prolongation with two very short spines and with significant long apical bristles.

Material examined: Holotype ♂: Northern Territory, Darwin, Ludmilla area, sweeping mangrove, 22.3.1982, M. Malipatil (ANIC). Paratype: 1♂, same data as holotype (NTM).

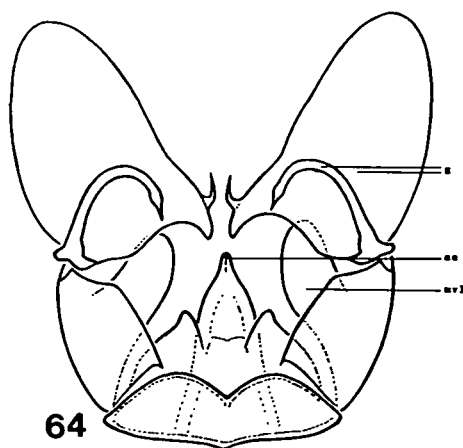
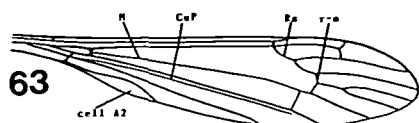
Distribution: Northern Territory (NNT).

Name: From Ludmilla area in Northern Territory; to be treated as a noun in apposition.

### Subgenus *Pseudoglochina* ALEXANDER (Figs 38, 63, 64, 212)

*Pseudoglochina* ALEXANDER, Ann. Mag. nat. Hist. (9) 12: 208 (1921) (*Libnotes* subgenus).

Type species: *Libnotes pulchripes* ALEXANDER 1920, by original designation.



Figs 63, 64. *Limonia (Pseudoglochina) pulchripes* (ALEX.): 63: wing venation; - 64: male hypopygium, dorsal aspect. Abbreviations: ae = aedeagus; g = gonostyli; mvl = meso-ventral lobe of gonocoxite.

Definition: Head: mouthparts shorter than remainder of head; flagellomeres of antennae not produced. Wing (Fig. 63): strongly narrowed and petiolate at base; cell A2 very small; Rs short, about 2-3 times as long as r-m; branches of Rs and M not strongly deflected near margin; M double-branched; cell dm open; vein CuP present; no supernumerary crossveins. Male hypopygium (Fig. 64): meso-ventral lobe of gonocoxite (mvl) of moderate size; two pairs of gonostyli (g); ventral gonostylus with rostral prolongation short and compact; proctiger and apex of aedeagus (ae) not particularly modified.

Distribution: Afrotropical, Oriental and Australian regions. In Australia: eastern, mainly north-eastern.

Only one in Australia:

*L. (P.) pulchripes* (ALEX.).

### *Limonia (Pseudoglochina) pulchripes* (ALEXANDER) (Figs 38, 63, 64, 212)

*Libnotes pulchripes* ALEXANDER, Proc.R.Soc. Qd 32: 95 (1920).

*Limonia (Pseudoglochina) pulchripes* (ALEXANDER); ALEXANDER, Can. Ent. 53: 208 (1921).

Primary type: Holotype ♂: Queensland, Gordonvale, Feb. 1918, J.F. Illingworth (NMNH); seen.

Published records: Queensland: Gordonvale (ALEXANDER 1920c: 96).

Previously known only from male.

Description of female: Structure and colouration much as described for male (ALEXANDER 1920c); cerci and hypogynial valves short and rather straight, yellowish-to greyish brown. Wing length 5,6-6,1 mm.

Genitalia: Male hypopygium, Figs 64, 212.

Remarks: Not very similar to any other described Australian species. Diagnostic characters: as above, under subgenus *Pseudoglochina* ALEX.

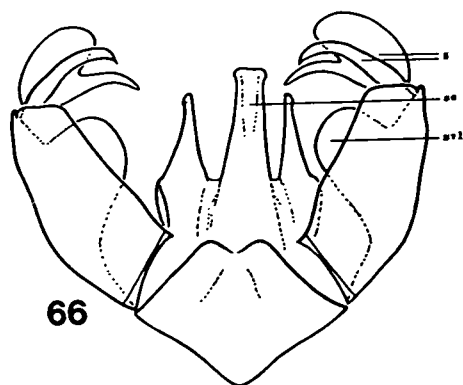
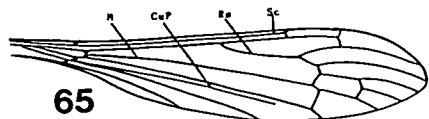
New records: Queensland: Babinda (NMNH); Badu Is. (UQ); Gap Ck, 5 km ESE Mt Finnigan (ANIC); Lamington (UQ).

Distribution: Queensland (CY, NEQ, SEQ).

### *Cygnomyia* subgen. nov. (Figs 40, 42, 65, 66, 213)

Type species: *Limonia youngoloy* sp. n., by monotypy.

*Cygnomyia* is established for a small, particularly colored and previously undescribed species. It differs from all other subgenera of *Limonia* in wing venation and structure of the male hypopygium.



Figs 65, 66. *Limonia (Cygnomyia) youngoloy* sp. n.: 65: wing venation; - 66: male hypopygium, dorsal aspect. Abbreviations: ae = aedeagus; g = gonostyli; mvl = meso-ventral lobe of gonocoxite.

Definition: Head: mouthparts shorter than remainder of head; flagellomeres of antennae not produced. Wing (Fig. 65): very narrow at base; prearcular field elongated; Sc ending about opposite 3/4 length of Rs; branches of Rs and M not strongly deflected near margin; M double-branched; vein CuP present; no supernumerary crossveins. Male hypopygium (Fig. 66): meso-ventral lobe of gonocoxite (mvl) not unusually large; two pairs of gonostyli (g); ventral gonostylus subdivided into narrow base and long thin rostral prolongation, no rostral spines; proctiger and apex of aedeagus (ae) not particularly modified.

Distribution: Australian region. In Australia: north-eastern.

Name: A combination of cygnus (= Latin for "swan") and myia (= Greek for "fly").



Only one species in Australia:

*L. (C.) youngoloy* sp. n.

***Limonia (Cygnomyia) youngoloy* spec. nov. (Figs 40, 42, 65, 66, 213)**

**Description** (♂): Head largely greyish- to blackish brown; rostrum, palps and antennae greyish brown. Toracic terga largely brown; dorsal portion of pleura greyish- to blackish brown, ventral portion whitish yellow. Coxae pale yellow; trochanters greyish yellow; metafemur from greyish yellow (at base) to greyish brown (at apex); metatibia greyish brown with apical 1/4 whitish- to pale greyish yellow; metatarsi whitish- to greyish yellow, except for terminal segment which is yellowish brown; claws dark brown; other leg segments missing. Wings hyaline; highly petiolate; Sc ending about opposite 3/4 length of Rs; Sc slightly longer than Sc2; Rs almost straight, about four times as long as basal section of R4+5; dm closed; bscu at or very close to fork of M; cell A2 very narrow; no anal angle. Halteres greyish brown. Abdominal tergites greyish brown, sternites pale yellow. Wing length 3,8-4,3 mm.

**Genitalia**: Hypopygium, Figs 42, 66, 213.

**Remarks**: Not similar to any other described Australian species. Diagnostic characters: as above, under *Cygnomyia* sg. n.

**Material examined**: Holotype ♂: Queensland: 12°44'S/143°14'E, 3 km ENE Mount Tozer, 28.6-4.7.1986, D.H. Colless (ANIC). Paratypes: Queensland: 1♂, 13°44'S/143°20'E, 11 km W by N Bald Hill, Mc Ilwraith Range, 500 m, ex yellow pans, 26.6.-13.7.1989, I.D. Naumann (ANIC); 1♂, Bellenden Ker Range, Cableway, Base Stn, 100 m, rainforest, malaise trap, 17.10.-9.11.1981, Earthwatch/Queensland Museum (UQ).

**Distribution**: Queensland (CY, NEQ).

**Name**: Youngoloy (= Australian Aboriginal word for "swan") refers to the shape of the ventral gonostylus.

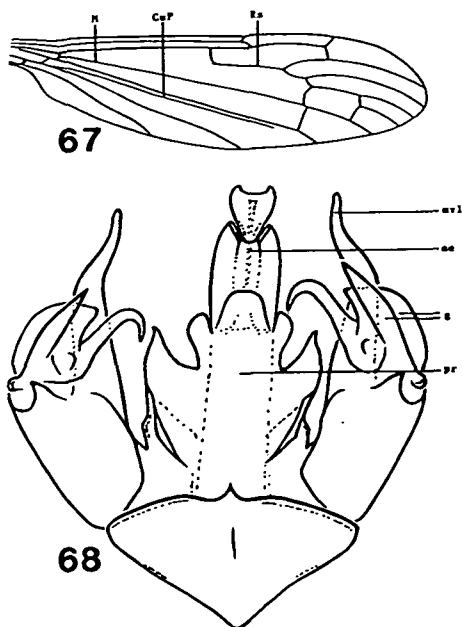
**Subgenus *Atypophthalmus* BRUNETTI (Figs 43, 67, 68, 214, 215)**

*Atypophthalmus* BRUNETTI, Rec. Indian Mus. 6: 273 (1911) (as genus).

**Type species**: *Atypophthalmus holopticus* BRUNETTI 1911 (= *Dicranomyia umbrata* DE MEIJERE 1911), by monotypy.

OOSTERBROEK (1989) recorded a single species of *Limonia (Atypophthalmus)* from Australia. However, during this study, two more species, namely *Limnobia emacerata* ALEX., listed under *Limonia (Limonia)* by OOSTERBROEK, and *Dicranomyia sedata*

ALEX., listed under *Limonia (Dicranomyia)* by OOSTERBROEK, were found to belong in *Limonia (Atypophthalmus)*.



Figs 67, 68. *Limonia (Atypophthalmus) tamborina* ALEX.: 67: wing venation; - 68: male hypopygium, dorsal aspect. Abbreviations: ae = aedeagus; g = gonostyli; mvl = meso-ventral lobe of gonocoxite; pr = proctiger.

**Definition:** Head: mouthparts shorter than remainder of head; flagellomeres of antennae not produced. Wing (Fig. 67): not particularly narrow at base or petiolate; branches of Rs and M not strongly deflected near wing margin; M double-branched; vein CuP present; no supernumerary crossveins. Male hypopygium (Fig. 68): meso-ventral lobe of gonocoxites (mvl) unusually large; two pairs of gonostyli (g); proctiger (pr) strongly modified; apex of aedeagus (ae) not particularly modified.

**Distribution:** Palaearctic, Afrotropical, Oriental and Australian regions. In Australia: eastern.

**Species in Australia:**

- L. (A.) emacerata* (ALEX.)
- L. (A.) sedata* (ALEX.)
- L. (A.) tamborina* ALEX.

### ***Limonia (Atypophthalmus) tamborina* ALEXANDER (Figs 43, 67, 68, 214)**

*Limonia (Limonia) tamborina* ALEXANDER, Ann. Mag. nat. Hist. (10) 5: 147 (1930).

*Limonia (Atypophthalmus) tamborina* ALEXANDER; ALEXANDER, Studia ent. 16: 272 (1973).

**Primary type:** Holotype ♂: Queensland, Mount Tamborine, 2000 ft, 17.6.1928, W.H. Davidson (NMNH); seen.

**Published records:** Queensland: Mt Tamborine, 2000 ft (ALEXANDER 1930b: 148).

Previously known only from male.

**Description of female:** Structure and colouration much as described for male (ALEXANDER 1930b); terminalia yellowish- to pale greyish brown; cerci short, slender and slightly curved dorsally, valves straight. Wing length 5,4-6,1 mm.

**Genitalia:** Male hypopygium, Figs 43, 68, 214.

**Remarks:** Similar to the other Australian species of the subgenus *Atypophthalmus*.  
**Diagnostic characters:** Rs strongly arcuated ("square") at base; male with apex of ventral lobe of gonocoxite slim and rather straight.

**New records:** Queensland: Camp Mt (ANIC); 5 mi. S Kenilworth (ANIC); Lamington N.P., O'Reilly's (ANIC). New South Wales: Engadine (GT); Lorien Ref., 3 km N Lansdowne, nr Taree (GT); Upper Allyn (ANIC).

**Distribution:** Queensland (SEQ), New South Wales (NEN, SEN).

***Limonia (Atypophthalmus) emacerata* (ALEXANDER) (Fig. 215)**

*Limnobia emacerata* ALEXANDER, Ann. Mag. nat. Hist. (9) 8: 550 (1921).

*Limonia (Limonia) emacerata* (ALEXANDER); ALEXANDER, Studia ent. 20: 123 (1978).

**Primary type:** Holotype ♂: Queensland, Gordonvale, Cairns District, Feb. 1921, A.P. Dodd (NMNH); seen.

**Published records:** Queensland: Gordonvale, Cairns Dist. (ALEXANDER 1921d: 551).  
Known only from male.

**Genitalia:** Hypopygium, Fig. 215.

**Remarks:** Similar to *L. sedata* (ALEX.) and *L. tamborina* ALEX. Diagnostic characters (male): Rs slightly and evenly arcuated; apex of ventral lobe of gonocoxite strongly bent.

**New records:** Queensland: 11 km W by N Bald Hill, McIlwraith Range, 500 m (ANIC).

**Distribution:** Queensland (CY, NEQ).

***Limonia (Atypophthalmus) sedata* (ALEXANDER)**

*Dicranomyia sedata* ALEXANDER, Rec. South Aust. Mus. 2: 230 (1922).

*Limonia (Dicranomyia) sedata* (ALEXANDER); OOSTERBROEK & JONAS, Catalogue of the Australian-Oceanian Tipulidae (Insecta, Diptera): 67 (1986).

**Primary type:** Holotype ♂: Queensland, Cairns district, A.M. Lea (NMNH).

**Published records:** Queensland: Cairns district (ALEXANDER 1922a: 231). Known only from male.

**Original Description:** Length about 5,5 mm; wing 5,4 mm. Rostrum brown; palps brown. Antennae dark brown (flagellum broken). Head grey. Mesonotum brown (injured by the pin). Pleura obscure yellow with a conspicuous but narrow dark brown longitudinal stripe. Legs long and slender; coxae and trochanters brownish yellow; femora brownish testaceous, the tips narrowly darkened; remainder of legs light brown. Wings light grey, cell Sc a little more brownish; stigma short-oval, dark brown;

paler brown clouds at the origin of Rs; tip of Sc1; along the cord and outer end of cell first M2; veins brown. Venation: Sc long, Sc1 ending about opposite 3/5 Rs, Sc2 at the tip of Sc1; Rs long, strongly arcuated at the origin; r at the tip of R1; cell first M2 closed, pentagonal; m about 1/2 the outer deflection of M3; basal deflection of Cu1 immediately before the fork of M; Cu2 and the basal deflection of Cu1 subequal. Halteres light brown. Abdomen dark brown, the bases of the tergites indistinctly pale; sternites with the apical half of each segment brown, the basal half yellowish. Male hypopygium comparatively large, complicated; pleurites large, subglobular, the inner face before apex produced into a complex fleshy lobe; appendages very small and inconspicuous. Gonapophyses complicated, arranged in two pairs, the outer pair shorter, finely transversely wrinkled, terminating in a small conical tooth; inner apophyse longer, appearing as pale flattened blades, each with a small tooth on the outer margin beyond midlength.

**Remarks:** Apparently similar to the other two Australian species of the subgenus *Atypophthalmus*. Diagnostic characters (male): Rs strongly arcuated near base; ventral lobe of gonocoxite complex and fleshy.

**New records:** None.

**Distribution:** Queensland (NEQ); known only from type locality.

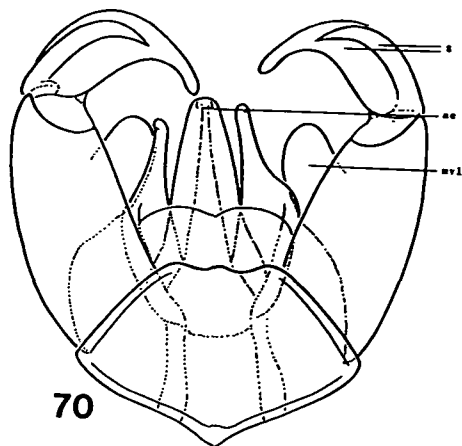
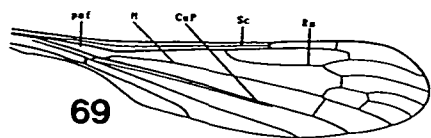
### ***Nesciomyia* subgen. nov. (Figs 36, 39, 69, 70, 216)**

**Type species:** *Limonia durroon* sp. n., by monotypy.

*Nesciomyia* is established for a large, colourful and previously undescribed species with particular wing shape and structure of the male hypopygium.

**Definition:** Head: mouthparts shorter than remainder of head; flagellomeres of antennae not produced. Wing (Fig. 69): extremely petiolate; prearcular field (paf) extremely long; Sc ending about opposite to 1/2 length of Rs; branches of Rs and M not strongly deflected near margin; M double-branched; vein CuP present; no supernumerary crossveins. Male hypopygium (Fig. 70): meso-ventral lobe of gonocoxite (mvl) not unusually large; two pairs of gonostyli (g); ventral gonostylus very simple, without differentiation into base and rostral prolongation and without any rostral spines; proctiger and apex of aedeagus (ae) not particularly modified.

**Distribution:** Australian region. In Australia: north-eastern.



Figs 69, 70: *Limonia (Nesciomyia) durroon* sp. n.: 69: wing venation; - 70: male hypopygium, dorsal aspect. Abbreviations: ae = aedeagus; g = gonostyli; mvl = meso-ventral lobe of gonocoxite.

**Name:** A combination of nescio (= Latin for "I don't know") and myia (= Greek for "fly").

Only one species in Australia:

*L. (N.) durroon* sp. n.

***Limonia (Nesciomyia) durroon* spec. nov.**  
(Figs 36, 39, 69, 70, 216)

**Description (♂):** Head largely pale orange, including rostrum; palps, scape, pedicel and area around antennal base dark greyish brown; flagellum greyish yellow. Thoracic terga largely pale orange, pleura pale yellow. Coxae and trochanters pale yellow; femora greyish yellow to pale orange with distal 1/6 to 1/5 dark greyish brown and significantly enlarged,

particularly in foreleg; tibiae greyish yellow to pale orange, only extreme base greyish brown; tarsi dark yellow to pale orange. Veins of wings largely greyish yellow to pale greyish brown; costa from R2 to wing apex, distal end of radial and medial veins, transverse sections of longitudinal veins and crossveins blackish brown; membrane suffused with reddish- to greyish brown; costal cell distal of R2, and along the darkened veins or sections of veins, dark greyish brown. Halteres with pale orange stem and yellow knob. Abdomen pale yellow to pale orange. Wing length 7,2 mm.

**Genitalia:** Hypopygium, Figs 36, 70, 216.

Female unknown.

**Remarks:** Not very similar to any other described Australian species. Diagnostic characters: as above, under *Nesciomyia* subgen. nov.

**Material examined:** Holotype ♂: Queensland, Cape Tribulation, Earthwatch Australia (ANIC).

**Distribution:** Queensland (NEQ); known only from Daintree rainforest.

**Name:** Durroon is an Australian Aboriginal word for "crane".

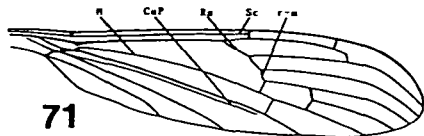
**Subgenus *Neolibnotes* ALEXANDER (Figs 7, 71, 72, 217, 218)**

*Neolibnotes* ALEXANDER, Insects Micronesia 12: 816 (1972).

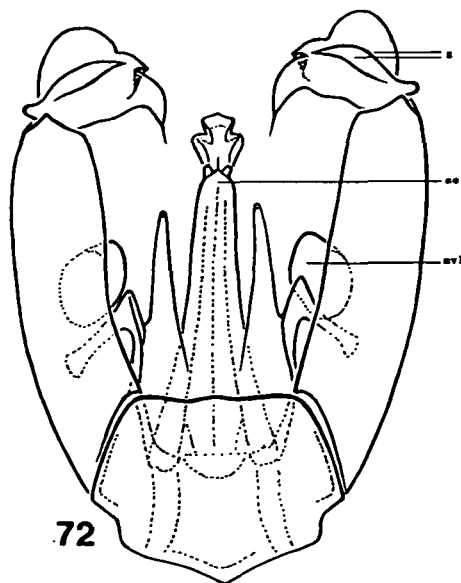
Type species: *Libnotes samoensis* ALEXANDER 1921, by original designation.

Two species from Australia, *L. obliqua* (ALEX.) and *L. subaequalis* (ALEX.), were listed by OOSTERBROEK (1989) under subgenus *Neolibnotes* ALEX.

Definition: Head: mouthparts shorter than remainder of head; antennae with



71



72

Figs 71, 72. *Limonia (Neolibnotes) obliqua* (ALEX.): 71: wing venation; - 72: male hypopygium, dorsal aspect. Abbreviations: ae = aedeagus; g = gonostyli; mvl = meso-ventral lobe of gonocoxite.

flagellomeres not produced. Wings (Fig. 71): not particularly narrow at base or petiolate; Sc ending from opposite to origin to just beyond fork of Rs; Rs not much longer than r-m; some branches of Rs and M strongly deflected near margin; M double-branched; vein CuP present; no supernumerary crossveins. Male hypopygium (Fig. 72): meso-ventral lobe of gonocoxite (mvl) rather small; two pairs of gonostyli (g); proctiger not particularly modified; apex of aedeagus (ae) strongly modified, crown-shaped.

Distribution: Australian region. In Australia: north-eastern.

Species in Australia:

*L. (N.) obliqua* (ALEX.)

*L. (N.) subaequalis* (ALEX.).

***Limonia (Neolibnotes) obliqua* (ALEXANDER) (Figs 37, 71, 72, 217a, 218)**

*Libnotes obliqua* ALEXANDER, Rec. S. Aust. Mus. 2: 232 (1922).

*Limonia (Libnotes) obliqua* (ALEXANDER); ALEXANDER, Proc. Linn. Soc. N.S.W. 60: 60, 61 (1935).

*Limonia (Neolibnotes) obliqua* (ALEXANDER); ALEXANDER, Insects Micronesia 12: 816 (1972).

Primary type: Holotype ♀: Queensland, Cairns district, A.M. Lea (SAM); not seen.

Published records for Australia: Queensland: Cairns dist. (ALEXANDER 1922a: 233).

**Genitalia:** Male hypopygium, Figs 72, 218.

**Remarks:** Similar to *L. subaequalis* (ALEX.). Diagnostic characters: elements of cord oblique, Rs either distinctly longer or lying more proximal than other elements (Fig. 217a).

**New records:** Queensland: Bartle Frere track, 200 m (GT); The Boulders, Babinda (ANIC); Gap Ck, 5 km ESE Mt Finnigan (ANIC); Eungella, via Mackay (NMNH); Fisher Ck, Palmerston Hwy (ANIC); Kuranda Ra. S. F. (ANIC); Mossman Gorge (ANIC); 9 km ENE of Mt Tozer (ANIC); Upper Mulgrave R., 10 mi. Goldsborough (ANIC).

**Distribution:** Papua New Guinea, Australia. In Australia: Queensland (CY, NEQ).

***Limonia (Neolibnotes) subaequalis* (ALEXANDER) (Fig. 217b)**

*Libnotes subaequalis* ALEXANDER, Ann. Mag. nat. Hist. (9) 8: 554 (1921).

*Limonia (Libnotes) subaequalis* (ALEXANDER); ALEXANDER, Proc. Linn. Soc. N.S.W. 60: 60, 61 (1935).

*Limonia (Neolibnotes) subaequalis* (ALEXANDER); ALEXANDER, Insects Micronesia 12: 816 (1972).

**Primary type:** Holotype ♂: Queensland, Green hills near Cairns, 7.12.1920, J.F. Illingworth (NMNH); seen.

**Published records:** Queensland: Green hills nr Cairns (ALEXANDER 1921d: 555).  
Known only from male.

**Original Description:** Length 8 mm, wing 9 mm. Rostrum and palpi brown. Antennae dark brown. Head dark brown, narrowly yellowish silvery adjoining the margin of the eyes. Pronotum yellow, dark brown medially. Mesonotal praescutum with a narrow brown median stripe, the lateral margins broadly obscure yellow; remainder of mesonotum sunshiny yellowish brown. Pleura reddish yellow. Legs with the coxae and trochanters testaceous; femora brownish testaceous, passing into a darker subterminal ring, the apices narrowly obscure yellow; tibiae and tarsi brown, the terminal segments of the latter darker. Wings greyish yellow, cells C, Sc, 1st Sc1, 2nd Sc1, 1st R1, and along vein Cu strongly yellowish; stigma and a seam along the supernumerary crossvein in cell Sc1 strongly seamed with brown; an indistinct and narrow infuscation along cord; veins brown. Venation: Sc short, Sc1 extending to just beyond the fork of Rs, Sc2 a short distance from tip of Sc1, beyond the origin of Rs; a supernumerary crossvein in cell Sc1 more than its length before r; the veins forming the cord (Rs, deflection of R4+5, r-m, and deflection of M1+2) all subequal in length; veins R2+3 and R4+5 both turned strongly caudad beyond two-thirds their length; cell

1st M2 elongate, subrectangular; m about one-half longer than deflection of M2; basal deflection of Cu1 before midlength of cell 1st M2. Halteres yellow, the knobs dark brown. Abdominal tergites indistinctly bicolorous, the basal half of each segment dark brown, the broad caudal margin obscure yellow; sternites obscure brownish yellow.

**Remarks:** Similar to *L. obliqua* (ALEX.). Diagnostic characters: all elements of cord subequal in length and lying subtransverse to the length axis of the wing (Fig. 217b).

**New records:** None.

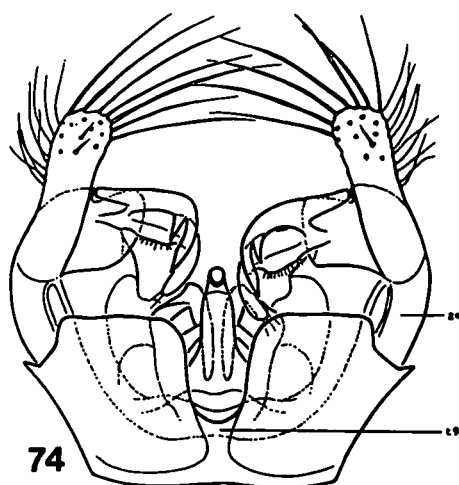
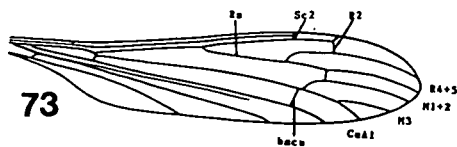
**Distribution:** Queensland (NEQ).

### Genus *Tonnoiromyia* ALEXANDER (Figs 73, 74, 219-221)

*Tonnoiromyia* ALEXANDER, Ann. Mag. nat. Hist. (9) 18: 190 (1926).

**Type species:** *Tonnoiromyia tasmaniensis* ALEXANDER 1926, by monotypy.

ALEXANDER (1926) established *Tonnoiromyia* on the basis of a single species, *tasmaniensis*, from Tasmania. *T. tasmaniensis* ALEX. was later also found in Victoria (ALEXANDER 1944). A second species of *Tonnoiromyia* was described from New South Wales (ALEXANDER 1933b). The present study resulted in the discovery of a third species of *Tonnoiromyia* in south-eastern Queensland and New South Wales.



Figs 73, 74. *Tonnoiromyia tasmaniensis* ALEX.: 73: wing venation; - 74: male hypopygium dorsal aspect. Abbreviations: ge = gonocoxite; t9 = tergite 9.

**Definition:** Front of head only slightly produced; antennae 15 or 16 segmented. Wing (Fig. 73): Sc2 clearly evident; R2 present; Rs aligned with R4+5; discoidal cell open; m-m absent; M3 partly fused with CuA1; bscu close to the fork of M; anal angle very wide. Male hypopygium (Fig. 74): tergite 9 (t9) bilobed; dorsal lobe of gonocoxite (ge) prominent.

**Habitat of larvae:** Without having any real knowledge, ALEXANDER (1931c) considers two types of habitats as possibly suitable for *Tonnoiromyia*. They are: a) on vertical faces of cliffs or rocks, in or beneath a scum of algal growth, with percolating or trickling water; hygropetric, in rapid flowing streams, coming to dryer



places to pupate; b) in or beneath wet to saturated mats or cushions of mosses and liver-worts, growing on earth or rocks, generally near streams.

**Distribution:** Neotropical and Australian regions. In Australia: south-eastern.

**Species in Australia:**

*T. montina* ALEX.

*T. tasmaniensis* ALEX.

*T. undoolya* sp. n.

***Tonnoiromyia tasmaniensis* ALEXANDER (Figs 73, 74, 219)**

*Tonnoiromyia tasmaniensis* ALEXANDER, Ann. Mag. nat. Hist. (9) 17: 192 (1926).

**Primary type:** Holotype ♂: Tasmania, Eaglehawk Neck, Tasman Peninsula, 23.11.1922, A. Tonnoir (ANIC); seen.

**Published records:** Victoria: mts above Warburton, 3000-3800 ft (ALEXANDER 1944: 6). Tasmania: Burnie; Eaglehawk Neck; National Park; Wilmot (all ALEXANDER 1926: 193).

**Previous illustrations:** ALEXANDER 1926: Fig. 11 (wing); Fig. 12 (antennal flagellum, female); Fig. 13 (antennal flagellum, male); Fig. 14 (claw, female); Fig. 15 (male hypopygium); Fig. 16 (gonapophyses and aedeagus). ALEXANDER 1927c: Fig. 68 (wing).

**Genitalia:** Male hypopygium, Figs 74, 219.

**Remarks:** Most similar to *T. montina* ALEX. Diagnostic characters: large size (wing length 7-8 mm); tergite 9 of male with rather narrow U-shaped median notch; male with dorsal lobe of gonocoxite prominent.

**New records:** New South Wales: cks nr Geehi Res. (GT); Pretty Point Ck (ANIC); N of Schlink Pass, 1500 m (GT). Victoria: Alfred N.P. (ANIC); Buller, White Bridge (GT); Cement Ck, 1800 ft (ANIC); Donna Buang Mt, 2300 ft (ANIC); Mt Baw Baw, 3600 ft (ANIC); Mt Baw Baw, 4400 ft (ANIC); Mt Donna Buang (GT); 10 mi. S of Narbetong, Acheron R. (ANIC); Toorong Falls (ANIC). Tasmania: nr Merakoopa Cave (MV).

**Distribution:** New South Wales (SEN), Victoria, Tasmania.

***Tonnoiromyia montina* ALEXANDER (Fig. 220)**

*Tonnoiromyia montina* ALEXANDER, Ann. Mag. nat. Hist. (10) 12: 349 (1933).

**Primary type:** Holotype ♂: New South Wales, Wentworth Falls, Blue Mountains, 20-30.10.1930, F.E. Wilson (MV); seen.

**Published records:** New South Wales: Mt Tomah, Blue Mts; Wentworth Falls, Blue Mts (both ALEXANDER 1933b: 350).

**Genitalia:** Male hypopygium, Fig. 220.

**Remarks:** Very similar to both *T. tasmaniensis* ALEX. and *T. undoolya* sp. n. **Diagnostic characters:** medium size (wing length 5-7 mm); tergite 9 of male with wide and shallow, V-shaped median excision; male with dorsal lobe of gonocoxite produced but not prominent.

**New records:** New South Wales: Bulli (GT).

**Distribution:** New South Wales (SEN).

***Tonnoiromyia undoolya* spec. nov. (Fig. 221)**

**Description (♂):** Head, including rostrum, palps and antennae dark greyish brown. Thoracic terga greyish brown; dorsal portion of pleura greyish brown, ventral portion greyish yellow. Coxae and trochanters greyish yellow; femora from pale greyish brown (at base) to dark greyish brown (at apex); tibiae and basitarsi dark greyish brown, remaining tarsal segments yellowish- to greyish white; claws brown. Wings hyaline, with grey oval longitudinal mark in pterostigma area. Halteres largely greyish brown, base of stem somewhat paler. Abdomen rather uniformly greyish brown. Wing length 4,1-4,3 mm.

**Genitalia:** Hypopygium, Fig. 221.

Female unknown.

**Remarks:** Most similar to *T. montina* ALEX. **Diagnostic characters (male):** small size (wing length 4,1-4,3 mm); tergite 9 of male with very wide and deep, V-shaped median excision; male with dorsal lobe of gonocoxite not produced.

**Material examined:** Holotype ♂: New South Wales, Fitzroy Falls, nr Mittagong, Aug. 1965, D. Duckhouse (MV). Paratypes: Queensland: 1♂, Twin Falls, E of Warwick, Aug. 1965, D. Duckhouse (MV). New South Wales: 1♂, same data as holotype (MV); 1♂, Macquarie Pass, 13.10.1986, G. Theischinger and L. Muller (GT).

**Distribution:** Queensland (SEQ), New South Wales (SEN).

**Name:** Undoolya is an Australian Aboriginal word for "shadow".

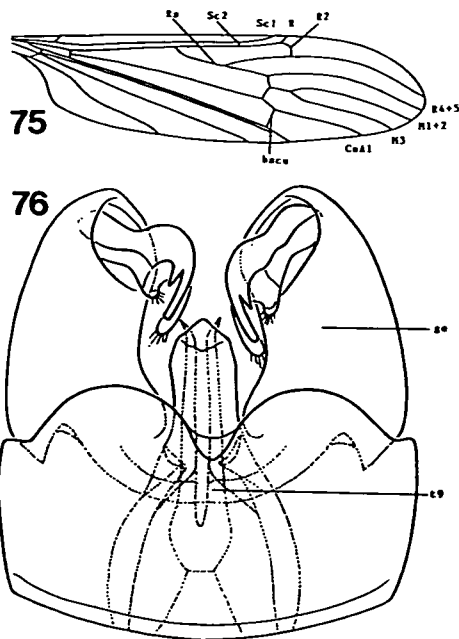
***Collessophila* gen. nov. (Figs 75, 76, 222)**

**Type species:** *Collessophila chookachooka* sp. n., by monotypy.

*Collessophila* is established in order to accommodate a new species close to but distinct from *Tonnoiromyia* ALEXANDER.

**Definition:** Front of head only slightly produced; antennae 16 segmented. Wing (Fig. 75): Sc1 almost as long as R; Sc2 clearly evident; R2 present; Rs aligned with

R4+5; discoidal cell open; M3 not fused with CuA1; bscu close to the fork of M; anal angle widely rounded. Male hypopygium (Fig. 76): tergite 9 (t9) bilobed; dorsal lobe of gonocoxite (ge) not prominent.



Figs 75, 76. *Collessophila chookachooka* sp. n.: 75: wing venation; - 76: male hypopygium, dorsal aspect. Abbreviations: ge = gonocoxite; t9 = tergite 9.

(near apex), the apex itself markedly more darkened; tibiae, tarsi and claws greyish brown. Wings hyaline, only a square brownish grey mark in pterostigma area. Halteres greyish brown, stem paler than knob. Abdomen pale to dark greyish brown; posterior and lateral portions of tergites 3-7 appearing darker than anteromedial portion; sternites more uniformly greyish brown. Wing length, male 7,0 mm, female 7,4-7,8 mm.

**Genitalia:** Male hypopygium, Figs 76, 222.

**Remarks:** Wing venation quite distinct from any other described Australian crane-fly, male hypopygium similar to the species of *Tonnoiromyia* ALEX. Diagnostic characters: as above, under genus *Collessophila*.

**Material examined:** Holotype ♂: Queensland, Moses Creek, 4 km N by E of Mount Finnigan, 15.10.1980, D.H. Colless (ANIC). Paratypes: Queensland: 2 ♀, same data as holotype (ANIC); 1 ♀, type locality, 16.10.1980, D.H. Colless (GT).

**Distribution:** Queensland (CY).

**Name:** Chookachooka is an Australian Aboriginal word for "dream".

**Distribution:** Australian region. In Australia: north-eastern.

**Name:** Dedicated to Dr D.H. Colless, former curator of Diptera in the ANIC, who collected all available specimens.

Only one species in Australia:

*C. chookachooka* sp. n.

*Collessophila chookachooka* spec. nov.  
(Figs 75, 76, 222)

**Description:** Head largely greyish yellow to greyish brown; rostrum, palps and antennae greyish brown. Thorax yellowish- to greyish brown, pleura slightly paler than terga. Coxae and trochanters greyish yellow; femora from greyish yellow (at base) to greyish brown

**Genus *Atarba* OSTEN-SACKEN (Figs 77-85, 223-244)**

*Atarba* OSTEN-SACKEN, *Smithson. misc. Collns* 8 (219): 127 (1869).

Type species: *Atarba picticornis* OSTEN-SACKEN 1869, by monotypy.

The genus *Atarba* OSTEN-SACKEN was included by OOSTERBROEK & JONAS (1986) and OOSTERBROEK (1989) and by most earlier authors in Hexatomini. By placing *Atarba* in Eriopterini, I follow STARY (1992) who, however, considers the Eriopterini as a subfamily (= Eriopterinae) of the family Limoniidae.

Habitat of larvae: According to ALEXANDER (1967) the immature stages of *Atarba* are found in decaying wood.

Distribution: All zoogeographic regions.

Only one subgenus in Australia:

*Ischnothrix* BIGOT.

**Subgenus *Ischnothrix* BIGOT (Figs 77-85, 223-244)**

*Lachnocera* PHILIPPI, *Verh. zool.-bot. Ges. Wien* 15: 615 (1865).

*Ischnothrix* BIGOT, *Minist. Marin. Instruct. Publique, Mission Scient. Cap Horn, 1882-1883, 6 (Zool.), 2me Part: Insectes. Gauthiere-Villers et Fils, Paris: 7 (1887)*. (In the interest of stability and in accordance with usage OOSTERBROEK (1989) adopted the name *Ischnothrix*, whereas *Lachnocera* is the correct name under the I.C.Z.N. Code.)

*Oromyia* ALEXANDER, *J.N.Y. ent. Soc.* 21: 203 (1913).

*Orolimnophila* ALEXANDER, *Ent. News* 32: 178 (1921) (unnecessary new name for *Oromyia*).

Type species of *Lachnocera* PHILIPPI: *Lachnocera delicatula* PHILIPPI, 1865, by monotypy. Type species of *Ischnothrix* BIGOT: *Ischnothrix aetherea* BIGOT 1887, by monotypy. Type species of *Oromyia* ALEXANDER: *Oromyia lloydi* ALEXANDER 1913, by original designation.

Six species and one subspecies of *Atarba* (*Ischnothrix*) from Australia were listed by OOSTERBROEK (1989). Two of them had been described by SKUSE (1890), the others by ALEXANDER (1922a, 1929b, 1931d, 1944). In this paper, *A. verticalis fuscomacula* ALEXANDER is regarded as a synonym of typical *A. verticalis* ALEXANDER. In addition, six species are described as new.

Definition: Front of head only slightly produced; antennae 16 segmented, those of male very long (from about as long as wing to more than 3 times wing length).

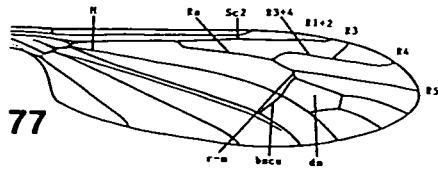


Fig. 77. *Atarba (Ischnothrix) australasiae* (SKUSE), wing venation.

Middle and hind coxae widely separated, the meron larger than the midcoxa, producing a pot-bellied appearance; setae of legs simple. Wing (Fig. 77): Sc2 between origin and fork of Rs; Rs ending in cell R4; R2 absent, and 3 branches of Rs reaching the margin; R1+2 and free anterior branch of Rs (= R3) ending well beyond 2/3 wing length; R3+4 at least as long as R4; R5 and anterior branch of M slightly diverging towards margin; basal section of R5 aligned more closely with Rs

than with r-m; r-m rather short; bscu at or very close to fork of M; cell dm closed.

**Distribution:** Australian and Neotropical regions. In Australia: eastern, southwestern.

**Species groups in Australia:**

*A. (I.) australasiae* group

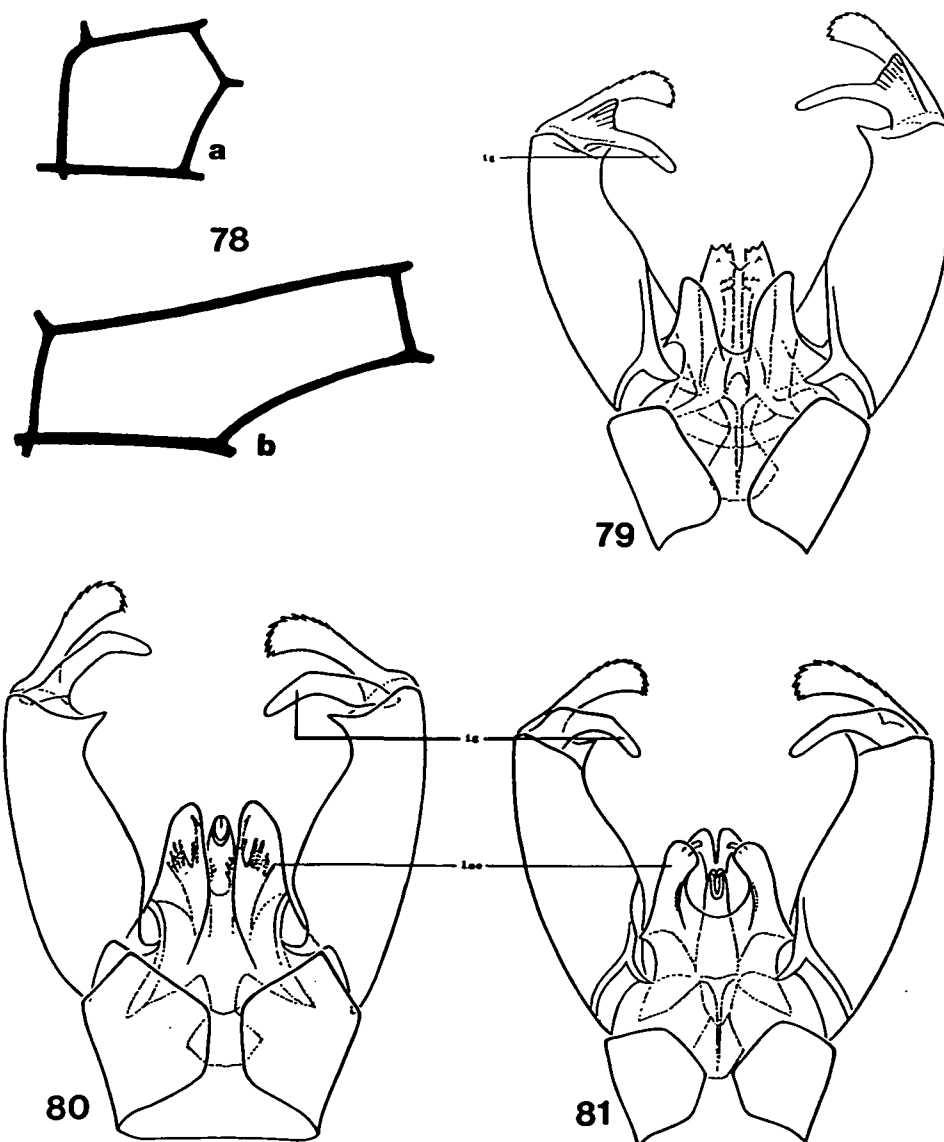
*A. (I.) generosa* group

*A. (I.) iyouta* group

*A. (I.) lawsonensis* group.

### Key to the species groups of *Atarba (Ischnothrix)* in Australia (Figs 78-81)

1. Wings hyaline, without any dark pattern; dm very short (Fig. 78a) ..... *A. (I.) generosa* group
- Wings with heavy dark pattern; dm of normal shape (Fig. 78b) ..... 2
- 2 (1). Inner gonostylus (ig) with basal lobe (Fig. 79) ..... *A. (I.) iyouta* group
- Inner gonostylus (ig) without basal lobe (Figs 80, 81) ..... 3
- 3 (2). Inner gonostylus (ig) evenly arched; lateral elements of aedeagal complex (lae) straight (Fig. 80) ..... *A. (I.) australasiae* group
- Inner gonostylus (ig) distinctly bent, boomerang-like; lateral elements of aedeagal complex (lae) convergent (Fig. 81) ..... *A. (I.) lawsonensis* group



Figs 78-81. Cell dm and male hypopygium, dorsal aspect of *Atarba* (*Ischnothrix*) species: 78a: *generosa* (ALEX.); - 78b, 80: *australasiae* (SKUSE); - 79: *iyouta* sp. n.; - 81: *lawsonensis* (SKUSE). Abbreviations: ig = innergonostylus; lae = lateral elements of aedeagal complex.

***Atarba* (*Ischnothrix*) *australasiae* group (Figs 78b, 80, 82, 223-228)**

**Definition:** Wing with heavy dark pattern; dm of normal shape (Fig. 78b). Male hypopygium (Fig. 82): inner gonostylus (ig) without basal lobe, evenly arched; lateral elements of aedeagal complex (lae) almost straight.

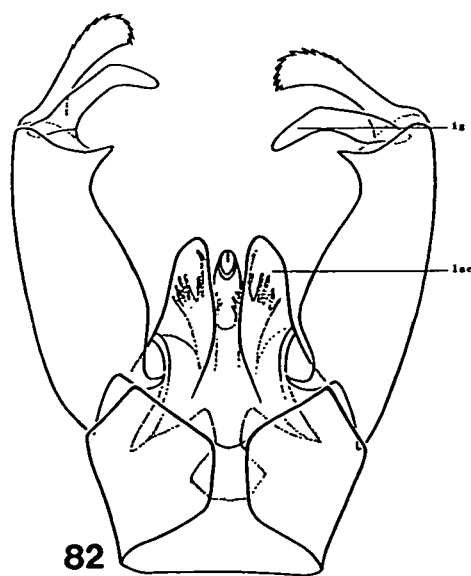


Fig. 82. *Atarba (Ischnothrix) australasiae* (SKUSE), male hypopygium, dorsal aspect. Abbreviations: ig = inner gonostylus; lae = lateral elements of aedeagal complex.

Distribution in Australia: South-eastern and south-western.

Species in Australia:

*A. (I.) augusta* sp. n.

*A. (I.) australasiae* (SKUSE)

*A. (I.) grampiana* (ALEX.)

*A. (I.) mathewsi* (ALEX.).

***Atarba (Ischnothrix) australasiae* (SKUSE)  
(Figs 78b, 80, 82, 223, 224)**

*Limnophila australasiae* SKUSE, Proc. Linn. Soc. N.S.W. 4: 858 (1890).

*Ischnothrix australasiae* (SKUSE); ALEXANDER, Proc. Linn. Soc. N.S.W. 52: 52 (1927).

*Atarba (Ischnothrix) australasiae* (SKUSE); OOSTERBROEK & JONAS, Catalogue of the Australian-Oceanian Tipulidae (Insecta, Diptera): 95 (1986).

**Primary type:** Lectotype ♂, by present designation, of *Limnophila australasiae* SKUSE: New South Wales, Knapsack Gully, Blue Mountains, Masters and Skuse (ANIC); seen; additionally labelled "Lectotype ♂ *Limnophila australasiae* SKUSE, designated by G. Theischinger 1994".

**Published records:** New South Wales: Knapsack Gully, Blue Mts; Woronora (both SKUSE 1890: 859). Western Australia: King George's Sound (SKUSE 1890: 859). The record from Western Australia is probably due to a misidentification.

**Previous illustrations:** SKUSE 1890: Pl. XXIII, fig. 29 (wing); Pl. XXIV, fig. 64 (male hypopygium). ALEXANDER 1927a: Fig. 22 (wing).

**Genitalia:** Male hypopygium, Figs 80, 82, 223, 224.

**Remarks:** Not very similar to any other described Australian species. Diagnostic characters (male): inner gonostylus hardly angulated, basally not enlarged; aedeagal complex including many-branched ventral structure. There is, however, remarkable geographical variation, even in genitalic features.

New records: Queensland: Samford Valley (NMNH). New South Wales: Bawley Point (ANIC); Black Mtn, A.C.T. (ANIC); Boyd R. (GT); Bockenbowra R., 14 km W Batemans Bay (GT); Charleyong (ANIC); Kanangra Boyd (GT); Macquarie Pass (ANIC, GT); Macquarie Rivulet (GT); Mt Dromedary (GT); Stoney Ck, 77 km N of Windsor (ANIC); Wollombi Ck, Basin (GT). Lord Howe Island: no other data (ANIC). Tasmania: Claytons, Bathurst Harbour (ANIC); Corinna (GT); Eaglehawk Neck (ANIC); Patons Rd, S of Lemonthyme (GT); Scotts Peak Dam Rd, Clear Ck (GT); Strahan (GT).

Distribution: Queensland (SEQ), New South Wales (NEN, SEN), Lord Howe Island, Tasmania.

*Atarba (Ischnothrix) augusta* spec. nov. (Figs 225, 226)

Description: Head largely grey; rostrum and palps greyish brown; antennae yellowish- to greyish brown; antennae of male slightly longer than wing. Thoracic terga largely greyish brown; prescutum striped with darker, and blackish brown along lateral margins; pleura greyish brown with indistinct and incomplete blackish brown diagonal stripes. Coxae greyish yellow to pale greyish brown; trochanters greyish yellow; femora greyish yellow to pale greyish brown, indistinctly paler before and beyond a black subapical ring; tibiae pale greyish brown with apex slightly darkened; tarsi and claws dark greyish brown. Wings whitish- to greyish subhyaline with small and indistinct grey patches at vein forks and intersections, along crossveins, at the end of longitudinal veins and in most cells. Halteres largely grey, knob with markedly darker spot. Abdomen largely greyish brown; terminalia brownish yellow. Wing length, male 5,7-6,8 mm, female 5,8-7,3 mm.

Genitalia: Male hypopygium, Figs 225, 226.

Remarks: Not very similar to any other described Australian species. Diagnostic characters (male): aedeagal complex with long prominent paddle-shaped dorsal structure and vestigial spiny ventral structure.

Material examined: Holotype ♂: Western Australia, Augusta, 7.10.1965, N. Dobrotworsky (ANIC). Paratypes: Western Australia: 5♂♂, 5♀♀, same data as holotype (ANIC); 2♂♂, 11 mi. SW Collie, 4-5.10.1964, G.L. Bush (ANIC); 2♂♂, Denmark, 11.10.1965, N. Dobrotworsky (ANIC); 1♂, 1♀, Mt Chudalup, S of Northcliffe, 6.10.1970, D.H. Colless (ANIC); 1♂, 3♀♀, Nunnup, 8.10.1965, N. Dobrotworsky (ANIC); 1♂, Pimelia, near Pemberton, 5.10.1970, D.H. Colless (ANIC); 2♂♂, Rest Point, Walpole, 9.10.1970, D.H. Colless (ANIC); 1♂, 3♀♀, Thomas River estuary, Esperance District, 4.11.1977, D.H. Colless (ANIC); 1♂, 1♀, Valley of Giants, Nornalup, 8.10.1970, D.H. Colless (ANIC).

Distribution: Western Australia (SWA).

Name: From Augusta, the type locality; to be regarded as a noun in apposition.



***Atarba (Ischnothrix) mathewsi* (ALEXANDER) (Figs 227, 228)**

*Ischnothrix (Ischnothrix) mathewsi* ALEXANDER, Ann. Mag. nat. Hist. (10) 8: 157 (1931).

*Atarba (Ischnothrix) mathewsi* (ALEXANDER); OOSTERBROEK & JONAS, Catalogue of the Australian-Oceanian Tipulidae (Insecta, Diptera): 95 (1986).

Primary type: Holotype ♂: Western Australia, Perth, 4.5.1927, W.H. Mathews (NMNH); seen.

Published records: Western Australia: Perth (ALEXANDER 1931d: 158).

Previously known only from male.

Description of female: Structure and colouration much as described for male (ALEXANDER 1931d). Wing length 6,4-7,2 mm.

Genitalia: Male hypopygium, Figs 227, 228.

Remarks: Not very similar to any other described species. Diagnostic characters (male): a long slender double-pointed structure each side of the aedeagal complex.

New records: Western Australia: Augusta (ANIC); Cape Le Grand (ANIC); 33 E of Esperance (ANIC); Gingin (ANIC).

Distribution: Western Australia (SWA).

***Atarba (Ischnothrix) grampiana* (ALEXANDER)**

*Ischnothrix (Ischnothrix) grampiana* ALEXANDER, Ann. Mag. nat. Hist. (10) 8: 155 (1931).

*Atarba (Ischnothrix) grampiana* (ALEXANDER); OOSTERBROEK & JONAS, Catalogue of the Australian-Oceanian Tipulidae (Insecta, Diptera): 95 (1986).

Primary type: Holotype ♀: Victoria, Grampians, Silver Band Falls, in fern-gully, Oct. 1928, F.E. Wilson (MV); seen.

Published records: Victoria: Grampians, Silver Band Falls; Grampians (both ALEXANDER 1931d: 157). Known only from female.

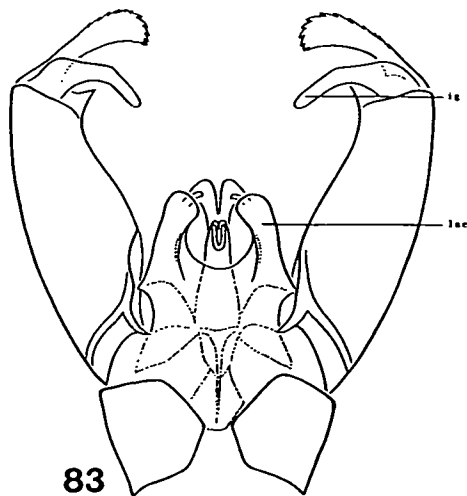
Original Description: Length about 8-8,5 mm, wing 7,5-8 mm. Rostrum black, with a yellowish grey pollen; palpi black. Antennae black, the scapal segments dark brown; first flagellar segment elongate, subequal to or exceeding the following two taken together; remaining flagellar segments gradually decreasing in length outwardly, the distal segments crowded, the terminal segments more or less fused; verticils relatively short and inconspicuous, on the intermediate segments shorter than the segments alone. Head dark brown, with a heavy yellowish grey pollen, the centre of the vertex with a small brown spot. Mesonotal praescutum with a greyish ground-colour, variegated with brownish black; a very broad median dark stripe that divides at

near midlength, the arms enclosing an elongate-oval grey area; humeral region narrowly lined with black; an interrupted brownish black sublateral line; scutum grey, each lobe with brownish black areas; posterior sclerites of mesonotum grey, the scutellum with a black spot on either side of median line at base. Pleura grey, the dorsal sclerites more yellowish grey, with two narrow dark brown longitudinal stripes, the more dorsal shorter, occupying the area between the anepisternum and sternopleurite, the longer ventral stripe crossing the sternopleurite on to the pteropleurite. Legs with the coxae grey, the base of the fore coxae dark brown; trochanters obscure yellow; femora yellow basally, the distal half passing into black, the extreme tip narrowly pale yellow; a narrow subterminal ring, the broad subterminal annulus enclosed between these pale areas more intensely black; tibiae obscure yellow, the bases and tips rather narrowly blackened; tarsi black, the proximal ends of basitarsi slightly paler. Wings whitish to pale grey with an unusually conspicuous dark brown pattern that appears as broken, relatively small, solid brown spots arranged as in other related species, not pale grey as in *australasiae*, and more broken into isolated areas than in *lawsonensis*; costal cell almost unvariegated, except at base and apex; marginal spots and seams at ends of all longitudinal veins; veins black, the prearcular region and cell Cu1 pale yellow. Venation: Rs long, more than one-half longer than the petiole of cell R3; vein R3 slightly oblique, the distance on costa between R1+2 and R3 about three-fourths the latter vein; m-cu at fork of M. Halteres pale yellow, the knobs conspicuously whitish, their basal portions a little dusky. Abdomen black, the extreme caudal margins of the tergites pale; genital shield of ovipositor blackened basally; the remainder dark castaneous; valves long and slender, dark brown, the tips pale.

**Remarks:** The identity of *A. grampiana* is not clear. The characters presented by ALEXANDER (1931d) do not allow a specific diagnosis; the male is still unknown. Considering the available morphological and zoogeographical evidence, *A. grampiana* most probably belongs to the *A. (I.) australasiae* group of species.

**New records:** None.

**Distribution:** Victoria; known only from Grampians.

***Atarba (Ischnothrix) lawsonensis* group (Figs 81, 83, 229-236)**

**Definition:** Wing with heavy dark pattern; dm of normal shape (as in Fig. 78b). Male hypopygium (Fig. 83): inner gonostylus (ig) without basal lobe and distinctly bent; lateral elements of aedeagal complex (lae) convergent.

**Distribution in Australia.** Eastern.

**Species in Australia:**

- A. (I.) lawsonensis* (SKUSE)
- A. (I.) millaamillaa* sp. n.
- A. (I.) verticalis* (ALEX.)
- A. (I.) waylehmina* sp. n.

Fig. 83. *Atarba (Ischnothrix) lawsonensis* (SKUSE), male hypopygium, dorsal aspect. Abbreviations: ig = inner gonostylus; lae = lateral elements of aedeagal complex.

***Atarba (Ischnothrix) lawsonensis* (SKUSE) (Figs 81, 83, 229, 230)**

*Limnophila lawsonensis* SKUSE, Proc. Linn. Soc. N.S.W. 4: 856 (1890).

*Ischnothrix lawsonensis* (SKUSE); ALEXANDER, Ann. Mag. nat. Hist. (10) 3: 471 (1929b).

*Atarba (Ischnothrix) lawsonensis* (SKUSE); OOSTERBROEK & JONAS, Catalogue of the Australian-Oceanian Tipulidae (Insecta, Diptera): 95 (1986).

**Primary type:** Lectotype ♂, by present designation, of *Limnophila lawsonensis* SKUSE: New South Wales, Lawson, Blue Mountains, Jan., Masters (ANIC); seen; additionally labelled "Lectotype ♂ *Limnophila lawsonensis* SKUSE, designated by G. Theischinger 1994".

**Published records:** New South Wales: Lawson, Blue Mts (SKUSE 1890: 857).

**Previous illustrations:** SKUSE 1890: Pl. XXII, fig. 28 (wing).

**Genitalia:** Male hypopygium, Figs 81, 83, 229, 230.

**Remarks:** Very similar to *A. verticalis* ALEX. and *A. waylehmina* sp. n. Diagnostic characters (male): inner gonostylus simple, slightly angulated; four-pronged ventral

structure of aedeagal complex with mesal prongs arched laterad and markedly longer than lateral prongs.

New records: New South Wales: Fitzroy Falls (ANIC).

Distribution: New South Wales (SEN).

***Atarba (Ischnothrix) verticalis* (ALEXANDER) (Figs 231, 232)**

*Ischnothrix verticalis* ALEXANDER, Ann. Mag. nat Hist. (10) 3: 471 (1929).

*Atarba (Ischnothrix) verticalis fuscomacula* ALEXANDER, Proc. Linn. Soc. N.S.W. 69: 9 (1944).

*Atarba (Ischnothrix) verticalis verticalis* (ALEXANDER); ALEXANDER, Proc. Linn. Soc. N.S.W. 69: 9 (1944).

Primary types: Holotype ♂ of *Ischnothrix verticalis* ALEXANDER: Victoria, Bogong High Plains, 5600-6000 ft, Jan. 1928, F.E. Wilson (MV); seen. Holotype ♂ of *Atarba verticalis fuscomacula* ALEXANDER: New South Wales, Blundell's, A.C.T., 18.2.1931, A. Tonnoir (NMNH); seen.

Published records: New South Wales: Blundell's, A.C.T. (ALEXANDER 1944: 9).  
Victoria: Bogong High Plains, 5600-6000 ft (ALEXANDER 1929b: 472).

Genitalia: Male hypopygium, Figs 231, 232.

Remarks: Very similar to *A. lawsonensis* (SKUSE) and *A. waylehmina* sp. n. *A. verticalis fuscomacula* ALEX. is not considered to be a distinct subspecies. Diagnostic characters (male): inner gonostylus simple, slightly angulated; four-pronged ventral structure of aedeagal complex with mesal prongs straight and slightly longer than lateral prongs.

New records: New South Wales: Alpine Ck, Snowy Mts Hwy (ANIC); Kiandra (ANIC); Mt Gingera, A.C.T. (ANIC). Victoria: Acheron R. (ANIC); Bogong (ANIC); Bogong High Plains (ANIC); Lake Mtn (ANIC); Spring Hill, 4000 ft (ANIC).

Distribution: New South Wales (SEN), Victoria.

***Atarba (Ischnothrix) waylehmina* spec. nov. (Figs 233, 234)**

Description: Head largely brownish grey; rostrum, scape and pedicel pale greyish brown; palps and flagellum of antennae dark greyish brown; antennae of male slightly shorter than wing. Thorax greyish brown. Coxae greyish brown; trochanters greyish yellow; femora greyish yellow to pale greyish brown, in distal 1/4-1/3 a narrow greyish yellow ring followed by a broad black ring before the dull yellow apex; tibiae

greyish brown with extreme base dull yellow, a narrow subbasal ring and apex markedly darker than the rest; tarsi and claws dark greyish brown. Wings whitish subhyaline with blackish brown patches at all vein forks and intersections, along crossveins and at longitudinal vein endings; some larger brown patches near wing base and at about midlength of wing, and between base and midlength in cell CuA. Halteres with stem pale greyish brown and knob pale greyish yellow. Abdomen of male with anterior segments greyish yellow, ringed with greyish brown, and from about segment 6 more uniformly greyish brown; abdomen of female uniformly greyish brown; terminalia of both sexes mainly yellowish brown. Wing length, male 7,6-7,9 mm, female 7,9-8,4 mm.

**Genitalia:** Hypopygium, Figs 233, 234.

**Remarks:** Very similar to *A. lawsonensis* (SKUSE) and *A. verticalis* (ALEX.). Diagnostic characters (male): inner gonostylus distinctly angulated; four-pronged ventral structure of aedeagal complex with mesal prongs straight and much shorter than lateral prongs.

**Material examined:** Holotype ♂: New South Wales, Barrington Tops, 13.10.1979, G. Theischinger (ANIC). Paratypes: New South Wales: 2 ♀♀, same data as holotype (GT); 1 ♂, 1 ♀, Point Lookout, 14.11.1992, G. Theischinger (GT).

**Distribution:** New South Wales (NEN).

**Name:** Waylehmina (= Australian Aboriginal word for "swallow") refers to the swallow-tailed apex of the aedeagal complex.

### ***Atarba (Ischnothrix) millaamillaa* spec. nov. (Figs 235, 236)**

**Description (♂):** Head largely grey; rostrum, palps and flagellum of antennae greyish brown; scape and pedicel greyish- to brownish yellow; antennae of male almost three times as long as wing. Thorax greyish brown. Coxae greyish yellow to pale greyish brown; trochanters greyish yellow; femora dark greyish yellow to greyish brown, in distal 1/3 a relatively broad yellow ring followed by a slightly broader black ring before the yellow apex; tibiae largely greyish brown, yellow at extreme base, a dark greyish brown ring each next to base and at apex; tarsi and claws dark greyish brown. Wings whitish subhyaline with patches of brownish black at all vein forks and intersections, along crossveins including R3 and cord, and at longitudinal vein endings; brown patches near wing base between R and CuA and between A1 and posterior margin and at about halflength of wing in cells M, CuA and A1. Halteres with stem greyish yellow and knob somewhat paler. Abdomen largely greyish yellow and greyish brown; terminalia yellowish brown. Wing length 6,6 mm.

**Genitalia:** Hypopygium, Figs 235, 236.

Female unknown.

**Remarks:** Similar to the other members of the *A. (I.) lawsonensis* group. Diagnostic characters (male): inner gonostyli very long and slender; aedeagal complex simple, without distinct prongs.

**Material examined:** Holotype ♂: Queensland, Sluice Creek, 8 km W by S Millaa Millaa, at light, 25.4.1981, D.H. Colless (ANIC).

**Distribution:** Queensland (NEQ); known only from type locality.

**Name:** From Millaa Millaa, near the type locality; to be treated as a noun in apposition.

***Atarba (Ischnothrix) iyouta* group (Figs 79, 84, 237-242)**

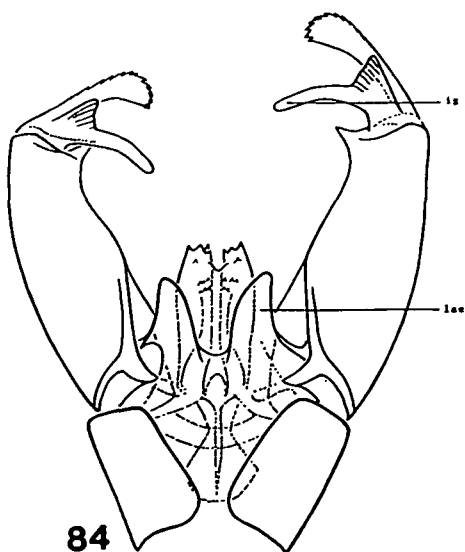


Fig. 84. *Atarba (Ischnothrix) iyouta* sp. n., male hypopygium, dorsal aspect. Abbreviations: ig = inner gonostylus; lae = lateral elements of aedeagal complex.

**Definition:** Wing with heavy dark pattern; dm of normal shape (as in Fig. 78b). Male hypopygium (Fig. 84): inner gonostylus (ig) of male with basal lobe; lateral elements of aedeagal complex (lae) almost straight.

**Distribution in Australia:** North-eastern.

**Species in Australia:**

*A. (I.) iyouta* sp. n.

*A. (I.) thowla* sp. n.

*A. (I.) williamsi* sp. n.

***Atarba (Ischnothrix) iyouta* spec. nov.  
(Figs 79, 84, 237, 238)**

**Description:** Head largely grey; rostrum, palps and flagellum of antennae greyish brown; scape and pedicel brownish yellow; male antennae about three times as long as wing. Thoracic terga dark greyish brown; pleura brownish grey. Coxae greyish brown; trochanters greyish yellow; femora yellowish- to greyish brown, in distal 1/4-1/3 a narrow dull yellow ring followed by a broad brownish black subapical and a narrow dull yellow apical ring; tibiae, tarsi and claws dark greyish brown. Wings whitish subhyaline with blackish brown patches at vein forks and intersections, along crossveins including R3 and cord, and at longitudinal vein endings; in addition a larger

and slightly paler patch each, just distal to arculus and at about midlength of wing between vein M and posterior margin; all those patches more extensive (some even merging) in female than in male. Halteres with stem pale grey and knob greyish white. Abdomen largely greyish yellow and greyish brown; terminalia yellowish brown. Wing length, male 6,1 mm, female 5,8 mm.

**Genitalia:** Male hypopygium, Figs 79, 84, 237, 238.

**Remarks:** Similar to *A. williamsi* sp. n. Diagnostic characters (male): basal lobe of inner gonostylus rather pointed; aedeagal complex stout and compact, bearing stout spines.

**Material examined:** Holotype ♂: Queensland, 17°20'S/145°31'E, Wongabel State Forest, near Atherton, at light, 18.11.1981, D.H. Colless (ANIC). Paratype: 1♀, Queensland, Wongabel State Forest, 5.5.1967, D.H. Colless (ANIC).

**Distribution:** Queensland (NEQ).

**Name:** *Iyouta* (= Australian Aboriginal word for "spinifex") refers to the spiny aedeagal complex.

***Atarba (Ischnothrix) williamsi* spec. nov. (Figs 239, 240)**

**Description:** Head largely brownish grey; rostrum and palps greyish brown; scape and pedicel brownish yellow, flagellum greyish yellow to greyish brown, with the basal two segments somewhat paler than the rest; male antennae more than twice as long as wing. Thorax greyish brown. Coxae greyish brown; trochanters largely greyish yellow; femora greyish yellow to greyish brown, in distal 1/4-1/3 a pale greyish yellow ring followed by a broad blackish brown subapical and a narrow greyish yellow apical ring; remainder of legs largely greyish brown, only extreme base of tibiae greyish yellow and apex of tibiae slightly darkened. Wings whitish- to greyish hyaline with dark greyish brown patches at vein forks and intersections, along crossveins and at longitudinal vein endings; a more extensive dark band each, near base and at about midlength of wing; particularly in old females the dark patches often connected with each other, making the wings appear very dark. Halteres with stem greyish brown and knob greyish yellow. Abdomen of male with anterior segments greyish yellow, ringed with greyish brown, and segments 6-9 more uniformly greyish brown; abdomen of female largely uniformly greyish brown; terminalia of both sexes yellowish brown. Wing length, male 5,4-6,0 mm, female 6,5-7,6 mm.

**Genitalia:** Male hypopygium, Figs 239, 240.

**Remarks:** Very similar to *A. iyouta* sp. n. Diagnostic characters: basal lobe of inner gonostylus rather obtuse; aedeagal complex tapered and bearing slender spines.

**Material examined:** Holotype ♂: New South Wales, Lorien Ref., 3 km N Lansdowne, near Taree, rainforest margin, malaise, 22-29.11.1987, G. Williams (ANIC). Paratypes: Queensland: 1♂, 1♀, Green Mountain, Lamington National Park, Earthwatch Australia (ANIC). New South Wales: 25♂♂, 10♀♀, Lorien Ref., 3 km N Lansdowne, nr Taree, rainforest margin, malaise, 1987-1988, G. Williams (GT); 1♂, 3♀♀, Nadgee Nature Reserve, near Eden, 14-15.2.1986, D.J. Bickel (GT); 1♂, Nadgee Nature Reserve, Nadgee R., 15.2.1987, D.J. Bickel (GT); 1♂, Nadgee State Forest, Maxwell's Ck, 400 m, 13-19.2.1987, D.J. Bickel (GT); 1♂, Waterfall, National Falls, 2.10.1985, G. Theischinger (GT).

**Distribution:** Queensland (SEQ), New South Wales (NEN, SEN).

**Name:** Dedication to Mr G. Williams of Lansdowne, who collected this species in large numbers.

***Atarba (Ischnothrix) thowla* spec. nov. (Figs 241, 242)**

**Description:** Head largely brownish grey; rostrum and palps greyish brown; antennae yellowish- to greyish brown; male antennae at least three times as long as wing. Thorax greyish brown. Coxae greyish brown; trochanters greyish yellow; femora greyish yellow to pale greyish brown, in distal 1/4-1/3 a yellow ring followed by a broad blackish brown ring before the dull yellow apex; tibiae pale greyish brown with extreme base dull yellow and a dark greyish brown subbasal and apical ring; tarsi and claws dark greyish brown. Wings whitish- to greyish subhyaline with dark greyish brown patches at vein forks and intersections, along crossveins and at longitudinal vein endings; additional patches at wing base and between longitudinal veins at about midlength of wing; in female dark patches much more extensive than in male, leaving only small areas pale. Halteres with stem pale greyish brown and knob pale greyish yellow. Abdomen of male greyish yellow, ringed with greyish brown, to about end of segment 5, thence more uniformly greyish brown; abdomen of female rather uniformly dark greyish brown; terminalia of both sexes largely brownish yellow. Wing length, male 5,7-5,9 mm, female 5,4 mm.

**Genitalia:** Male hypopygium, Figs 240, 241.

**Remarks:** Not very similar to any other described Australian species. Diagnostic characters (male): basal lobe of inner gonostylus pointed; aedeagal complex huge, spoon-shaped.

**Material examined:** Holotype ♂: Queensland, Searys Creek near Rainbow Beach, 9.1.1986, G. Theischinger (ANIC). Paratypes: 1♂, 1♀, same data as holotype (GT).

**Distribution:** Queensland (SEQ); known only from type locality.

**Name:** Thowla (= Australian Aboriginal word for "spoonbill duck") refers to the large spoon-shaped element of the aedeagal complex.



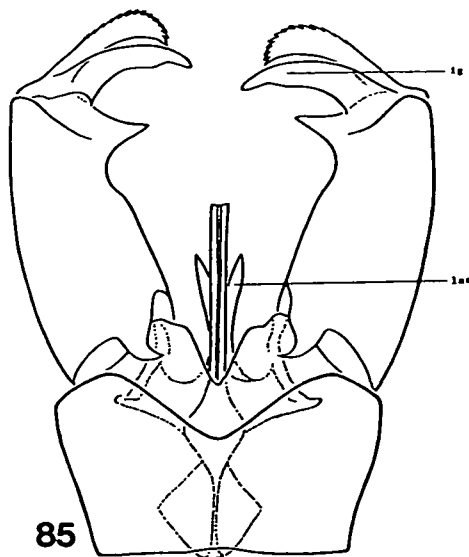
***Atarba (Ischnothrix) generosa* group (Figs 78a, 85, 243, 244)**

Fig. 85. *Atarba (Ischnothrix) generosa* (ALEX.), male hypopygium, dorsal aspect. Abbreviations: ig = inner gonostylus; lae = lateral elements of aedeagal complex.

**Definition:** No wing pattern; dm very short (Fig. 78a). Male hypopygium (Fig. 85): inner gonostyli (ig) without basal lobe; lateral elements of aedeagal complex (lae) slim, leaf-shaped, slightly curved.

**Distribution in Australia:** Eastern; known only from New South Wales.

Only one Australian species:

*A. (I.) generosa* (ALEX.).

***Atarba (Ischnothrix) generosa*  
(ALEXANDER) (Figs 78a, 85, 243, 244)**

*Rhabdomastix generosa* ALEXANDER, Rec. S. Aust. Mus. 2: 238 (1922).

*Atarba (Ischnothrix) generosa* (ALEXANDER); ALEXANDER, Proc. Linn. Soc. N.S.W. 69: 9 (1944).

**Primary type:** Holotype ♀: New South Wales, Dorrigo, W. Heron (NMNH); seen.

**Published records:** New South Wales: Dorrigo (ALEXANDER 1922a: 238); Brooklana, eastern Dorrigo (ALEXANDER 1944: 9).

Previously known only from female.

**Description of male:** Structure and colouration much as described for female (ALEXANDER 1922a). Wing length 9,0 mm.

**Genitalia:** Hypopygium, Figs 85, 243, 244.

**Remarks:** Apparently an isolated species. Diagnostic characters: wings entirely hyaline; cell dm short, almost square.

**New records:** Queensland: Cunningham Gap, 2484 ft (ANIC). New South Wales: Clyde Mtn (ANIC); Heathcote Brook (GT); Macquarie Pass (GT); Macquarie Rivulet (GT); Mt Keira (GT); Royal N. P. (ANIC).

**Distribution:** Queensland (SEQ), New South Wales (NEN, SEN).

## Genus *Amphineurus* SKUSE (Figs 86-90, 245-254)

*Amphineurus* SKUSE, Proc. Linn. Soc. N.S.W. (2) 4: 800 (1890) (*Rhypholophus* subgenus).

Type species: *Rhypholophus umbraticus* SKUSE 1890, designated by ALEXANDER 1920a: 52.

SKUSE (1890) described *Amphineurus* as a subgenus of *Rhypholophus* KOLENATI, in order to accommodate his two species *maculosus* and *umbraticus* from Australia. Four more species were described since by ALEXANDER (1921d, 1926, 1931a) who regarded *Amphineurus* as a distinct genus. Six species of *Amphineurus*, five under subgenus *Amphineurus* and one under "subgenus uncertain", were listed by OOSTERBROEK (1989) from Australia. As a result of the present study, two of ALEXANDER's species are now regarded as synonyms, and the remaining four known Australian species of *Amphineurus* are regarded as members of the subgenus *Amphineurus*. In addition six species of *Amphineurus* (*Amphineurus*) are described as new.

Distribution: Neotropical and Australian regions.

Only one subgenus in Australia:

*Amphineurus* SKUSE.

### Subgenus *Amphineurus* SKUSE (Figs 86-90, 245-254)

*Amphineurus* SKUSE, Proc. Linn. Soc. N.S.W. (2) 4: 800 (1890) (*Rhypholophus* subgenus).

Type species: *Rhypholophus umbraticus* SKUSE 1890, designated by ALEXANDER 1920a: 52.

Definition: Front of head only slightly produced; antennae 16 segmented. Middle and hind coxae widely separated, the meron large, more extensive than the midcoxa, producing a pot-bellied appearance; setae of legs simple. Wing (Fig. 86): Sc2 proximal to first fork of Rs; R1+2 and anterior branch of Rs ending beyond 2/3 wing length; Rs ending in cell R4; R4 captured by R2+3 to form an element R2+3+4; cell R3 much longer than its petiole; vein R5 not fused with M1+2, thus r-m preserved; cell dm absent; bscu at or shortly before fork of M; M3 and CuA1 not fused.

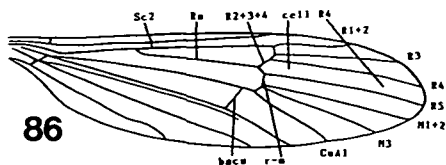


Fig. 86. *Amphineurus* (*Amphineurus*) *umbraticus* (SKUSE), wing venation.

**Habitat of larvae:** According to ALEXANDER (1931c) the larvae of *Amphineurus* will presumably be found in the following two types of habitat: a) sandy, gravelly, or loamy soil, with slight humus, at margins of streams or ponds; b) rich organic earth or mud, as at margins of rills, streams, lakes, or other bodies of water; in swamps or marshes; in leaf-mold or drift at stream-margins; wet spots in woods.

**Distribution:** Neotropical and Australian regions. In Australia: eastern, south-western.

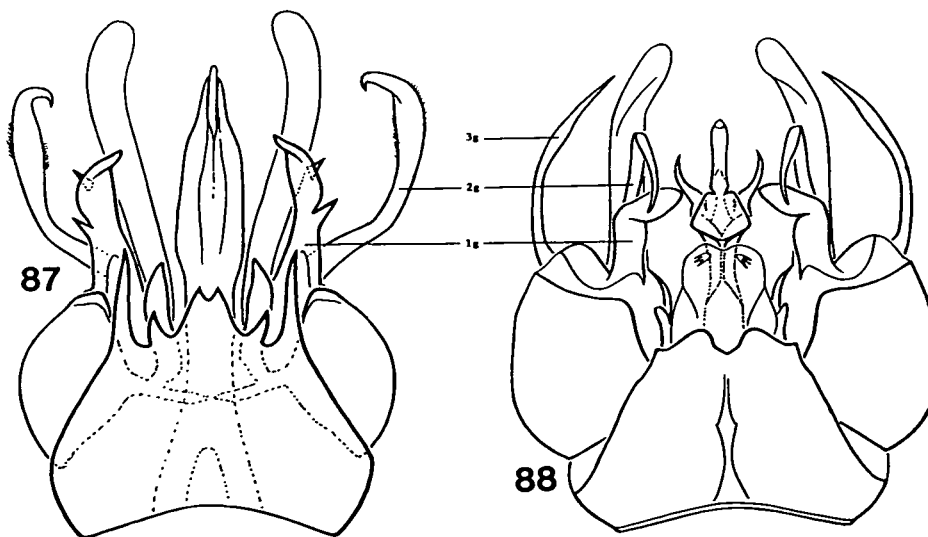
**Species groups in Australia:**

*A. (A.) minusculus* group

*A. (A.) umbraticus* group.

**Key to the species groups of *Amphineurus (Amphineurus)* in Australia (Figs 87, 88)**

1. Two pairs gonostyli (1g, 2g) (Fig. 87).....*A. (A.) minusculus* group
- Three pairs of gonostyli (1g, 2g, 3g) (Fig. 88).....*A. (A.) umbraticus* group



Figs 87, 88: Male hypopygium, dorsal aspect, of *Amphineurus (Amphineurus)* species: 87: *minusculus* ALEX. - 88: *umbraticus* (SKUSE). Abbreviations: 1g = gonostylus 1; 2g = gonostylus 2; 3g = gonostylus 3.

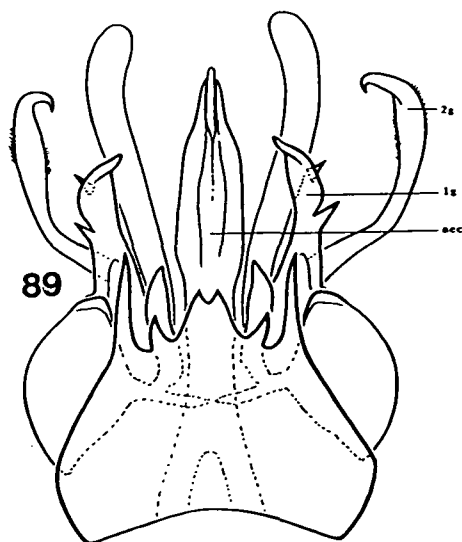
***Amphineurus (Amphineurus) minusculus* group (Figs 87, 89, 245-250)**

Fig. 89. *Amphineurus (Amphineurus) minusculus* ALEX., male hypopygium, dorsal aspect. Abbreviations: aec = aedeagal complex; 1g = gonostylus 1; 2g = gonostylus 2.

Definition: Male hypopygium (Fig. 89): two pairs of gonostyli (1g, 2g); aedeagal complex (aec) with apex trifid or simple.

Distribution in Australia: Eastern.

Species in Australia:

- A. (A.) collessi* sp. n.
- A. (A.) kandu* sp. n.
- A. (A.) minusculus* ALEX.
- A. (A.) monteithi* sp. n.
- A. (A.) patya* sp. n.
- A. (A.) pullybuntor* sp. n.

***Amphineurus (Amphineurus) minusculus* ALEXANDER (Figs 87, 89, 245)**

*Amphineurus minusculus* ALEXANDER, Ann. Mag. nat. Hist. (9) 8: 555 (1921).

*Amphineurus* (?subgenus) *minusculus* ALEXANDER; OOSTERBROEK & JONAS, Catalogue of the Australian-Oceanian Tipulidae (Insecta, Diptera): 136 (1986).

Primary type: Holotype ♂: Queensland, Kuranda, Cairns District, 1100 ft, Apr. 1921, A.P. Dodd (NMNH); seen.

Published records: Queensland: Kuranda, Cairns Dist. (ALEXANDER 1921d: 556).  
Known only from male.

Genitalia: Hypopygium, Figs 87, 89, 245.

Remarks: Similar to *A. collessi* sp. n., *A. monteithi* sp. n. and *A. pullybuntor* sp. n.

Diagnostic characters (male): tergite 9 with two long pointed, two short pointed, and one moderately long double-pointed projections.

New records: Queensland: Kuranda (BPBM); Kuranda Ra., S.F. (ANIC); Lake Barrine, 530 m (BPBM).

Distribution: Queensland (NEQ).

***Amphineurus (Amphineurus) collessi* spec. nov. (Fig. 246)**

**Description:** Head largely grey; rostrum, antennae and basal three segments of palps greyish brown, terminal palpal segment whitish yellow. Scutum greyish yellow to pale greyish brown; scutellum yellowish grey; mediotergite and laterotergites greyish brown; pleura with dorsal and ventral portion dark greyish brown, in between yellowish white. Coxae and trochanters whitish yellow; remainder of legs brownish grey except for the knees which are yellowish white. Wings suffused with grey. Halteres largely brownish grey, base of stem and knob pale yellow. Abdomen largely dull yellowish grey, the lateral edges dark greyish brown. Wing length, male 3,3-3,7 mm, female 4,0 mm.

**Genitalia:** Male hypopygium, Fig. 246.

**Remarks:** Similar to *A. minusculus* ALEX., *A. monteithi* sp. n. and *A. pullybuntor* sp. n. Diagnostic characters (male): tergite 9 with two long pointed and two even longer irregularly shaped projections.

**Material examined:** Holotype ♂: Queensland, Moses Creek, 4 km N by E of Mt Finigan, malaise trap, 16.10.1980, D.H. Colless (ANIC). Paratypes: Queensland: 3♂♂, 1♀, Cape Tribulation, Daintree rainforest, Earthwatch Australia (ANIC).

**Distribution:** Queensland (CY, NEQ).

**Name:** This species is dedicated to Dr D.H. Colless (Canberra), former curator of Diptera in the ANIC.

***Amphineurus (Amphineurus) monteithi* spec. nov. (Fig. 247)**

**Description:** Head largely dark greyish brown, including rostrum and basal three palpal segments; antennae somewhat paler and terminal palpal segment whitish yellow. Thoracic terga largely greyish brown, distinctly marked with yellow, including all of scutellum and lateral and posterior margins of scutum; pleura with dorsal and ventral portion blackish brown, in between whitish yellow. Coxae brown and dull yellow; trochanters dull yellow; remainder of legs greyish yellow to pale greyish brown. Wings suffused with greyish brown. Halteres greyish yellow, stem darker than knob. Abdomen largely pale greyish brown, lateral edges blackish brown. Wing length, male 5,0 mm, female 4,5-4,8 mm.

**Genitalia:** Male hypopygium, Fig. 247.

**Remarks:** Similar to *A. collessi* sp. n., *A. minusculus* ALEX. and *A. pullybuntor* sp. n. Diagnostic characters (male): tergite 9 with two moderately long pointed and two very short obtuse projections.

**Material examined:** Holotype ♂: Queensland, Bellenden Ker Range, Cable Tower 3, 1054 m, rainforest, malaise trap, 17.10.-5.11.1981, Earthwatch/Queensland Museum (QM). Paratypes: 3 ♀♀, same data as holotype (GT, UQ).

**Distribution:** Queensland (NEQ); known only from Bellenden Ker Range.

**Name:** This species is dedicated to Dr. G. Monteith (Brisbane), curator of "Lower Insects" in the Queensland Museum.

***Amphineurus (Amphineurus) pullybuntor* spec. nov. (Fig. 248)**

**Description:** Head largely dark greyish brown, including rostrum and three basal segments of palps; terminal palpal segment whitish yellow, antennae yellowish grey. Thoracic terga largely greyish brown; only scutellum and lateral and posterior margins of scutum dull yellow; pleura with dorsal and ventral portion dark greyish brown, in between whitish yellow. Legs greyish yellow to greyish brown, tips of tibiae, tarsi and claws darker than the rest. Wings suffused with greyish brown. Halteres greyish yellow. Abdomen largely greyish yellow to pale greyish brown, lateral edges blackish brown. Wing length, male 3,7-4,5 mm, female 3,8-4,5 mm.

**Genitalia:** Male hypopygium, Fig. 248.

**Remarks:** Similar to *A. collessi* sp. n., *A. minusculus* ALEX. and *A. monteithi* sp. n. Diagnostic characters (male): tergite 9 with two long pointed and two short pointed projections.

**Material examined:** Holotype ♂: Queensland, Bellenden Ker Range, 1 km S of Cable Tower 6, 500 m, rainforest, malaise trap, 17.10.-5.11.1981, Earthwatch/Queensland Museum (QM). Paratypes: Queensland: 7 ♂♂, 17 ♀♀, same data as holotype (GT, UQ); 9 ♂♂, 4 ♀♀, 17°24'S/145°51'E, Bartle Frere track, 200 m, rainforest creek, 12-21.4.1994, B. Sinclair (GT).

**Distribution:** Queensland (NEQ); known only from Bellenden Ker Range.

**Name:** Pullybuntor (= Australian Aboriginal word for "mountain range") refers to the type locality.

***Amphineurus (Amphineurus) kandu* spec. nov. (Fig. 249)**

**Description:** Head largely grey; rostrum, palps and antennae yellowish- to greyish brown. Thoracic terga greyish brown; pleura with dorsal and ventral portion dark greyish brown, in between yellowish white. Legs pale to dark greyish brown, only extreme base of tibiae yellow. Wings suffused with grey, often indistinctly mottled with paler and darker. Halteres pale greyish brown. Abdomen greyish brown. Wing length, male 4,1-5,7 mm, female 4,8-6,5 mm.

**Genitalia:** Male hypopygium, Fig. 249.

**Remarks:** Somewhat isolated from all other species of the group. Diagnostic characters (male): tergite 9 with spine-like median projection and distinct posterolateral corners.

**Material examined:** Holotype ♂: Victoria, Mount Baw Baw, 3800 ft, 3.3.1965, N. Dobrotworsky (ANIC). Paratypes: New South Wales: 1♂, Black Mountain, A.C.T., malaise trap, 2.6.1965, Common & Upton (ANIC). Victoria: 1♂, Lake Mountain, 15.2.1965, N. Dobrotworsky (ANIC); 1♂, Mount Baw Baw, 3800 ft, 3.3.1965, N. Dobrotworsky (ANIC); 1♂, Mount Baw Baw, 4400 ft, 4.3.1965, N. Dobrotworsky (ANIC); 1♀, Sherbrook, 11.3.1964, 1 sp., s. l., 23.3.1965, 1♀, s. l., 6.4.1964, 2♀♀, s. l., 20.5.1964, N. Dobrotworsky (ANIC); 1♂, 3♀♀, Toorong Falls, 13.4.1965, 1♂, s. l., 3.3.1965, N. Dobrotworsky (ANIC). Tasmania: 3♂♂, 1♀, Collinsvale, "Fairy Glen", 300 m, malaise, Dec. 1984, M. Williams (GT); 1♂, 41°52'S/146°03'E, Pelion Gap, 2 km ENE Mt Ossa, 29.11.1990, I.D. Naumann (ANIC).

**Distribution:** New South Wales (SEN), Victoria, Tasmania.

**Name:** Kandu (= Australian Aboriginal word for "club") refers to the club-shaped outer gonostylus.

***Amphineurus (Amphineurus) patya* spec. nov. (Fig. 250)**

**Description:** Head largely grey; rostrum, basal three palpal segments and antennae greyish brown, terminal palpal segment whitish yellow. Thoracic terga largely greyish brown; pleura with dorsal and ventral portion dark greyish brown, in between whitish yellow. Legs pale to dark greyish brown, knees somewhat paler than the rest. Wings suffused with greyish brown. Halteres pale greyish brown. Abdomen largely pale greyish brown, lateral edges blackish brown. Wing length, male 4,5-5,4 mm, female 4,7-5,5 mm.

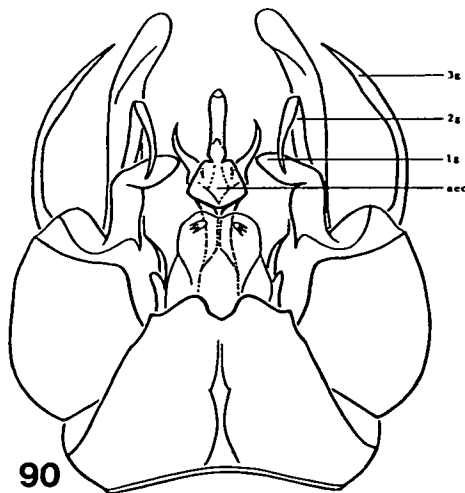
**Genitalia:** Male hypopygium, Fig. 250.

**Remarks:** Similar in some respects to *A. umbraticus* (SKUSE) (*A. umbraticus* group). Diagnostic characters (male): tergite 9 with two rounded posterior lobes and strongly produced posterolateral corners; aedeagus simple, without lateral process.

**Material examined:** Holotype ♂: New South Wales, Little Nymboida River, Dorrigo-Coramba Road, 17.4.1970, D.H. Colless (ANIC). Paratypes: New South Wales: 1♂, Buckenbowra River, 35°47'S/151°01'E, 14 km W Batemans Bay, 26-27.4.1986, G. Theischinger (GT); 16♂♂, 11♀♀, Lorient Ref., 3 km N Lansdowne, nr Taree, malaise trap, 1987-1988, G. Williams (GT); 1♂, "Mooraback", Werrikimbi National Park, 980 m, 6.12.1986, G. Theischinger (GT).

**Distribution:** New South Wales (NEN, SEN).

**Name:** Patya (= Australian Aboriginal word for "flower") refers to the structure of the male hypopygium which resembles an orchid.

***Amphineurus (Amphineurus) umbraticus* group (Figs 86, 88, 90, 251)**

**Definition:** Male hypopygium (Fig. 90): three pairs of gonostyli (1g, 2g, 3g); aedeagal complex (aec) very elaborate.

**Distribution in Australia:** South-eastern, south-western.

**Species in Australia:**

*A. (A.) fergusonii* ALEX.

*A. (A.) maculosus* (SKUSE)

*A. (A.) pita* sp. n.

*A. (A.) umbraticus* (SKUSE).

Fig. 90. *Amphineurus (Amphineurus) umbraticus* (SKUSE), male hypopygium, dorsal aspect. Abbreviations: aec = aedeagal complex; 1g = gonostylus 1; 2g = gonostylus 2; - 3g = gonostylus 3.

***Amphineurus (Amphineurus) umbraticus* (SKUSE) (Figs 86, 88, 90, 251)**

*Rhypholophus (Amphineurus) umbraticus* SKUSE, Proc. Linn. Soc. N.S.W. 4: 801 (1890).

*Ormosia (Amphineurus) umbratica* (SKUSE); ALEXANDER, Mem. Qd Mus. 7: 52 (1920).

*Amphineurus (Amphineurus) flavoscutellatus* ALEXANDER, Ann. Mag. nat. Hist. (9) 18: 180 (1926).

*Amphineurus (Amphineurus) umbraticus* (SKUSE); OOSTERBROEK & JONAS, Catalogue of the Australian-Oceanian Tipulidae (Insecta, Diptera): 134 (1986).

**Primary types:** Holotype ♀ of *Rhypholophus umbraticus* SKUSE: New South Wales, Lawson, Blue Mountains, Jan. Masters (AM); seen. Holotype ♂ of *Amphineurus flavoscutellatus* ALEXANDER: Victoria, Ferntree Gully, Mount Dandenong, 22.2.1924, G.F. Hill (MV); seen.

**Published records:** New South Wales: Lawson, Blue Mts (SKUSE 1890: 802). Victoria: Ferntree Gully, Mt Dandenong (ALEXANDER 1926: 181).

**Previous illustrations:** SKUSE 1890: Pl. XXI, fig. 12 (wing).

**Genitalia:** Male hypopygium, Figs 88, 90, 251.

**Remarks:** Not very similar to the other members of the group; similar in some respects to *A. patya* sp. n. (*A. minusculus* group). Diagnostic characters (male): tergite



9 with two small rounded posterior lobes and distinct posterolateral corners; aedeagal complex with horn-like lateral process each side.

New records: Queensland: Green Mtn, Lamington N. P. (ANIC); Gwongorella N. P. (GT). New South Wales: Barrington Tops (ANIC); Canoe Ck, Colo R. Gorge (GT); Cobcroft Ck, Werrikimbi N. P., 1100 m (GT); Dingo Tops F.P., NW Wingham, 950 m (GT); Jerusalem Falls, nr Karuah (GT); Little Nymboida R., Dorrigo-Coramba Rd (ANIC); Lorien Ref., 3 km N Lansdowne, nr Taree (GT); Macquarie Pass (GT); Macquarie Rivulet (GT); Minnamurra Falls (ANIC); Minnamurra Falls, SE Mittagong (MV); Mt Hyland N. P. (GT); Mt Wilson (GT); Narooma (MV); Somersby Falls, N of Sydney (GT); Wentworth Falls, Blue Mts (GT).

Distribution: Queensland (SEQ), New South Wales (NEN, SEN), Victoria.

***Amphineurus (Amphineurus) maculosus* (SKUSE) (Fig. 252)**

*Rhypholophus (Amphineurus) maculosus* SKUSE, Proc. Linn. Soc. N.S.W. 4: 802 (1890).

*Amphineurus (Amphineurus) spinitergatus* ALEXANDER, Ann. Mag. nat. Hist. (10) 7: 32 (1931).

*Amphineurus (Amphineurus) maculosus* (SKUSE); OOSTERBROEK & JONAS, Catalogue of the Australian-Oceanian Tipulidae (Insecta, Diptera): 133 (1986).

Primary types: Holotype ♀ of *Rhypholophus maculosus* SKUSE: New South Wales, Mount Kosciusko, 5000 ft, March, Helms (AM); seen. Holotype ♂ of *Amphineurus spinitergatus* ALEXANDER: New South Wales, Brooklana, Eastern Dorrigo, ca. 2000 ft, 20.9.1920, W. Heron (NMNH); seen.

Published records: New South Wales: Brooklana, Eastern Dorrigo, ca. 2000 ft (ALEXANDER 1931a: 33); Mt Kosciusko, at 5000 ft (SKUSE 1890: 803).

Genitalia: Male hypopygium, Fig. 252.

Remarks: Not very similar to any other described species. Diagnostic characters (male): tergite 9 with two spine-like projections separated by U-shaped excision, and with distinct posterolateral corners.

New records: New South Wales: Bull's Head, A.C.T. (ANIC); Clyde Mtn, West Slope (ANIC); Govett's Leap, Blue Mts (GT). Victoria: Bonang Hwy- Bendoc Rd jn, 10 km S of Bonang (ANIC); Grampians (ANIC); Maroondah (ANIC); Mayers Ck, nr Healesville (ANIC); Mt Baw Baw, 3600 ft (ANIC); Mt Baw Baw, 3800 ft (ANIC); Mt Baw Baw, 4000 ft (ANIC); Sherbrooke (ANIC); Sherbrooke Forest, Ferntree Gully (MV).

Distribution: New South Wales (NEN, SEN), Victoria.

***Amphineurus (Amphineurus) fergusonii* ALEXANDER (Fig. 253)**

*Amphineurus (Amphineurus) fergusonii* ALEXANDER, Ann. Mag. nat. Hist. (10) 7: 30 (1931).

Primary type: Holotype ♂: Western Australia, Perth, 22.8.1926, E.W. Ferguson (ANIC); seen.

Published records: Western Australia: Bridgetown; Donnybrook; Pemberton; Perth (all ALEXANDER 1931a: 32).

Genitalia: Male hypopygium, Fig. 253.

Remarks: Somewhat similar to *A. pita* sp. n. Diagnostic characters (male): tergite 9 with two more or less rounded posterior lobes; aedeagal complex very elaborate.

New records: Western Australia: Augusta (ANIC); 11 mi. SW Collie (ANIC); Crawley (ANIC); Dewars Pool (ANIC); Gingin (ANIC); Nedlands (ANIC).

Distribution: Western Australia (SWA).

***Amphineurus (Amphineurus) pita* spec. nov. (Fig. 254)**

Description (♂): Head largely brownish- to greyish yellow, including scape; rostrum, palps, pedicel and flagellum greyish brown. Thoracic terga largely greyish brown, distinctly marked with yellow, including all of scutellum, area along transverse suture and a stripe each side from anterolateral margin of prescutum to transverse suture; pleura largely greyish brown with pale yellow central mark. Coxae and trochanters greyish yellow to greyish brown; femora greyish yellow with three ill-defined greyish brown rings; tibiae greyish yellow with indistinct greyish brown subbasal and apical ring; tarsi and claws greyish yellow to greyish brown. Wings greyish white hyaline, distinctly mottled with dark greyish brown. Halteres greyish yellow. Abdomen largely greyish yellow, the sides dark greyish brown. Wing length 3,7-4,5 mm.

Genitalia: Hypopygium, Fig. 254.

Female unknown.

Remarks: Somewhat similar to *A. fergusonii* ALEX. Diagnostic characters (male): head pale; wings distinctly mottled; tergite 9 very wide and with posterior margin nearly straight.

Material examined: Holotype ♂: New South Wales, 18 miles Dorrigo- Coramba Road, 18.4.1970, D.H. Colless (ANIC). Paratype: 1♂, New South Wales, Somersby Falls, 1.10.1979, G. Theischinger (GT).

Distribution: New South Wales (NEN, SEN).

Name: Pita (=Australian Aboriginal word for "four-pointed spear") refers to the four-pointed top-plate of the aedeagal complex.

**Genus *Erioptera* MEIGEN (Figs 91-99, 255-265)**

*Polymeda* MEIGEN, Nouvelle classification des mouches a deux ailes, (Diptera L.), d'apres un plan tout nouveau: 14 (1800). Suppressed by I.C.Z.N., Opinion 678, Bull. Zool. Nomencl. 20: 339 (1963).

*Erioptera* MEIGEN, Magazin Insektenk., (Illiger) 2: 262 (1803). (In the interest of stability and in accordance with usage OOSTERBROEK (1989) set aside an earlier type species designation by BLANCHARD in AUDOUIN et al. (1848: pl. 163) that would have rendered *Erioptera* as a senior synonym of *Molophilus*).

Type species of *Erioptera* MEIGEN: *Erioptera lutea* MEIGEN 1804, designated by COQUILLET 1910: 540.

OOSTERBROEK (1989) listed ten species of the genus *Erioptera* MEIGEN from Australia, three of them under *Erioptera* s. str., three under *Meterioptera* ALEX., three under *Psiloconopa* ZETTERSTEDT and one under *Trimicra* OSTEN-SACKEN. I agree with most European workers (f.e. SAVCHENKO, OOSTERBROEK & STARY 1992) that *Psiloconopa* and *Trimicra* do not belong in *Erioptera*. Accordingly, *Trimicra* is not treated in this paper. Of the species listed under *Psiloconopa*, one is, in my opinion, a member of *Erioptera* s. str., whereas the other two are synonyms of one and the same species belonging in the genus *Erioptera* but not fitting any of the available subgenera. A new subgenus is therefore established in this paper, and five new species are described.

**D e f i n i t i o n :** Front of head only slightly produced; antennae usually 16 segmented, with flagellar segments progressively smaller outwardly. Middle and hind coxae widely separated, the meron large, more extensive than the midcoxa, producing a pot-bellied appearance; setae of legs simple, vestiture not unusually long and conspicuous. Wing: Sc2 proximal to first fork of Rs; R1+2 and anterior branch of Rs ending beyond 2/3 wing length; R2 originating from R2+3; Rs ending in cell R4; R4 captured by R2+3 to form an element R2+3+4; cell R3 much longer than its petiole; R5 not fused with M1+2, thus r-m preserved; cell dm usually absent; bscu at or shortly before fork of M; M3 and CuA1 fused for some distance.

**H a b i t a t** of larvae: According to ALEXANDER (1972) the immature stages of *Erioptera* occur in the wet earth along streams or in swamps and bogs.

**D i s t r i b u t i o n :** All zoogeographic regions. In Australia: eastern, northern.

Subgenera in Australia:

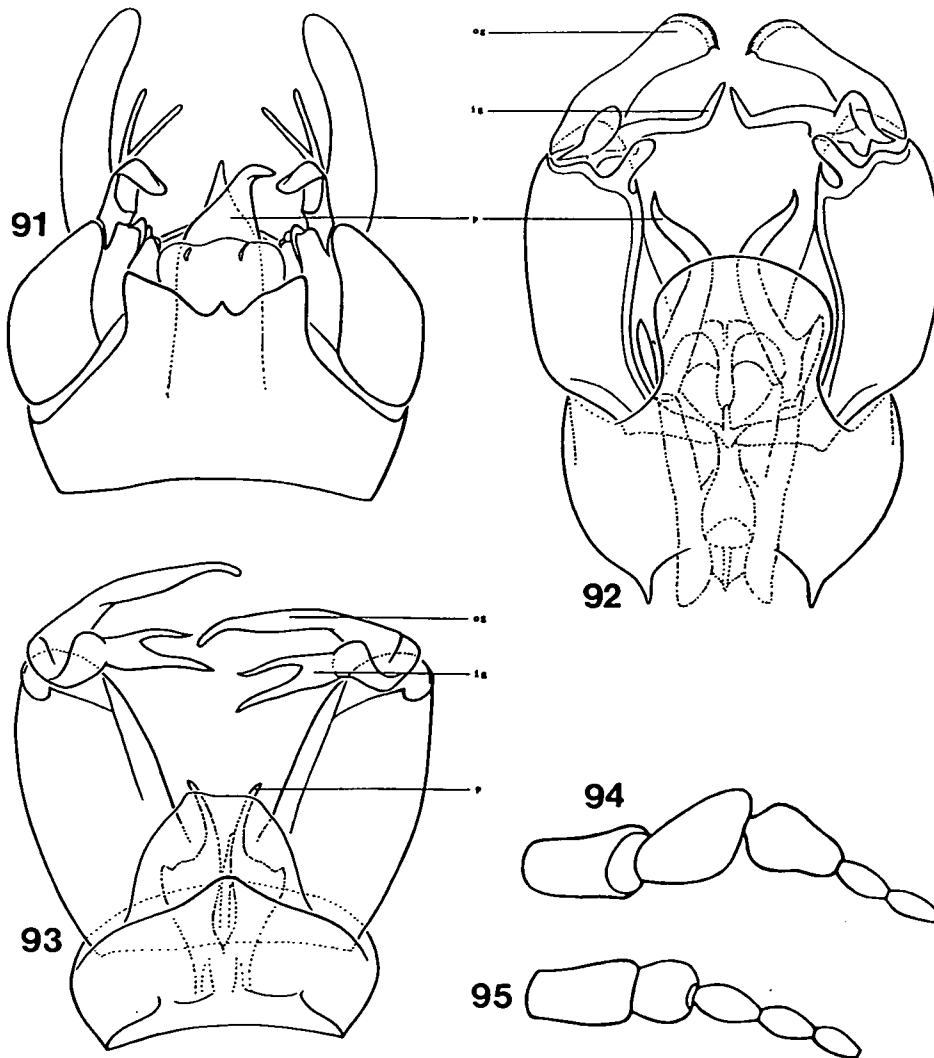
*Alcheringa* sg. n.

*Erioptera* MEIG.

*Meterioptera* ALEX.

**Key to the subgenera of *Erioptera* MEIGEN in Australia (Figs 91-95)**

1. Male hypopygium with parameres (p) completely fused medially (Fig. 91).....  
 ..... *Alcheringa*
- Male hypopygium with parameres (p) widely separated (Figs 92, 93) ..... 2
- 2 (1). Flagellum of antennae with basal fusion segment (Fig. 94); male hypopygium with apex of outer gonostylus (og) spinulate, and with inner gonostylus (ig) distinctly bent and pointed (Fig. 92).....*Meterioptera*
- Flagellum of antennae without basal fusion segment (Fig. 95); male hypopygium with apex of outer gonostylus (og) not spinulate, and with inner gonostylus (ig) not distinctly bent and pointed (Fig. 93)..... *Erioptera*



Figs 91-95. Base of antenna and male hypopygium, dorsal aspect, of *Erioptera* species, representing the subgenera: *Alcheringa* sg. n. (91); - *Meterioptera* ALEX. (92, 94); - *Erioptera* MEIG. (93, 95). Abbreviations: ig = inner gonostylus; og = outer gonostylus; p = parameres.

**Subgenus *Erioptera* MEIGEN (Figs 93, 95, 96, 255-262)**

*Polymeda* MEIGEN, Nouvelle classification des mouches a deux ailes, (Diptera L.), d'apres un plan tout nouveau: 14 (1800) (as genus). Suppressed by I.C.Z.N., Opinion 678, Bull. Zool. Nomencl. 20: 339 (1963).

*Erioptera* MEIGEN, Magazin Insektenk., (Illiger) 2: 262 (1803) (as genus). (See also under genus *Erioptera* MEIGEN.).

*Polyraphia* MEIGEN, Systematische Beschreibung der bekannten europäischen zweiflügeligen Insekten 1: 11 (1818) (as genus).

*Polyrhaphia* AGASSIZ, Nomenclatoris zoologici index universalis, continens nomina systematica classium, ordinum, familiarum et generum animalium omnium, tam viventium quam fossilium, secundum ordinem alphabeticum unicum disposita, adjectis homonymiis plantarum, nec non variis adnotationibus et emendationibus: 304 (1847) (unjustified emendation of *Polyraphia*).

*Chemalida* RONDANI, Dipterologiae Italicae prodromus, I: 180 (1856) (as genus).

*Ilisophila* RONDANI, Dipterologiae Italicae prodromus, I: 180 (1856) (as genus).

*Limnoea* RONDANI, Dipterologiae Italicae prodromus, I: 181 (1856) (as genus).

*Limnoica* RONDANI, Dipterologiae Italicae prodromus, IV: 11 (1961) (unnecessary new name for *Limnoea*).

*Limnaea*, error for *Limnoea*.

Type species of *Erioptera* MEIGEN: *Erioptera lutea* MEIGEN 1804, designated by COQUILLET 1910: 540. Type species of *Polyraphia* MEIGEN: *Erioptera taenionota* MEIGEN 1818, designated by COQUILLET 1910: 594. Type species of *Chemalida* RONDANI: *Erioptera taenionota* MEIGEN 1818, by monotypy. Type species of *Ilisophila* RONDANI: *Erioptera lutea* MEIGEN 1804, by monotypy. Type species of *Limnoea* RONDANI: *Erioptera flavescens* LINNAEUS, 1758, by monotypy.

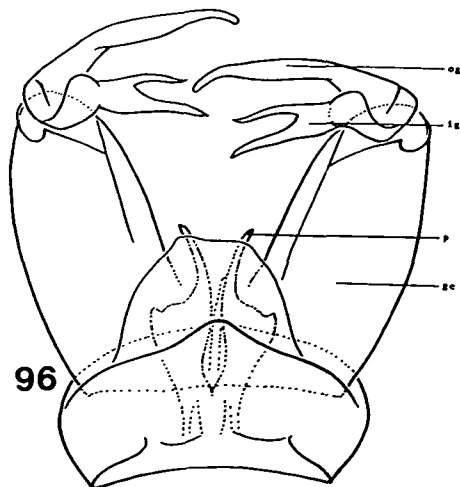


Fig. 96. *Erioptera (Erioptera) diplacantha* ALEX., male hypopygium, dorsal aspect. Abbreviations: ge = gonocoxite; ig = inner gonostylus; og = outer gonostylus; p = parameres.

**Definition:** Flagellum of antennae without basal fusion segment (Fig. 95). Male hypopygium (Fig. 96): gonocoxite (ge) without long finger-like ventral lobe; apex of outer gonostylus (og) without concentration of small spines; inner gonostylus (ig) not strongly bent; parameres (p) symmetrical, widely separated.

**Distribution:** All zoogeographic regions. In Australia: eastern, northern.

**Species in Australia:**

<i>E. (E.) coolbyngga</i> sp. n.	<i>E. (E.) perexquisita</i> ALEX.
<i>E. (E.) diplacantha</i> ALEX.	<i>E. (E.) wellsae</i> sp. n.
<i>E. (E.) funesta</i> ALEX.	<i>E. (E.) yarraga</i> sp. n.
<i>E. (E.) lucerna</i> ALEX.	<i>E. (E.) yarto</i> sp. n.
<i>E. (E.) otayba</i> sp. n.	

***Erioptera (Erioptera) lucerna* ALEXANDER (Fig. 255)**

*Erioptera (Erioptera) lucerna* ALEXANDER, Ann. Mag. nat. Hist. (9) 17: 184 (1926).

Primary type: Holotype ♂: Queensland, Burpengary, July 1919 (NMNH); seen.

Published records: Queensland: Burpengary (ALEXANDER 1926: 185). New South Wales: Homebush (ALEXANDER 1944: 10).

Previously known only from male.

Description of female: Structure and colouration much as described for male (ALEXANDER 1926). Wing length 4,2-5,0 mm.

Genitalia: Male hypopygium, Fig. 255.

Remarks: Not similar to any other described species from Australia. Diagnostic characters (male): gonocoxite produced considerably beyond the level of insertion of the gonostyli.

New records: Queensland: Conondale, Bundaroo Ck (GT). New South Wales: Bawley Point (ANIC); 0,5 km SE Lansdowne, 0-10 m (GT); Macquarie Rivulet (GT); Wingham Brush, Wingham (GT). Victoria: Wallagaraugh (ANIC). Tasmania; Melaleuca nr Bathurst Harbour (ANIC).

Distribution: Queensland (SEQ), New South Wales (NEN, SEN), Victoria, Tasmania.

***Erioptera (Erioptera) diplacantha* ALEXANDER (Figs 93, 95, 96, 256)**

*Erioptera (Erioptera) diplacantha* ALEXANDER, Ann. Mag. nat. Hist. (10) 7: 33 (1931).

Primary type: Holotype ♂: Queensland, Mount Tamborine, 2000 ft, 20.2.1928, W.H. Davidson (NMNH); seen.

Published records: Queensland: Mt Tamborine, 2000 ft (ALEXANDER 1931a: 34). New South Wales: Brooklana, Eastern Dorrigo, ca 2000 ft (ALEXANDER 1931a: 34); Eastern Dorrigo (ALEXANDER 1944: 10).

Previously known only from male.

Description of female: Structure and colouration much as described for male (ALEXANDER 1931a). Wing length 5,1 mm.

Genitalia: Male hypopygium, Figs 95, 96, 256.

Remarks: Similar to the species centred around and including *E. perexquisita* ALEX. (see there). Diagnostic characters: wings without pattern; tergite 9 of male slightly produced medially; apex of outer gonostylus slender and rounded; inner gonostylus bifid, the two branches subequal in length and almost parallel to each other.

New records: Queensland: Boulomba Ck (GT); Green Mtn, Lamington N. P. (ANIC); Lamington N. P. (ANIC); Mt Glorious (NMNH). New South Wales: Dingo Tops Forest Park, NW Wingham, 950 m (GT); Dorrigo N. P., 2400 ft (ANIC); Hyam's Beach, Jervis Bay (ANIC); Minnamurra Falls (ANIC).

Distribution: Queensland (SEQ), New South Wales (NEN, SEN).

### *Erioptera (Erioptera) funesta* ALEXANDER

*Erioptera (Erioptera) funesta* ALEXANDER, Ann. Mag. nat. Hist. (9) 17: 183 (1926).

Primary type: Holotype ♀: Tasmania, Eaglehawk Neck, Tasman Peninsula, 22.11.1922, A. Tonnoir (ANIC); seen.

Published records: Tasmania: Eaglehawk Neck (ALEXANDER 1926: 184). Known only from female.

Original Description: Length about 4 mm; wing 5 mm. Rostrum and palpi dark brown; antennal scape dark brown, flagellum broken; head dark brown. Pronotum dark, the posterior notum slightly obscure brownish yellow; mesonotal praescutum dark brown, the lateral margin fading into brownish yellow; viewed dorsally there is a distinct darker brown line on either side of the broad median area, this line extending caudad to the level of pseudosutural fovae; a fainter and even narrower median brown line passes between the approximated tuberculate pits; scutal lobes concolorous with the praescutum, the median area pale; scutellum dark brown, shiny; postnotum dark brown, grey pruinose; pleura dark brownish grey with a broad paler longitudinal stripe on the dorsal portion of the sternopleurite; dorso-pleural membrane dark. Legs with the coxae and trochanters brownish testaceous; remainder of legs broken. Wings relatively narrow, especially the basal half, with a pale brown tinge; veins darker brown; macrotrichiae short, still darker; R2+3 long, approximately three times the basal deflection of R4+5; m-cu a short distance before the fork of M; distal section of Cu1 nearly straight, the tips only vaguely deflected; apical situation of vein A2 longer than in *E. simulans* ALEX.; all apical forks deep. Halteres pale, the knobs infuscated. Abdomen dark brown, with yellow setae; ovipositor with the valves horn-colored; tergal valves stout, relatively broad, strongly upcurved to the acute tips.

Remarks: A clear assessment of this species is not possible at the present as the male is still unknown. Potential diagnostic characters: wings without pattern; apical sinuation of vein A2 long.

New records: None.

Distribution: Tasmania; known only from Eaglehawk Neck.

***Erioptera (Erioptera) perexquisita* ALEXANDER (Fig. 257)**

*Erioptera (Psiloconopa) perexquisita* ALEXANDER, *Studia ent.* 20: 170 (1978).

Primary type: Holotype ♀: Queensland, O'Reilly's Guest House, Lamington Park, light trap, 19-21.10.1972, Hemmingsen (NMNH); seen.

Published records: Queensland: O'Reilly's, Lamington P. (ALEXANDER 1978b: 171).

Previously known only from female.

Description of male: Structure and colouration much as described for female (ALEXANDER 1978b). Wing length 2,9-4,2 mm.

Genitalia: Hypopygium, Fig. 257.

Remarks: Most similar to *E. yarto* sp. n., similar to *E. coolbyngga* sp.n. Diagnostic characters: two large dark patches in distal half of wing not broadly (between C and R) connected; tergite 9 of male posteriorly convex; outer gonostylus subterminally not expanded, apex feebly bidentate; inner gonostylus slightly curved, tapered, simple, with apex rounded; lateral elements of aedeagal complex slightly divergent.

New records: Queensland: Austral Forest, via Bulburin (AM); Bald Mtn area (AM); Conondale, Bundaroo Ck (GT); Green Mtn, Lamington N. P. (ANIC). New South Wales: Bruxner Park, Coffs Harbour (ANIC); Cockerawombeeba Ck, 23 km WNW Bellangry, 730 m (GT); 5 mi. W of Coffs Harbour (ANIC); Mt Dromedary, 1000 ft (ANIC); Mt Keira (ANIC); Wilson R. Res., 15 km NW Bellangry, 244 m (GT).

Distribution: Queensland (SEQ), New South Wales (NEN, SEN).

***Erioptera (Erioptera) yarto* spec. nov. (Fig. 258)**

Description: Head largely blackish brown, including rostrum, palps, scape and pedicel; flagellum of antennae pale greyish brown. Much of scutum, scutellum, mediotergite and laterotergites greyish- to yellowish brown; thoracic pleura with dorsal portion and much of ventral portion dark greyish brown, in between greyish yellow. Coxae and trochanters pale greyish brown; remainder of legs greyish yellow to greyish brown, the terminal three tarsal segments and claws darkest. Wings whitish subhyaline with large greyish brown patches, particularly in distal half, but also before arculus



and around origin of Rs; much of cells C, Sc, R4 and R5, and a cloud along vein A2 pale greyish brown; usually none of the large distal patches connected between C and R. Halteres greyish yellow to greyish brown. Abdomen yellowish- to greyish brown. Wing length, male 3,5-4,5 mm, female 3,3-4,4 mm.

**Genitalia:** Male hypopygium, Fig. 258.

**Remarks:** Most similar to *E. perexquisita* ALEX., similar to *E. coolbyngga* sp. n. Diagnostic characters: two large dark patches in distal half of wing not broadly (between C and R) connected; tergite 9 of male markedly produced medially; outer gonostylus slightly expanded subterminally, apex feebly bidentate; inner gonostylus parallel sided for most of its length, simple, with apex rounded; lateral elements of aedeagal complex strongly convergent.

**Material examined:** Holotype ♂: Queensland, Bellenden Ker Range, Cable Tower 3, 1054 m, rainforest, malaise trap, 17.10.-5.11.1981, Earthwatch/Queensland Museum (QM). Paratypes: Queensland: 4♂♂, 2♀♀, same data as holotype (UQ); 2♀♀, Carron Creek, Kirrama State Forest, Apr. 1993, G. Theischinger (GT); 2♂♂, Danbulla Forest Reserve, 13 km NW by N of Yungaburra, at light, 16.11.1981, D.H. Colless (ANIC); 2♀♀, 15°50'S/145°20'E, Gap Creek, 5 km ESE Mount Finnigan, malaise trap, 16.5.1981, D.H. Colless (ANIC); 2♀♀, 1 mi. E of Kuranda, 11.3.1964, I.F.B. Common & M.S. Upton (ANIC); 1♀, 17°05'S/145°38'E, E of Mount Edith, 800m, rainforest creek, malaise, 22-27.4.1994, B. Sinclair (GT); 1♂, Mt Haigh, 21 km NE by E of Atherton, at light, 17.11.1981, D.H. Colless (ANIC); 6♂♂, 1♀, 12 km ENE of Ravenshoe, 14.11.1981, D.H. Colless (ANIC); 2♂♂, 18 km N of Ravenshoe, nr The Craters, at light, 28.11.1981, D.H. Colless (ANIC); 7♂♂, 1♀, Sluice Ck, 8 km W by S Millaa Millaa, at light, 25.4.1981, D.H. Colless (ANIC).

**Distribution:** Queensland (CY, NEQ).

**Name:** Yarto is an Australian Aboriginal word for "wind".

### *Erioptera (Erioptera) coolbyngga* spec. nov. (Fig. 259)

**Description:** Head largely brownish grey; rostrum, palps, scape and pedicel dark greyish brown, flagellum greyish yellow. Thoracic terga largely pale greyish- to yellowish brown, except for lateral margin of prescutum which is pale greyish yellow; pleura with dorsal and much of ventral portion dark greyish brown, in between pale greyish yellow. Legs pale greyish brown. Wings whitish hyaline with large greyish brown patches, particularly in distal half, before arculus and around origin of Rs; most of cells C, Sc, R4 and R5 and along vein A2 yellowish- to pale greyish brown. Halteres pale to dark greyish brown. Abdomen pale greyish brown to blackish brown. Wing length, male 3,0-3,7 mm, female 3,0-3,7 mm.

**Genitalia:** Male hypopygium, Fig. 259.

**Remarks:** Similar to *E. perexquisita* ALEX. and *E. yarto* sp. n. Diagnostic characters: two large dark patches in distal half of wing broadly (between C and R)

connected; tergite 9 of male very slightly produced medially; apex of outer gonostylus tridentate; inner gonostylus forked, outer branch straight and much shorter than curved inner branch, the branches not parallel to each other.

**Material examined:** Holotype ♂: Queensland, Cape Tribulation, Daintree rainforest, Earthwatch Australia (ANIC). Paratypes: 1♂, 1♀, same data as holotype (ANIC); 2♂♂, Bamboo Creek, near Miallo, N of Mossman, 25.4.1967, D.H. Colless (ANIC); 1♀, 17°25'S/145°51'E, Bartle Frere track, 200 m, rainforest creek, 12-21.4.1994, B. Sinclair (GT); 1♀, Bellenden Ker Range, Cable Tower 3, 1054 m, rainforest, malaise trap, 17.10.-5.11.1981, Earthwatch/Queensland Museum (UQ); 1♀, Bellenden Ker Range, Cableway Base Stn, 100 m, rainforest, malaise trap, 17.10.-9.11.1981, Earthwatch/Queensland Museum (UQ); 1♂, Goddard Creek, Kirrama State Forest, Apr. 1993, G. Theischinger (GT); 1♂, 1 mi. E of Kuranda, 11.3.1964, I.F.B. Common & M.S. Upton (ANIC); 1♂, Little Crystal Creek, Paluma, 25.11.1992, G. Theischinger (GT); 3♀♀, Moses Creek, 4 km N by E of Mount Finnigan, at light, 16.10.1980, D.H. Colless (ANIC); 1♀, Nind's Creek, Innisfail, light trap, 18.6.1963, H. Standfast (ANIC); 1♂, Sluice Creek, 8 km W by S Millaa Millaa, at light, 25.4.1981, D.H. Colless (ANIC); 1♂, 1 sp., 17°20'S/145°31'E, Wongabel State Forest, near Atherton, at light, 18.11.1981, D.H. Colless (ANIC).

**Distribution:** Queensland (CY, NEQ).

**Name:** Coolbyngga (= Australian Aboriginal word for "painting") refers to the heavy wing pattern.

### ***Erioptera (Erioptera) yarraga spec. nov. (Fig. 260)***

**Description (♂):** Head largely greyish brown, including rostrum, palps and antennae. Thorax yellowish- to greyish brown. Coxae and trochanters pale greyish brown, femora, tibiae, tarsi and claws greyish- to blackish brown. Wings pale brownish hyaline without any pattern. Halteres with stem yellowish- to greyish brown and knob dark greyish brown. Abdomen pale greyish brown. Wing length 3,3-3,7 mm.

**Genitalia:** Hypopygium, Fig. 260.

Female unknown.

**Remarks:** Similar in structure to the species centred around and including *E. perexquisita* ALEX. Diagnostic characters: wings without pattern; tergite 9 of male markedly produced medially; outer gonostylus slightly expanded subterminally, apex bidentate; inner gonostylus evenly tapered to a point.

**Material examined:** Holotype ♂: Queensland, Sluice Creek, 8 km W by S Millaa Millaa, at light, 25.4.1981, D.H. Colless (ANIC). Paratypes: Queensland: 2♂♂, same data as holotype (ANIC); 1♂, Bellenden Ker Range, Cable Tower 3, 1054m, rainforest, malaise trap, 17.10.- 5.11.1981, Earthwatch/Queensland Museum (UQ); 1♂, Mount Haigh, 21 km NE by E of Atherton, at light, 17.11.1981, D.H. Colless (ANIC).

**Distribution:** Queensland (NEQ).

**Name:** Yarraga is an Australian Aboriginal word for "spring wind".

***Erioptera (Erioptera) otayba* spec. nov. (Fig. 261)**

**Description:** Head largely greyish white; rostrum, palps and antennae yellowish-to greyish brown. Thoracic terga largely greyish brown except for pronotum, sides of scutum and scutellum which are greyish- to yellowish white; pleura with much of dorsal and ventral portion dark greyish brown, in between greyish white. Coxae greyish brown; remainder of legs largely greyish yellow to pale greyish brown, femora with black subapical ring, terminal three tarsal segments markedly darker than rest. Wings greyish hyaline with dark greyish brown clouds at vein forks and intersections, along crossveins and at the end of longitudinal veins. Halteres greyish yellow. Abdomen greyish brown. Wing length, male 2,8 mm, female 3,3-3,8 mm.

**Genitalia:** Male hypopygium, Fig. 261.

**Remarks:** Not similar to any other described species from Australia. Diagnostic characters: tergite 9 of male strongly produced medially into a sharp point; gonocoxite with dorsal lobe large, subtrapezoid, expanded posteromedially; outer gonostylus with apex pointed, claw- like; inner gonostylus curved, almost parallel sided, with apex rounded.

**Material examined:** Holotype ♂: Queensland, Nind's Creek, Innisfail, light trap, 18.6.1963, H. Standfast (ANIC). Paratypes: 2 ♀♀, same data as holotype (ANIC).

**Distribution:** Queensland (NEQ).

**Name:** Otayba is an Australian Aboriginal word for "bird".

***Erioptera (Erioptera) wellsae* spec. nov. (Fig. 262)**

**Description:** Head largely pale greyish brown, including rostrum, palps and antennae. Thoracic terga yellowish-to pale greyish brown; pleura greyish yellow. Legs pale to dark greyish yellow. Wings yellowish- to greyish hyaline, without any pattern. Halteres pale greyish yellow. Abdomen yellowish- to greyish brown. Wing length, male 4,1 mm, female 3,9-4,5 mm.

**Genitalia:** Male hypopygium, Fig. 262.

**Remarks:** Similar to *E. angustifascia* ALEX. and *E. simulans* ALEX., but of different antennal structure. Diagnostic characters: apical half of tergite 9 of male widely bifurcate; gonocoxite with dorsal lobe produced into a narrow, medially directed lobule; outer gonostylus apically pointed or slightly serrate; inner gonostylus wide at base, constricted at the middle, and with distal portion broadly oval.

**Material examined:** Holotype ♂: Northern Territory, Berry Springs, 12°42'S/130°58'E, 30.10.-4.12.1991, Wells and Webber (ANIC). Paratypes: Northern Territory: 1♀, same data as holotype (NTM); 1♂, 1♀, type locality, 29.7.-27.9.1991, Wells and Webber (NTM).

**Distribution:** Northern Territory (NNT); known only from Berry Springs.

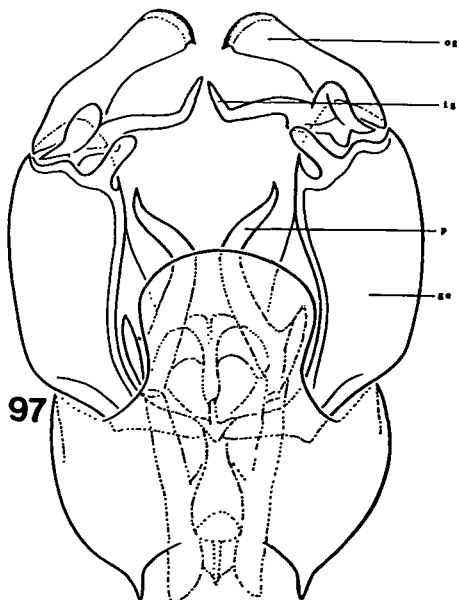
**Name:** Dedication to Dr Alice Wells who collected the material.

### Subgenus *Meterioptera* ALEXANDER (Figs 92, 94, 97, 263, 264)

*Meterioptera* ALEXANDER, Philipp. J. Sci. 52: 462 (1934).

**Type species:** *Erioptera javanensis* DE MEIJERE 1911, by original designation.

**Definition:** Antennae (Fig. 94) with several of the basal segments of flagellum



united into a truncate-conical fusion segment, the antennae thus appearing to have fewer than the usual 16 segments. Male hypopygium (Fig. 97): gonocoxite (ge) without long finger-like ventral lobe; apex of outer gonostylus (og) with concentration of small spines; inner gonostylus (ig) strongly bent before midlength; parameres (p) symmetrical, widely separated.

**Distribution:** Palaearctic, Afrotropical, Oriental and Australian regions. In Australia: eastern.

**Species in Australia:**

*E. (M.) angustifascia* ALEX.

*E. (M.) illingworthi* ALEX.

*E. (M.) simulans* ALEX.

Fig. 97. *Erioptera (Meterioptera) angustifascia* ALEX., male hypopygium, dorsal aspect. Abbreviations: ge = gonocoxite; ig = inner gonostylus; og = outer gonostylus; p = parameres.

### *Erioptera (Meterioptera) angustifascia* ALEXANDER (Figs 94, 97, 263)

*Erioptera (Erioptera) angustifascia* ALEXANDER, Proc. R. Soc. Qd 32: 96 (1920).

*Erioptera (Meterioptera) angustifascia* ALEXANDER; ALEXANDER, Philipp. J. Sci. 53: 463 (1934).

**Primary type:** Holotype ♀: Queensland, Meringa, near Cairns, 1918, J.F. Illingworth (NMNH); seen.

**Published records:** Queensland: Meringa, nr Cairns (ALEXANDER 1920c: 97).

Previously known only from female.

**Description of male:** Structure much as described for female (ALEXANDER 1920c), colouration somewhat darker (different preservation of specimen). Wing length 3,7 mm.

**Genitalia:** Hypopygium, Figs 94, 97, 263.

**Remarks:** Similar to *E. simulans* ALEX. Diagnostic characters: tergite 9 medially produced into a wide, extensive, rounded lobe; gonocoxite with dorsal lobe produced into a narrow postero-medially directed lobule; inner gonostylus wide at base, distally narrow, tapered.

**New records:** Queensland: Mt Cook N. P. (ANIC).

**Distribution:** Queensland (CY, NEQ).

### ***Erioptera (Meterioptera) illingworthi* ALEXANDER**

*Erioptera (Erioptera) illingworthi* ALEXANDER, Proc. Roy. Soc. Qd **32** (7): 97 (1920).

*Erioptera (Meterioptera) illingworthi* ALEXANDER; ALEXANDER, Ann. ent. Soc. Am. **41**: 145 (1948). Primary type. Holotype ♀: Queensland, Meringa, near Cairns, 1918, J.F. Illingworth (NMNH); seen.

**Published records:** Queensland: Meringa, nr Cairns (ALEXANDER 1920c: 98). Known only from female.

**Original description (from alcoholic specimen):** Length about 5,5 mm; wing 4,3 mm. Rostrum pale yellowish brown; palpi brown; antennae light brown; eyes rather small, widely separated by the vertex; head pale brownish yellow. Mesonotum pale brownish yellow, the praescutum without distinct darker stripes; pleura yellow. Legs with the coxae and trochanters yellow; remainder of the legs yellow with only the terminal segments of the tarsi darkened. Wings pale brownish yellow; veins pale brown; Sc1 ending nearly opposite r, Sc2 just beyond the origin of Rs; Rs long, straight; r on R2 about its own length beyond the fork of R2+3; cell 1st M2 open; A2 strongly sinuous before its end. Halteres pale. Abdomen brownish yellow; ovipositor with the tergal valves long and slender, the upward curve almost a semicircle.

**Remarks:** A clear assessment of this species is not possible at the present as the male is still unknown. Potential diagnostic characters (female): strong upward curve of cerci.

**New records:** None.

**Distribution:** Queensland (NEQ).

***Erioptera (Meterioptera) simulans* ALEXANDER (Figs 92, 264)**

*Erioptera ochracea* SKUSE, Proc. Linn. Soc. N.S.W. 4: 819 (1890) (preoccupied by MEIGEN 1818).

*Erioptera (Erioptera) simulans* ALEXANDER, Ann. Mag. nat. Hist. (9) 17: 184 (1926) (replacement name for *Erioptera ochracea* SKUSE).

*Erioptera (Meterioptera) simulans* ALEXANDER; ALEXANDER, Insecta Micronesia 12: 839 (1972).

Primary type: Lectotype ♂, by present designation, of *Erioptera ochracea* SKUSE: New South Wales, Masters and Skuse (ANIC); seen; additionally labelled "Lectotype ♂ *Erioptera ochracea* SKUSE, designated by G. Theischinger 1994".

Published records: New South Wales: generally distributed (SKUSE 1890: 820); Sydney; Narara (both ALEXANDER 1926: 184).

Genitalia: Male hypopygium, Fig. 264.

Remarks: Similar to *E. angustifascia* ALEX. Diagnostic characters (male): tergite 9 bilobed; inner gonostylus rather evenly tapered.

New records: Queensland: Brisbane (ANIC); Darr R., 31 km NW by N of Longreach (ANIC); Ingham (ANIC); 3 km NE by N of Julatten (ANIC); Maleny (ANIC). New South Wales: Alpine Ck (ANIC); 53 km NE of Deniliquin, Jerilderie Rd (ANIC); 5-7 km NE of Harrington (GT); Mt Kembla (ANIC); Sydney (ANIC). Victoria: Quantong (BPBM). Northern Territory: Cooper Ck, 19 km E by S of Mt Borradaile (ANIC); Corndorl billabong, nr Jabiru (NTM).

Distribution: Queensland (NEQ, SEQ, SIQ), New South Wales (NEN, SEN), Victoria, Northern Territory (NNT, IA).

***Alcheringa* subgen. nov. (Figs 91, 98, 99, 265)**

Type species: *Erioptera amabilis* ALEXANDER 1926, by monotypy.

Definition: Antennae without basal fusion segment. Wing as in Fig. 98. Male hypopygium (Fig. 99): gonocoxite (ge) with long finger-like ventral lobe (vl); outer gonostylus (og) an extremely slender fork; parameres (p) completely fused to form an asymmetrical hook-like structure.

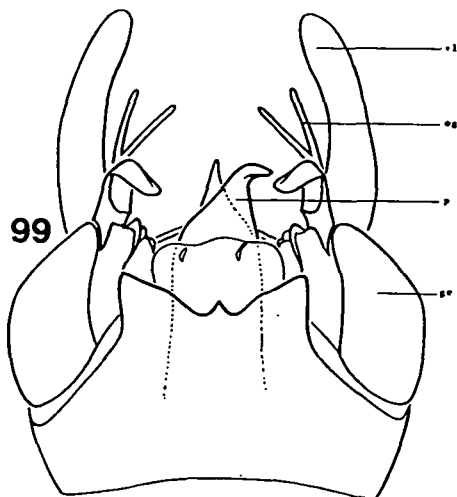
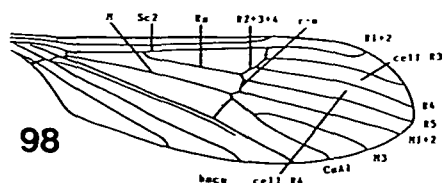


Fig. 98: *Erioptera (Alcheringa) amabilis* ALEX., wing venation.

Fig. 99: *Erioptera (Alcheringa) amabilis* ALEX., male hypopygium, dorsal aspect. Abbreviations: ge = gonocoxite; og = outer gonostylus; p = parameres; vl = ventral lobe of gonocoxite.

Distribution: Australian region. In Australia: south-eastern.

Only one species in Australia:

*E. (A.) amabilis* ALEX.

*Erioptera (Alcheringa) amabilis*  
ALEXANDER (Figs 91, 98, 99, 265)

*Erioptera amabilis* ALEXANDER, Ann. Mag. nat. Hist. (9) 17: 181 (1926).

*Erioptera delectabilis* ALEXANDER, Ann. Mag. nat. Hist. (9) 17: 182 (1926).

*Erioptera (Psiloconopa) amabilis* ALEXANDER; ALEXANDER, Studia ent. 20: 171 (1978).

Primary types: Holotype ♂ of *Erioptera amabilis* ALEXANDER: New South Wales, Mount Wilson, Blue Mountains, 19.11.1921, A. Tonnoir (ANIC); seen. Holotype ♂ of *Erioptera delectabilis* ALEXANDER; Victoria, Sassafras, Mount Dandenong, 19.10.1922, A. Tonnoir (ANIC); seen.

Published records: New South Wales: Mt Wilson, Blue Mts (ALEXANDER 1926: 182).  
Victoria: Sassafras, Mt Dandenong (ALEXANDER 1926: 183).

Previously known only from male.

Description of female: Structure and colouration much as described for male of *E. amabilis* ALEX. and *E. delectabilis* ALEX. (ALEXANDER 1926). Wing length 4,7-5,9 mm.

Genitalia: Male hypopygium, Figs 91, 99, 265.

Remarks: Not similar to any other described Australian species. There are apparently paler and darker populations which must have given reasons for the description of two species. At the present, however, it is not even possible to distinguish subspecies. Diagnostic characters: as above, under *Alcheringa* sg. n.

New records: New South Wales: Brown Mtn, Bega dist. (ANIC); Bruxner Park (ANIC); Mt Tomah (ANIC); Mt York, Blue Mts (ANIC). Victoria: Ben Cairn (ANIC); Bonang Hwy-Bendoc Rd jn, 10 km S of Bonang (ANIC); Cascades, nr Marysville (GT); Cement Ck (ANIC); Cement Ck, 1800 ft (ANIC); Cumberland Ck (ANIC); Marysville, Cumberland Ck (ANIC); Mt Baw Baw, 3100 ft (ANIC); Mt Donna Buang (GT); Sherbrook (ANIC); Taggerty R., 7 km E of Marysville (MV); Toorong Falls (ANIC); Warburton, 3800-4000 ft (MV); Wilson's Promontory, Chinaman's Ck (ANIC); Young's Ck, 12 km N of Orbost, Bonang Hwy (ANIC).

**Distribution:** New South Wales (NEN, SEN), Victoria.

### Genus *Cheilotrichia* ROSSI (Figs 100-102, 266, 267)

*Cheilotrichia* ROSSI, Systematisches Verzeichniss der zweiflügelichten Insecten (Diptera) des Erzherzogthumes Österreich mit Angabe des Standortes, der Flugzeit und einigen anderen physiologischen Bemerkungen: 12 (1848).

**Type species:** *Erioptera imbuta* MEIGEN 1818, by monotypy.

Hitherto, species of *Cheilotrichia* ROSSI were not recorded from Australia. Thus it came as a surprise when, during the preparation of the present revision, two new species of *Cheilotrichia* were discovered. One of them is a member of *Cheilotrichia* s. str., the other of the subgenus *Empeda* OSTEN-SACKEN.

**Definition:** Front of head only slightly produced; middle and hind coxa widely separated, the meron large, more extensive than the midcoxa, producing a pot-bellied appearance; setae of legs simple. Wing (Fig. 100) with Sc2 well proximal to first fork of Rs, or not detectable; R2 present, originating from R2+3+4; Rs ending in cell R4; free anterior branch of Rs (=R3) ending well beyond 2/3 wing length; cell R3 and its petiole (R2+3+4) subequal in length; R5 not fused with M1+2, r-m thus preserved; CuA2 and A1 not fused at tips.

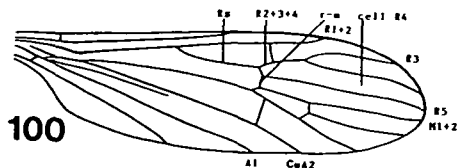


Fig. 100. *Cheilotrichia* (*Cheilotrichia*) *aroo* sp. n., wing venation.

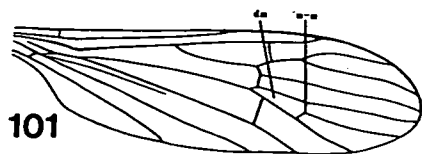
**Distribution:** All zoogeographic regions. In Australia: eastern (mainly north-eastern).

**Subgenera in Australia:**

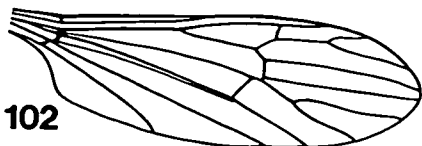
*Cheilotrichia* ROSSI

*Empeda* OST.-SACK.





101



102

### Key to the subgenera of *Cheilotrichia* in Australia (Figs 101, 102)

1. Wing with dm closed (Fig. 101).....  
..... *Cheilotrichia*
- Wing with dm open by atrophy of  
m-m (Fig. 102)..... *Empeda*

Figs 101, 102. Wing venation of: *Cheilotrichia (Cheilotrichia) aroo* sp. n. (101); - *Cheilotrichia (Empeda) kuranda* sp. n. (102).

### Subgenus *Cheilotrichia* ROSSI (Figs 100, 101, 266)

*Cheilotrichia* ROSSI, Systematisches Verzeichniss der zweiflügelichten Insecten (Dipteren) des Erzherzogthumes Österreich mit Angabe des Standortes, der Flugzeit und einigen anderen physiologischen Bemerkungen: 12 (1848) (as genus).

Type species: *Erioptera imbuta* MEIGEN 1818, by monotypy.

Definition: Wing (Fig. 101) with dm closed.

Distribution: Palaearctic, Afrotropical, Oriental and Australian regions. In Australia: eastern (mainly north-eastern).

Only one species in Australia:

*C. (C.) aroo* sp. n.

### *Cheilotrichia (Cheilotrichia) aroo* spec. nov. (Figs 100, 101, 266)

Description: Head including rostrum, palps and antennae greyish yellow. Thorax pale yellowish- to greyish brown. Legs greyish yellow. Wings yellowish hyaline without any pattern. Halteres with stem greyish yellow and knob pale yellowish brown. Abdomen greyish yellow to greyish brown. Wing length, male 2,3 mm, female 2,7 mm.

Genitalia: Male hypopygium, Fig. 266.

Remarks: Not similar to any other described Australian species. Diagnostic characters: as above, under subgenus *Cheilotrichia*.

**Material examined:** Holotype ♂: Queensland, Nind's Creek, Innisfail, light trap, 18.6.1963, H. Standfast (ANIC). Paratypes: Queensland: 1 ♀, same data as holotype (ANIC); 1 ♂, Brisbane, University site, Jan. 1968, c. u. (UQ); 1 ♂, 4 km SSE of Cape Tribulation, near Daintree, at light, 21-22.11.1981, D.H. Colless (ANIC).

**Distribution:** Queensland (NEQ, SEQ).

**Name:** Aroo is an Australian Aboriginal word for "fan of emu tail feathers"; it refers to the fan-like outer gonostylus of the male.

### **Subgenus *Empeda* OSTEN-SACKEN (Figs 102, 267)**

*Empeda* OSTEN-SACKEN, Smithson. misc. Collns 8 (219): 183 (1869) (as genus).

**Type species:** *Empeda stigmatica* OSTEN-SACKEN, 1869, by designation of COQUILLET 1910: 537.

**Definition:** Wing (Fig. 102) with dm open by atrophy of m-m.

**Distribution:** All zoogeographic regions. In Australia: north-eastern.

Only one species in Australia:

*C. (E.) kuranda* sp. n.

### ***Cheilotruchia (Empeda) kuranda* spec. nov. (Figs 102, 267)**

**Description:** Head largely dark grey; rostrum, palps and antennae greyish brown. Thoracic terga blackish brown; pleura greyish brown. Coxae and trochanters greyish yellow to pale greyish brown, femora pale greyish brown with about apical 1/5 brownish black; tibiae pale greyish brown with apex brownish black; basitarsi pale (basally) and dark (apically) greyish brown; other tarsal segments and claws dark greyish brown to black. Wings greyish hyaline without any pattern. Halteres yellowish- to greyish brown. Abdomen largely greyish brown. Wing length, male 2,6-2,7 mm, female 3,0 mm.

**Genitalia:** Male hypopygium, Fig. 267.

**Remarks:** Not similar to any other described Australian species. Diagnostic characters: as above, under subgenus *Empeda*.

**Material examined:** Holotype ♂: Queensland, 1 mi. E of Kuranda, 11.3.1964, I.F.B. Common and M.S. Upton (ANIC). Paratypes: 1 ♂, 1 ♀, same data as holotype (ANIC).

**Distribution:** Queensland (NEQ); known only from the type locality.

**Name:** From Kuranda, in north-eastern Queensland, where the species was found; to be treated as a noun in apposition.

### Genus *Gonomyia* MEIGEN (Figs 103-117, 268-286)

*Gonomyia* MEIGEN, Systematische Beschreibung der bekannten europäischen zweiflügeligen Insekten 1: 147 (1918).

**Type species:** *Limnobia tenella* MEIGEN 1918, by monotypy.

**Distribution:** All zoogeographic regions.

Only one subgenus in Australia:

*Lipophleps* BERGROTH.

### Subgenus *Lipophleps* BERGROTH (Figs 103-117, 268-286)

*Leiponeura* SKUSE, Proc. Linn. Soc. N.S.W. 4: 795 (1890).

*Lipophleps* BERGROTH, Psyche 22: 55 (1915) (unnecessary new name for *Leiponeura*). (In the interest of stability and in accordance with usage OOSTERBROEK (1989) adopted the name *Lipophleps* whereas *Leiponeura* is the correct name under the I.C.Z.N. Code).

**Type species:** *Leiponeura gracilis* SKUSE 1890 (= *Gonomyia skusei* ALEXANDER 1919), by designation of ALEXANDER 1913a: 503.

OOSTERBROEK (1889) listed eleven species of genus *Gonomyia* MEIGEN, subgenus *Lipophleps* BERGROTH, from Australia. Two species were described by SKUSE (1890). ALEXANDER (1919) renamed one of SKUSE's species (because of homonymy) and described the nine other species (ALEXANDER 1919, 1920c, 1921d, 1926, 1931a, 1950, 1978b). As a result of the present study, Australian *Gonomyia* (*Lipophleps*) is subdivided into seven species groups, and twelve species are described as new.

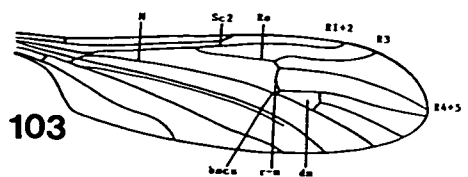


Fig. 103: *Gonomyia* (*Lipophleps*) *puckowe* sp. n., wing venation.

**Definition:** Front of head only slightly extended; antennae 16 segmented. Middle and hind coxae approximated, reducing the size of the meron which is not larger than the midcoxa; setae of legs simple. Wing (Fig.103): Sc2 proximal to fork of Rs; Rs in alignment with R3; R2 usually absent, and usually only 2 branches of Rs reaching wing margin; R1+2 and free anterior branch of Rs

ending well beyond 2/3 wing length; R4+5 and anterior branch of M converging towards wing margin; r-m present and rather long; bscu at or close to fork of M; cell dm closed.

**Habitat** of larvae: According to ALEXANDER (1972), the immature stages of *Gonomyia*, including *Lipophleps*, occur in wet sandy soil near water.

**Distribution**: All zoogeographic regions. In Australia: Australia-wide.

**Species groups in Australia:**

*G. (L.) brevivena* group

*G. (L.) mundewudda* group

*G. (L.) cairnensis* group

*G. (L.) perssoni* group

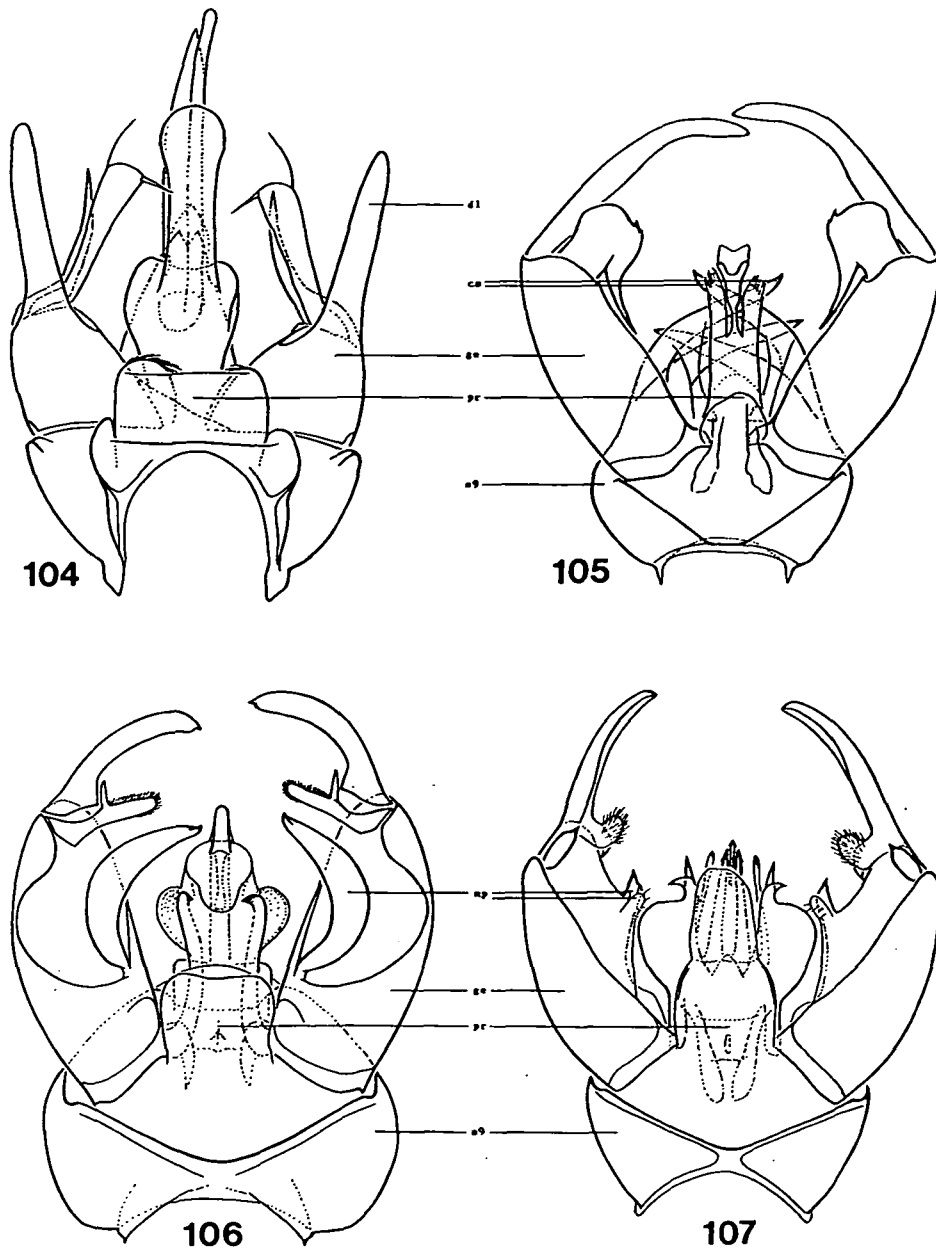
*G. (L.) dischidia* group

*G. (L.) skusei* group.

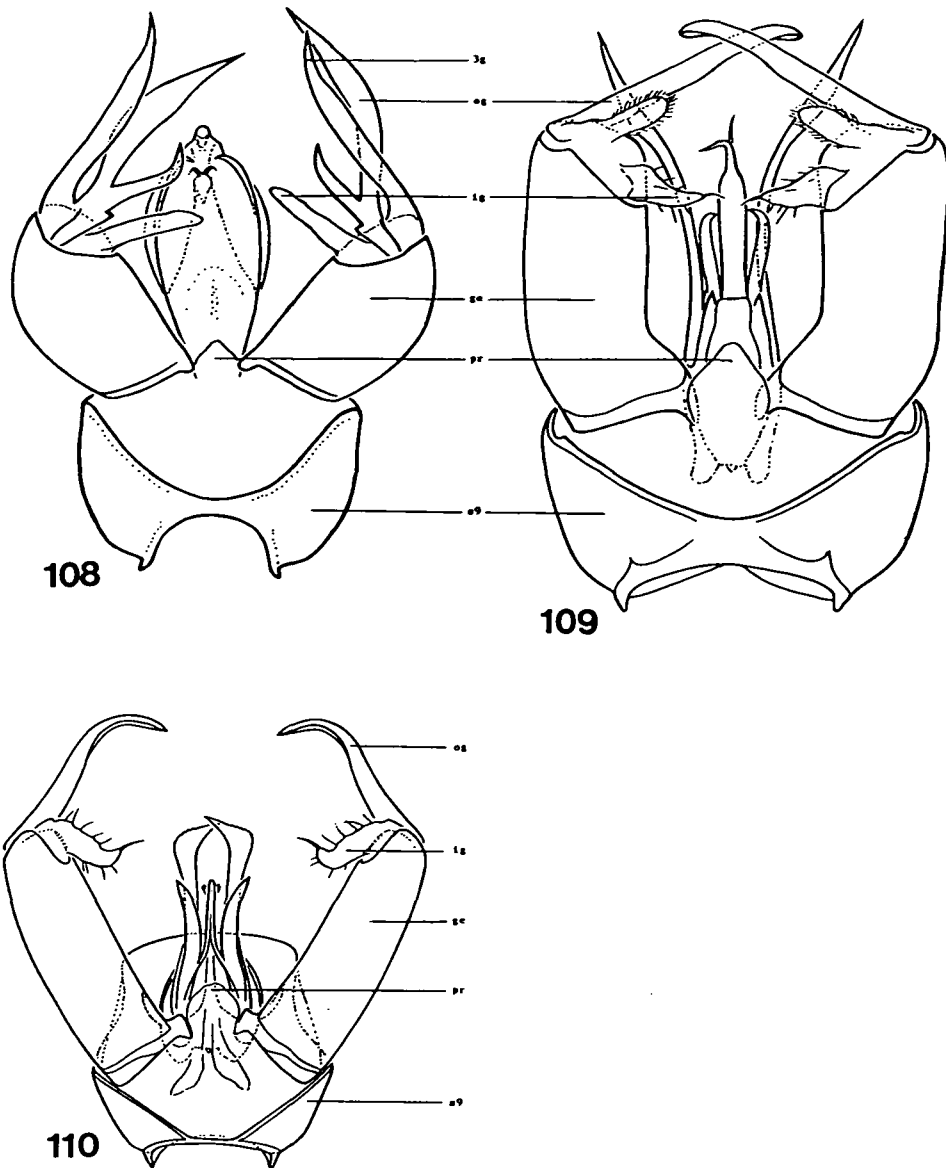
*G. (L.) hodgkini* group

**Key to the species groups of *Gonomyia (Lipophleps)* in Australia  
(Figs 104-110)**

1. Proctiger (pr) strongly developed and elaborate; gonocoxite (ge) with dorsolateral angle strongly produced (dl) (Fig. 104)..... *G. (L.) skusei* group
- Proctiger (pr) not particularly developed or elaborate; dorsolateral angle of gonocoxite (ge) not produced (Figs 105-110)..... 2
- 2 (1). Segment 9 (s9) strongly differentiated ventrally into two pairs of convergent spines (cs) which cross each other (Fig. 105)..... *G. (L.) mundewudda* group
- Segment 9 (s9) ventrally not conspicuously differentiated (Figs 106-110)..... 3
- 3 (2). Gonocoxite (ge) with mesal process(es) (mp) (Figs 106, 107)..... 4
- Gonocoxite (ge) without mesal process(es) (Figs 108-110)..... 5
- 4 (3). Gonocoxite (ge) with one long, curved mesal process (mp) (Fig. 106).....  
..... *G. (L.) hodgkini* group
- Gonocoxite (ge) with two short mesal processes (mp) (Fig. 107).....  
..... *G. (L.) cairnensis* group
- 5 (3). Three pairs of gonostyli (ig, og, 3g) (Fig. 108)..... *G. (L.) dischidia* group
- Two pairs of gonostyli (ig, og) (Figs 109, 110)..... 6
- 6 (5). Outer gonostylus (og) bilobed (Fig. 109) ..... *G. (L.) brevivena* group
- Outer gonostylus (og) simple (Fig. 110)..... *G. (L.) perssoni* group



Figs 104-107: Male hypopygium, dorsal aspect of *Gonomyia* (*Lipophleps*) species:  
104: *skusei* ALEX.; - 105: *mundewudda* sp. n.; - 106: *oolyarra* sp. n.; - 107: *cairnensis* ALEX.;



Figs 108-110: Male hypopygium, dorsal aspect of *Gonomyia (Lipophleps)* species: 108: *dischidia* ALEX.; - 109: *brevivena* (SKUSE); - 110: *perssoni* ALEX. Abbreviations: cs = convergent spines of sternite 9; ge = gonocoxite, ig = inner gonostylus; mp = mesal process(es) of gonocoxite; og = outer gonostylus; pr = proctiger; s9 = sternite 9; 3g = gonostylus 3.

***Gonomyia (Lipophleps) skusei* group (Figs 103, 104, 111, 268)**

Definition: Male hypopygium (Fig. 111): proctiger (pr) strongly developed and elaborate; gonocoxite (ge) with dorsolateral angle (dl) strongly produced; outer

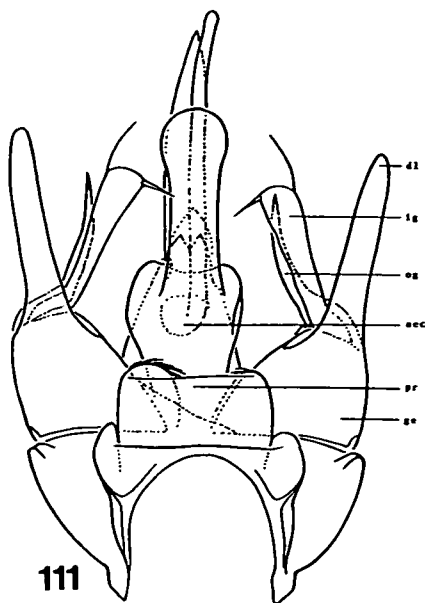


Fig. 111. *Gonomyia (Lipophleps) skusei* ALEX., male hypopygium, dorsal aspect. Abbreviations: aec = aedeagal complex; dl = dorsal lobe of gonocoxite; ge = gonocoxite; ig = inner gonostylus; og = outer gonostylus; pr = proctiger.

gonostylus (og) usually more strongly sclerotized than inner gonostylus (ig); aedeagal complex (aec) very compact, without distinct sclerotized lateral elements.

Distribution in Australia: Eastern (mainly south-eastern).

Species in Australia:

*G. (L.) baiame* sp. n.

*G. (L.) fuscohalterata* ALEX.

*G. (L.) mesoneura* ALEX.

*G. (L.) protenta* ALEX.

*G. (L.) puckowe* sp. n.

*G. (L.) skusei* ALEX.

*G. (L.) terraereginae* ALEX.

### *Gonomyia (Lipophleps) skusei* ALEXANDER (Figs 104, 111, 268)

*Leiponeura gracilis* SKUSE, Proc. Linn. Soc. N.S.W. 4: 796 (1890) (preoccupied by ZETTERSTEDT, 1838).

*Gonomyia (Leiponeura) skusei* ALEXANDER, Ann. ent. Soc. Am. 12: 30 (1919) (replacement name for *Leiponeura gracilis* SKUSE).

*Gonomyia (Lipophleps) skusei* ALEXANDER; ALEXANDER, Philipp. J. Sci. 43: 526 (1930).

Primary type: Lectotype ♀, by present designation, of *Leiponeura gracilis* SKUSE: New South Wales, Knapsack Gully, Blue Mountains, Sept., Masters and Skuse (ANIC); seen; additionally labelled "Lectotype ♀ *Leiponeura gracilis* SKUSE, designated by G. Theischinger 1994".

Published records: New South Wales: Knapsack Gully, Blue Mts; Sydney (both SKUSE 1890: 797).

Previous illustrations: SKUSE 1890: Pl. XXI, fig. 11 (wing); ALEXANDER 1978b: Fig. 47 (male hypopygium).

Genitalia: Male hypopygium, Figs 104, 111, 268.

Remarks: Most similar to *G. protenta* ALEX. and *G. terraereginae* ALEX. Diagnostic characters (male): dorsolateral lobe of gonocoxite and simple outer gonostylus subequal in length.

New records: New South Wales: Bawley Point (ANIC); Black Mtn, A.C.T. (ANIC); Pilliga NR, Timallallie Ck (GT). Victoria: Gipsy Point (ANIC).

Distribution: New South Wales (NEN, SEN), Victoria.

### ***Gonomyia (Lipophleps) fuscohalterata* ALEXANDER**

*Gonomyia (Lipophleps) fuscohalterata* ALEXANDER, Ann. Mag. nat. Hist. (9) 17: 185 (1926).

Primary type: Holotype ♀: New South Wales, Mount Wilson, Blue Mountains, 19.11.1921, A. Tonnoir (ANIC); seen.

Published records: New South Wales: Mt Wilson, Blue Mts (ALEXANDER 1926: 185).  
Known only from female.

Original Description: Length about 4,5 mm; wing 5 mm. Rostrum and palpi black; antennae black throughout; flagellar segments elongate-oval, the basal segments longer and thicker, the terminal segments very slender; verticils of moderate length only; head brown, the anterior vertex and the occiput conspicuously light yellow, separated by a dusky spot on the disk of the vertex. Pronotum and lateral pretergites conspicuously light yellow, the latter vaguely darkened beyond the pseudosutural fovae, the tegular region similarly light yellow; mesonotum dark brown, the pseudosutural fovae shiny brownish black, the extreme lateral margins of the praescutum a little paler; scutum dark brown, the posterior lateral angles of the lobes obscure yellow; scutellum yellowish brown; postnotum dark brown; pleura dark brown with a broad pale yellow longitudinal stripe extending from behind the forecoxae to the base of the abdomen, passing beneath the base of the halteres, the stripe slightly whitish pruinose. Legs with the coxae and trochanters brown; femora light brown; tibiae brown, the tarsi conspicuously pale yellowish brown, only the two terminal segments dark brown. Wings with a pale brown tinge, the stigma scarcely darker; veins darker brown; Sc1 ending about opposite one-third length of Rs, Sc2 at about one-third of the distance beyond the origin of Rs; cell R3 strongly widened outwardly; cell 1st M2 strongly narrowed at base; m-cu shortly before the fork of M. Halteres elongate, dark brown, the knobs with a vague yellow tinge. Abdominal tergites dark brown, the sternites somewhat paler brown; ovipositor with the valves long and slender, the tergal valves gently upcurved; basal shield and bases of valves darkened.



Remarks: The wing venation indicates that *G. fuscohalterata* ALEX. belongs to the *G. (L.) skusei* group of species. Diagnostic characters: rostrum black; basal 3 segments of tarsi conspicuously pale yellowish brown.

New records: None.

Distribution: New South Wales (SEN); known only from Mount Wilson.

***Gonomyia (Lipophleps) protenta* ALEXANDER (Fig. 269)**

*Gonomyia (Lipophleps) protenta* ALEXANDER, *Studia ent.* **20**: 167 (1978).

Primary type: Holotype ♂: Queensland, Samford Valley, 14 miles WNW of Brisbane, July-Sep. 1972, B. Persson (NMNH); seen.

Published records: Queensland: Samford Valley, 14 mi. WNW of Brisbane (ALEXANDER 1978b: 168).

Previous illustrations: ALEXANDER 1978b: Fig. 46 (male hypopygium). Known only from male.

Genitalia: Hypopygium, Fig. 269.

Remarks: Most similar to *G. skusei* ALEX. Diagnostic characters (male): outer gonostylus simple and much longer than inner gonostylus and dorsolateral lobe of gonocoxite.

New records: Queensland: Eidsvold (ANIC).

Distribution: Queensland (SEQ).

***Gonomyia (Lipophleps) terraereginae* ALEXANDER**

*Gonomyia (Leiponeura) terae-reginae* ALEXANDER, *Ann. Mag. nat. Hist.* (9) **8**: 557 (1921).

*Gonomyia (Lipophleps) terraereginae* ALEXANDER; OOSTERBROEK & JONAS, *Catalogue of the Australian-Oceanian Tipulidae (Insecta, Diptera)*: 146 (1986).

Primary type: Holotype ♂: Queensland, Gordonvale, Sep. 1920, A.P. Dodd (NMNH); seen; genitalia missing.

Published records: Queensland: Gordonvale (ALEXANDER 1921d: 558). Known only from male.

Original Description: Length about 4 mm; wing 4 mm. Rostrum whitish; palpi brown; antennae dark brown; flagellar segments elongate, clothed with long erect pubescence and a few long verticils; head dark grey. Pronotum white; mesonotal

praescutum dark brown with a sparse pollen; scutal lobes dark brown, the median area and caudal margin of the lobes yellow; scutellum dark brown anteriorly, broadly margined with light yellow; postnotum dark brown, sparsely pruinose; pleura with a broad white ventral stripe; a conspicuous greyish brown area on mesepisternum, the mesepimeron pale; mesosternum brown, sparsely pruinose. Legs with the coxae obscure yellow, the forecoxae and base of middle coxae darker; trochanters brownish testaceous; remainder of legs brown, the tips of the femora indistinctly darker. Wings rather broad, strongly tinged with greyish, the stigma very faintly indicated; veins brown; Sc of moderate length, Sc1 extending to about opposite two-fifths the length of the long sector, Sc2 a little more than its own length from the tip of Sc1; Rs long, straight, with four macrotrichiae, only the extreme base arcuated; cell R3 trumpet-shaped; cell 1st M2 closed, basal deflection of Cu1 immediately before fork of M. Halteres pale brown, the extreme base of the stem paler. Abdomen dark brown; sternites paler; male hypopygium with the pleurites stout, the caudo-lateral angle produced caudad into stout fleshy lobes; two pleural appendages, both pale; the largest appendage is fleshy, a little longer than the pleural lobe but more slender, the surface with a few strong setae, the tip with a very strong and powerful bristle; second pleural appendage small, triangular or conical in outline; penis-guard and gonapophyses forming a large complicated mass that projects beyond the level of the pleural appendages, the guard curved, the extreme tip running out into a spine, the apophyses forming a large shield at the apex, the angles produced laterad into obtuse triangular points.

Remarks: Apparently most similar to *G. skusei* ALEX. and *G. protenta* ALEX. Diagnostic characters (male): dorsolateral lobe of gonocoxite and simple outer gonostylus subequal in length and much larger than inner gonostylus.

New records: None.

Distribution: Queensland (NEQ).

### ***Gonomyia (Lipophleps) baiame* spec. nov. (Fig. 270)**

Description: Head largely grey and greyish- to whitish yellow; rostrum greyish brown, palps and antennae blackish brown. Thoracic terga largely dark greyish brown; pronotum and lateral edges of scutum whitish yellow; small portions of scutellum and mediotergite and much of laterotergites pale to dull yellow; pleura dark greyish brown with yellowish white longitudinal stripe just above coxae. Coxae, trochanters and most of femora greyish brown; apex of femora and all of tibiae, tarsi and claws blackish

brown. Wings slightly suffused with brownish grey; Rs almost straight. Halteres greyish brown and pale to dull yellow. Abdomen dark greyish brown with lateral edges and terminalia yellowish brown. Wing length, male 4,4-5,6 mm, female 4,1-6,0 mm.

**Genitalia:** Male hypopygium, Fig. 270.

**Remarks:** Most similar to *G. puckowe* sp. n. Diagnostic characters (male): hypopygium asymmetrical, with right outer gonostylus trifold and left outer gonostylus bifid.

**Material examined:** Holotype ♂: New South Wales, Fitzroy Falls, 2500 ft, 21.10.1966, N. Dobrotworsky (ANIC). Paratypes: New South Wales: 4♂♂, 3♀♀, same data as holotype (ANIC, GT); 1♂, Linden, Blue Mountains, 2.10.1979, L. Müller and G. Theischinger (GT).

**Distribution:** New South Wales (SEN).

**Name:** Baiame is an Australian Aboriginal word for "great spirit".

### *Gonomyia (Lipophleps) puckowe* spec. nov. (Figs 103, 271)

**Description:** Head largely brownish yellow, including rostrum; palps and antennae blackish brown. Thoracic terga largely greyish brown; pronotum and lateral edges of scutum yellowish white; scutellum, lateral edges of mediotergite, much of laterotergites and a broad patch along midline of postscutum yellow; pleura greyish brown with greyish- to yellowish white longitudinal stripe just above coxae. Legs pale to dark greyish brown. Wings slightly suffused with brownish grey; Rs almost straight. Halteres greyish yellow and greyish brown. Abdomen greyish brown with lateral edges yellowish brown. Wing length, male 3,5-5,0 mm, female 5,1 mm.

**Genitalia:** Male hypopygium, Fig. 271.

**Remarks:** Most similar to *G. baiame* sp. n. Diagnostic characters (male): hypopygium asymmetrical, with right outer gonostylus much longer than left outer gonostylus.

**Material examined:** Holotype ♂: New South Wales: Termeil, 22.10.1966, N. Dobrotworsky (ANIC). Paratypes: Queensland: 1♂, Davies Creek, 20 km E by S of Mareeba, malaise trap, 20.11.1981, D.H. Colless (ANIC). New South Wales: 6♂♂, Banda Reserve, 12.10.1979, G. Theischinger (GT); 4♂♂, 1♀, Barrington Tops, 13.10.1979, G. Theischinger (GT); 1♂, Dingo Tops Forest Park, NW Wingham, 950 m, rainforest, malaise trap, 20.2.-23.3.1993, G. Williams (GT); 1♂, Fitzroy Falls, 2500 ft, 21.10.1966, N. Dobrotworsky (ANIC); 21♂♂, 11♀♀, Macquarie Pass, 13.10.1986, G. Theischinger and L. Müller (GT); 2♂♂, Minnamurra Falls, 4.10.1965, D.H. Colless (ANIC); 1♂, Mount Keira, 7.3.1967, N. Dobrotworsky (ANIC), 1♂, 1♀, s. l., 12.10.1986, G. Theischinger (GT), 3♂♂, s. l., 21.12.1986, D. Bickel (GT); 1♂, 1♀, same data as holotype (ANIC); 1♂, Wollombi Creek, Basin, 14.10.1979, G. Theischinger (GT).

**Distribution:** Queensland (NEQ), New South Wales (NEN, SEN).

**Name:** Puckowe is an Australian Aboriginal word for "grandmother spirit".

***Gonomyia (Lipophleps) mesoneura* ALEXANDER**

*Gonomyia (Lipophleps) mesoneura* ALEXANDER, Ann. Mag. nat. Hist. (10) 7: 20 (1931).

**Primary type:** Holotype ♀: Victoria, Balnarring, 28.4.1929, F.E. Wilson (MV); seen.

**Published records:** Victoria: Balnarring (ALEXANDER 1931a: 21). Known only from female.

**Original Description:** Length about 5 mm; wing 5,2-5,3 mm. Rostrum light yellow; palpi black; antennae black throughout; head grey, the front light yellow. Pronotum and anterior lateral pretergites light sulphur-yellow; mesonotal praescutum and scutum dark brown, the lateral margins of the former restrictedly yellow; median region of scutum a trifle brightened; scutellum brown, the caudal margin dirty yellow; postnotal mediotergite brownish grey, the cephalo-lateral region yellow; pleura dark brown, with a broad silvery-white longitudinal stripe extending from the forecoxae to the base of the abdomen; a more yellowish area involves the dorso-pleural membrane, wing-root, and dorsal portion of the pleurotergite. Legs with the forecoxae dark brown, the basal half whitened; middle and posterior coxae yellow, their bases infuscated; trochanters obscure brownish yellow; remainder of legs brown, the tarsi passing into black. Wings relatively narrow, strongly tinted with brownish yellow, the stigmal region slightly darker brown; veins brown, more yellowish in the basal and costal portions; anterior branch of Rs with macrotrichia the entire length; Sc of moderate length, Sc1 ending just before the origin of Rs, Sc2 a short distance from its tip; Rs long and straight, much as in *G. skusei*, but somewhat shorter; cell 1st M2 smaller, the veins beyond it correspondingly elongated; cell A2 narrower. Halteres dusky, the knobs dark brown. Abdomen brownish black, the caudal margins of the sternites vaguely paler; ovipositor with the valves light horn-yellow.

**Remarks:** According to ALEXANDER (1931) closely allied to *G. skusei* ALEX. and *G. fuscohalterata* ALEX. If ALEXANDER is correct, *G. mesoneura* belongs to the *G. (L.) skusei* group of species. Diagnostic characters: Rs long and straight; Sc1 ending just before origin of Rs.

**New records:** None.

**Distribution:** Victoria; known only from Balnarring.

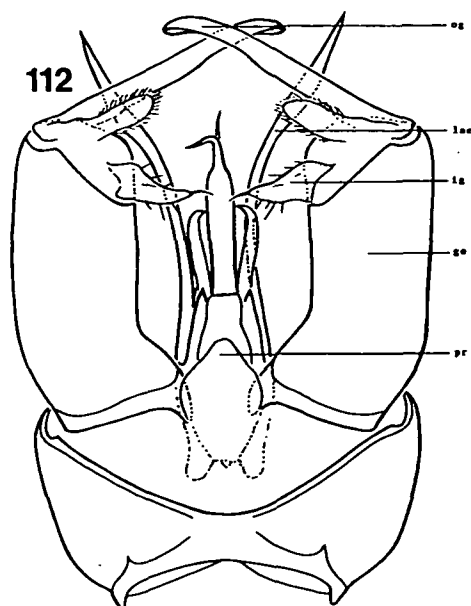
***Gonomyia (Lipophleps) brevivena* group (Figs 109, 112, 272-275)**

Fig. 112. *Gonomyia (Lipophleps) brevivena* (SKUSE), male hypopygium, dorsal aspect. Abbreviations: ge = gonocoxite; ig = inner gonostylus; lae = lateral elements of aedeagal complex; og = outer gonostylus; pr = proctiger.

**Definition:** Male hypopygium (Fig. 112): proctiger (pr) not particularly developed or elaborate; gonocoxite (ge) simple, without any prominent lobe(s); outer gonostylus (og) long, strongly sclerotized, with short hairy membranous basal lobe; inner gonostylus (ig) small, membranous, hairy, with curved apical bristle; aedeagal complex including two or three pairs of rather simple, more or less strongly sclerotized blade-like lateral elements (lae).

**Distribution in Australia:** Australia-wide.

**Species in Australia:**

- G. (L.) brevivena* (SKUSE)
- G. (L.) kiandra* sp. n.
- G. (L.) pino* sp. n.
- G. (L.) queenslandica* ALEX.
- G. (L.) thambaroo* sp.n.

***Gonomyia (Lipophleps) brevivena* (SKUSE) (Figs 109, 112, 272)**

*Leiponeura brevivena* SKUSE, Proc. Linn. Soc. N.S.W. 4: 797 (1890).

*Gonomyia (Lipophleps) brevivena* (SKUSE); ALEXANDER, Studia ent. 20: 166 (1978).

**Primary type:** Lectotype ♀, by present designation, of *Leiponeura brevivena* SKUSE: New South Wales, Berowra, Aug., Skuse (ANIC); seen; additionally labelled "Lectotype ♀ *Leiponeura brevivena* SKUSE, designated by G. Theischinger 1994".

**Published records:** New South Wales: Berowra (SKUSE 1890: 798).

**Previous illustrations:** SKUSE 1890: pl. XXIV, fig. 53 (palp), fig. 54 (antenna); ALEXANDER 1978b: Fig. 42 (male hypopygium).

**Genitalia:** Hypopygium, Figs 109, 112, 272.

**Remarks:** Most similar to *G. kiandra* sp. n. Diagnostic characters (male): aedeagal complex including one pair of short convergent, and one pair of very long divergent, sclerotized lateral elements.

**New records:** Queensland: Clayton Gully, 2,5 km E of Cunningham's Gap (ANIC); Salvator Rosa N.P. (GT); Samford Valley, 14 mi. NNW Brisbane (NMNH). New South Wales: Araluen (ANIC); nr Bingara (GT); Engadine (GT); N Yarras, Forbes R. (GT). Victoria: Alexandra, Goulburn R. (NMNH). Tasmania: Eaglehawk Neck (NMNH). South Australia: Flinders Ra., Wilpena Pound (ANIC).

**Distribution:** Queensland (SEQ), New South Wales (NEN, SEN), Victoria, Tasmania, South Australia (IA).

***Gonomyia (Lipophleps) kiandra* spec. nov. (Fig. 273)**

**Description (♂):** Head greyish brown and whitish yellow; rostrum, palps and flagellum of antennae brown, scape and pedicel whitish- to pale brownish yellow. Thoracic terga largely greyish brown, only sides of pronotum, lateral edges of prescutum and part of scutellum whitish yellow; pleura yellowish- to blackish brown with whitish yellow longitudinal stripe just above coxae. Legs largely yellowish- to greyish brown; apex of femora and tibiae and much of tarsi and claws blackish brown. Wings brownish subhyaline; Rs strongly arcuated. Halteres with stem greyish yellow and knob greyish brown. Abdomen dark greyish brown, ringed with greyish yellow. Wing length 4,1-4,2 mm.

**Genitalia:** Hypopygium, Fig. 273.

Female unknown.

**Remarks:** Most similar to *G. brevivena* (SKUSE). Diagnostic characters (male): aedeagal complex including one pair of basally armed, convergent, and one pair of slightly S-curved, divergent, lateral elements which are subequal in length, and shorter than the aedeagus. The basal tooth of the convergent lateral elements of the aedeagal complex is variable in length and shape; in the specimens from Parawa it is markedly longer than in the holotype (Fig. 273) and slightly bent.

**Material examined:** Holotype ♂: New South Wales: Kiandra, 2100 ft, 8.12.1964, N. Dobrotworsky (ANIC). Paratypes: 2♂♂, South Australia, 2,5 mi. N of Parawa, 27.6.1972, D.A. Duckhouse (MV).

**Distribution:** New South Wales (SEN); South Australia (SES).

**Name:** From Kiandra, the type locality; to be treated as a noun in apposition.

***Gonomyia (Lipophleps) pino* spec. nov. (Fig. 274)**

**Description** (♂): Head greyish brown and greyish yellow; rostrum, palps and flagellum of antennae greyish brown, scape and pedicel brownish to greyish yellow. Thoracic terga largely greyish brown, only side of pronotum and lateral edges of prescutum yellowish white; pleura largely dark greyish brown with yellowish white longitudinal stripe just above coxae. Coxae and trochanters greyish yellow to greyish brown; other leg segments missing. Wings greyish subhyaline; Rs strongly arcuated. Halteres greyish yellow to pale greyish brown. Abdomen greyish brown. Wing length 3,9 mm.

**Genitalia**: Male hypopygium, Fig. 274.

Female unknown.

**Remarks**: Similar to *G. brevivena* (SKUSE) and *G. kiandra* sp. n. Diagnostic characters (male): aedeagal complex including one pair of basally expanded, rather straight, and one pair of strongly S-curved, divergent, lateral elements which are subequal in length, and shorter than the aedeagus.

**Material examined**: Holotype ♂: Western Australia, Quarram, 11.10.1965, N. Dobrotworsky (ANIC).

**Distribution**: Western Australia (SWA).

**Name**: Pino is an Australian Aboriginal word for "female ghost".

***Gonomyia (Lipophleps) thambaroo* spec. nov. (Fig. 275)**

**Description**: Head yellowish grey and whitish yellow; rostrum and palps greyish brown; scape and pedicel whitish yellow, flagellum greyish yellow to greyish brown. Thoracic terga largely greyish brown; side of pronotum and lateral edges of scutum yellowish white; part of scutellum and much of laterotergites brownish yellow; pleura greyish brown with narrow white longitudinal stripe just above coxae. Coxae and trochanters dull greyish yellow to pale greyish brown; remainder of legs pale to dark greyish brown with apex of femora and tibiae indistinctly darkened. Wings brownish subhyaline; Rs strongly arcuated. Halteres dark yellowish- to greyish brown. Abdomen largely greyish brown; terminalia dark yellowish brown. Wing length, male 3,0-3,9 mm, female 3,4-4,0 mm.

**Genitalia**: Hypopygium, Fig. 275.

**Remarks**: Not very similar to any other described Australian species. Diagnostic characters (male): a pair of very prominent and strongly sclerotized lateral elements of the aedeagal complex and aedeagus subequal in length.

**Material examined:** Holotype ♂: Queensland, 15°17'S/145°10'E, 5 km W by N of Rounded Hill, at light, 7.10.1980, D.H. Colless (ANIC). Paratypes: Queensland: 1 ♂, 15°10'S/145°07'E, 3,5 km SW by S of Mount Baird, malaise trap, 4.5.1981, D.H. Colless (ANIC). Western Australia: 2 ♂♂, 14°49'S/126°49'E, Carson escarpment, 9-15.8.1975, I.F.B. Common and M.S. Upton (ANIC). Northern Territory: 1 ♂, 16 km E by N of Mount Cahill, 16.11.1972, 1 ♂, s. l., 13.6.1973, D.H. Colless (ANIC); 5 ♂♂, 7 ♀♀, Kakadu National Park, Upper Magela Creek, light trap, 10- 11.10.1991, P. Dostine (NTM); 2 ♂♂, Litchfield National Park, Florence Falls, 13°03'S/130°47'E, light, 9.4.1991, Wells and Horak (NTM); 11 ♂♂, Litchfield Park, Ada Creek, at Jump Up, 24-25.6.1992, Wells and Webber (NTM); 1 ♂, 15 km S by E of Mudginbarry H.S. (scarp foot), 11.6.1973, D.H. Colless (GT).

**Distribution:** Queensland (CY), Western Australia (KIM), Northern Territory (NNT).

**Name:** Thambaroo is an Australian Aboriginal word for "spirit".

### *Gonomyia (Lipophleps) queenslandica* ALEXANDER

*Gonomyia (Leiponeura) queenslandica* ALEXANDER, Proc. R. Soc. Qd **32**: 99 (1920).

*Gonomyia (Lipophleps) queenslandica* ALEXANDER; OOSTERBROEK & JONAS, Catalogue of the Australian-Oceanian Tipulidae (Insecta, Diptera): 145 (1986).

**Primary type:** Holotype ♀: Queensland, Meringa, near Cairns, 1918, J.F. Illingworth (NMNH); seen.

**Published records:** Queensland: Meringa, nr Cairns (ALEXANDER 1920c: 100).  
Known only from female.

**Original description (from alcoholic specimen):** Length 4,6 mm; wing 4 mm. Rostrum pale; palpi short, dark brown; antennae dark brown, the first scapal segment paler; head dark; vertex protuberant. Pronotum pale; mesonotal praescutum dark brown, the lateral margins and humeral angles paler; pleura brownish yellow, indistinctly marked with brown. Legs with the coxae brownish on their outer faces; trochanters pale brown; remainder of the legs pale brown. Wings with a strong greyish brown suffusion; stigma indistinctly darker; veins brown; Sc short, Sc1 ending far before the origin of Rs, this distance nearly equal to the length of Rs alone; Sc2 far removed from the tip of Sc1, Sc1 alone being longer than Rs; Rs short, strongly arcuated at its origin; basal deflection of R4+5 very short, subpunctiform; veins R2+3 and R4+5 strongly divergent; basal deflection of CuA1 a short distance before fork of M. Halteres pale, the knobs a trifle darker. Abdominal tergites dark brown; sternites yellow; ovipositor with the tergal valves slender, acute, slightly upcurved.

**Remarks:** It is not possible to confidently assess *G. queenslandica* as the male is still unknown. The species appears to belong to the *G. (L.) brevivena* group. Potential diagnostic characters: Sc2 not at the tip of Sc; dm scarcely 1/2 length of cell M1.



New records: None.

Distribution: Queensland (NEQ).

***Gonomyia (Lipophleps) cairnensis* group (Figs 107, 113, 276)**

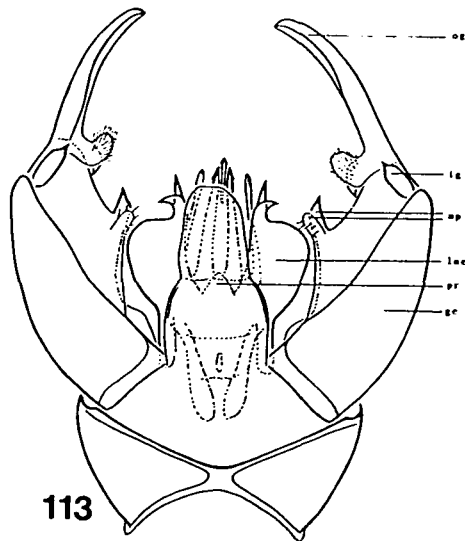


Fig. 113. *Gonomyia (Lipophleps) cairnensis* ALEX., male hypopygium, dorsal aspect. Abbreviations: ge = gonocoxite; ig = inner gonostylus; lae = lateral elements of aedeagal complex; mp = mesal processes of gonocoxite; og = outer gonostylus; pr = proctiger.

This unit may or may not be identical with the *cairnensis* group introduced by ALEXANDER (1933a) for *G. cairnensis* ALEX., *G. digitifera* ALEX. and *G. punctigera* ALEX.

**Definition:** Male hypopygium (Fig. 113): proctiger (pr) not particularly developed or elaborate; gonocoxite (ge) with short mesal processes (mp) at about 2/3 length; outer gonostylus (og) long, strongly sclerotized, with very small membranous hairy basal lobe; inner gonostylus (ig) minute, hardly detectable, pointed; aedeagal complex including a pair of very prominent strongly sclerotized stout bifid lateral elements (lae).

**Distribution in Australia:** North-western, eastern, central.

Only one species in Australia:

*G. (L.) cairnensis* ALEX.

***Gonomyia (Lipophleps) cairnensis* ALEXANDER (Figs 107, 113, 276)**

*Gonomyia (Leiponeura) cairnensis* ALEXANDER, Proc. R. Soc. Qd 32: 98 (1920).

*Gonomyia (Lipophleps) cairnensis* ALEXANDER; ALEXANDER, Bull. Bernice P. Bishop Mus. 113: 54 (1933).

**Primary type:** Holotype ♂: Queensland, Meringa, near Cairns, 1918, J.F. Illingworth (NMNH); seen.

**Published records:** Queensland: Meringa, nr Cairns (ALEXANDER 1920c: 99).

Previously known only from male.

Description of female: Structure and colouration much as described for male (ALEXANDER 1920c). Wing length 5,7-6,3 mm.

Genitalia: Male hypopygium, Figs 107, 113, 276.

Remarks: Not similar to any other described Australian species. Diagnostic characters: as above, under *G. (L.) cairnensis* group.

New records: Queensland: Annan R., 3 km W by S of Black Mt (ANIC); Bungil Ck, 18 km N Roma (GT); Carnarvon Ck, 16 km NE of N.P. (GT); Einasleigh R., 22 km S by W of Lyndhurst H.S. (ANIC); Kholo, N of Ipswich (NMNH). New South Wales: Barrington Tops (GT); nr Bingara (GT); Bogan R. (NMNH); Dripping Rock, nr Boggabri (GT); Goorianawa (ANIC); Warrabah N.P. (GT). Western Australia: The Kimberleys, SW of Bedford Downs, 10 mi. S Landsdowne H.S. (ANIC). Northern Territory: Todd R., 9 km N by E Alice Springs (ANIC).

Distribution: Queensland (CY, NEQ, SEQ, SIQ), New South Wales (NEN, SEN), Western Australia (KIM), Northern Territory (IA).

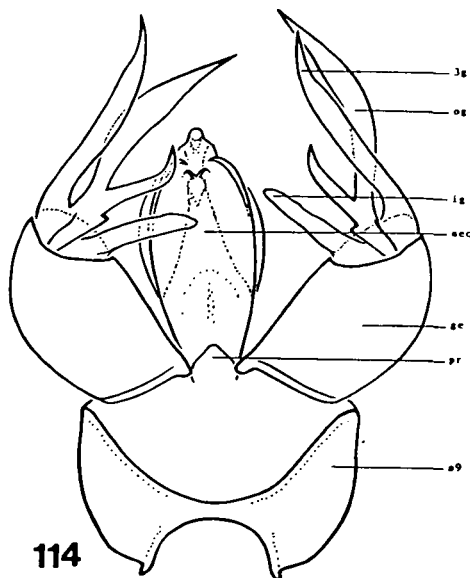


Fig. 114. *Gonomyia (Lipophleps) dischidia* ALEX., male hypopygium, dorsal aspect. Abbreviations: aec = aedeagal complex; ge = gonocoxite; ig = inner gonostylus; og = outer gonostylus; pr = proctiger; 3g = gonostylus 3.

***Gonomyia (Lipophleps) dischidia* group  
(Figs 108, 114, 277)**

Definition: Male hypopygium (Fig. 114): proctiger (pr) not particularly developed or elaborate; gonocoxite (ge) simple, without any prominent lobe(s); three pairs of gonostyli (ig, og, 3g); aedeagal complex (aec) compact.

Distribution in Australia: North-eastern.

Only one species in Australia:

*G. (L.) dischidia* ALEX.

***Gonomyia (Lipophleps) dischidia* ALEXANDER (Figs 108, 114, 277)**

*Gonomyia (Lipophleps) dischidia* ALEXANDER, Studia ent. 20: 164 (1978).

Primary type: Holotype ♂: Queensland, Samford Valley, 14 miles WNW of Brisbane, July-Sep. 1972, B. Persson (NMNH); seen.

Published records: Queensland: Samford Valley, 14 mi. WNW of Brisbane (ALEXANDER 1978b: 165).

Previous illustrations: ALEXANDER 1978b: Fig. 43 (male hypopygium).  
Known only from male.

Genitalia: Hypopygium, Figs 108, 114, 277.

Remarks: Not similar to any other described Australian species. Diagnostic characters (male): as above, under *G. (L.) dischidia* group.

New records: Queensland: Brisbane (UQ).

Distribution: Queensland (SEQ).

### *Gonomyia (Lipophleps) hodgkini* group (Figs 106, 115, 278-280)

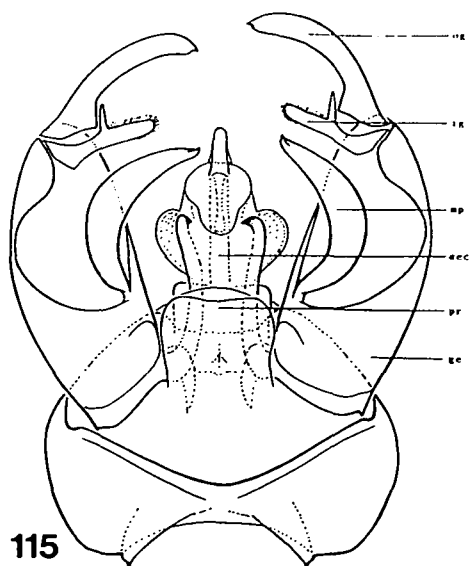


Fig. 115. *Gonomyia (Lipophleps) oolyarra* sp. n., male hypopygium, dorsal aspect. Abbreviations: aec = aedeagal complex; ge = gonocoxite; ig = inner gonostylus; mp = mesal process of gonocoxite; og = outer gonostylus; pr = proctiger.

Definition: Male hypopygium (Fig. 115): proctiger (pr) not particularly developed or elaborate; gonocoxite (ge) with long mesal process (mp) at about 1/3 length; outer gonostylus (og) simple; inner gonostylus (ig) bifid, partly hairy; aedeagal complex (aec) compact.

Distribution in Australia: Northern, north-eastern, south-western.

Species in Australia:

*G. (L.) hodgkini* ALEX.

*G. (L.) kamballa* sp. n.

*G. (L.) oolyarra* sp. n.

### *Gonomyia (Lipophleps) hodgkini* ALEXANDER (Fig. 278)

*Gonomyia (Lipophleps) hodgkini* ALEXANDER, Ann. Mag. nat. Hist. (12) 3: 947 (1950).

Primary type: Holotype ♂: Western Australia, Coal Seam, Irwin River, 28.8.1947, E.P. Hodgkin (NMNH); seen.

Published records: Western Australia: Coal Seam, Irwin R. (ALEXANDER 1950: 949).  
Known only from male.

Genitalia: Hypopygium, Fig. 278.

Remarks: Apparently similar to *G. kamballa* sp. n. and *G. oolyarra* sp. n.  
Diagnostic characters (male): inner gonostylus of male with very large subcircular lobe.

New records: None.

Distribution: Western Australia (SWA).

***Gonomyia (Lipophleps) kamballa* spec. nov. (Fig. 279)**

Description (♂): Head largely grey and whitish yellow; rostrum, palps and flagellum of antennae greyish brown; scape and pedicel greyish brown and whitish yellow. Thoracic terga largely dark greyish brown; lateral edges of prescutum and part of scutellum pale yellow, a yellow patch along midline of postscutum; pleura greyish yellow to dark greyish brown with whitish yellow longitudinal stripe just above coxae. Coxae blackish brown and greyish yellow; trochanters greyish yellow; femora greyish brown with narrow paler ring before the black apex; tibiae dark greyish yellow with base and apex blackish brown; tarsi and claws greyish- to blackish brown. Wings greyish hyaline. Halteres with stem greyish brown and knob largely greyish yellow. Abdomen largely greyish- to blackish brown, lateral edges greyish yellow. Wing length 3,3 mm.

Genitalia: Hypopygium, Fig. 279.

Female unknown.

Remarks: Most similar to *G. oolyarra* sp. n. Diagnostic characters (male): mesal process of gonocoxite long and thin; inner gonostylus with the two branches not perpendicular to each other.

Material examined: Holotype ♂: Northern Territory, Berry Springs, MV-light, 30.10.1991, Wells and Webber (ANIC).

Distribution: Northern Territory (NNT).

Name: Kamballa is an Australian Aboriginal word for "young woman".

***Gonomyia (Lipophleps) oolyarra* spec. nov. (Figs 106, 115, 280)**

Description: Head largely grey and white; rostrum palps and flagellum of antennae yellowish- to greyish brown, scape and pedicel whitish- to greyish yellow. Thoracic terga largely greyish brown; sides of pronotum, lateral edges of prescutum and part of scutellum whitish yellow; mediotergite grey (pruinose); pleura yellowish-

to dark greyish brown with white longitudinal stripe just above coxae. Coxae greyish yellow to greyish brown; trochanters greyish yellow; remainder of legs greyish yellow to greyish brown with apex of femora, tibiae and basitarsi and all of remaining tarsal segments and claws blackish brown; an indistinct whitish grey ring just before darkened apex of femora. Wings greyish subhyaline; Rs strongly arcuated. Halteres with base of stem greyish yellow, rest blackish brown. Abdomen greyish- to blackish brown, most tergites with posterior edge narrowly dull white; terminalia yellowish- to greyish brown. Wing length, male 2,9-3,7 mm, female 3,2-4,3 mm.

**Genitalia:** Male hypopygium, Figs 106, 115, 280.

**Remarks:** Most similar to *G. kamballa* sp. n. Diagnostic characters (male): mesal process of gonocoxite moderately long and stout; inner gonostylus with the two branches perpendicular to each other.

**Material examined:** Holotype ♂: Queensland, 12°43'S/143°17'E, 9 km ENE of Mount Tozer, 5-10.7.1986, D.H. Colless (ANIC). Paratypes: Queensland: 1♂, 1♀, some data as holotype (ANIC); 2♂♂, 4♀♀, 12°44'S/143°14'E, 3 km ENE of Mount Tozer, 28.6-4.7.1986, D.H. Colless (ANIC, GT).

**Distribution:** Queensland (CY).

**Name:** Oolyarra is an Australian Aboriginal word for "young man".

### *Gonomyia (Lipophleps) mundewudda* group (Figs 105, 116, 281)

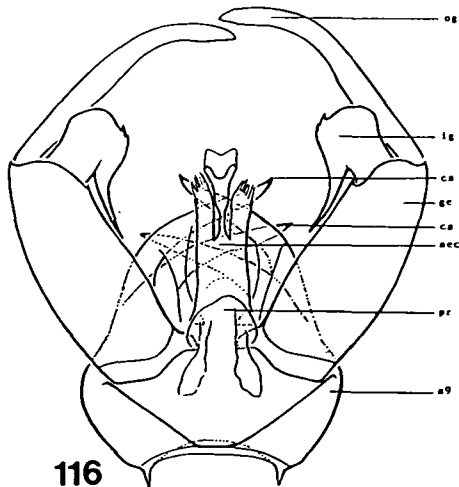


Fig. 116: *Gonomyia (Lipophleps) mundewudda* sp. n., male hypopygium, dorsal aspect. Abbreviations: aec = aedeagal complex; cs = convergent spines of sternite 9; ge = gonocoxite; ig = inner gonostylus; og = outer gonostylus; pr = proctiger, s9 = sternite 9.

**Definition:** Male hypopygium (Fig. 116): proctiger (pr) not particularly developed or elaborate; segment 9 (s9) ventrally differentiated into two pairs of convergent spines (cs) which cross each other; gonocoxite (ge) simple, without any prominent lobe(s); both pairs of gonostyli (ig, og) strongly sclerotized; aedeagal complex (aec) not including distinct, strongly sclerotized lateral elements.

**Distribution in Australia:** Northwestern.

Only one species in Australia:

*G. (L.) mundewudda* sp. n.

***Gonomyia (Lipophleps) mundewudda* spec. nov. (Figs 105, 116, 281)**

**Description** (♂): Head greyish brown and whitish yellow; rostrum, palps and flagellum of antennae greyish brown, scape and pedicel whitish- to greyish yellow. Thoracic terga largely dark greyish brown; sides of pronotum and lateral edges of prescutum pale yellowish white; pleura greyish brown with yellowish white longitudinal stripe just above coxae. Legs greyish yellow to greyish brown with apex of femora and tibiae and much of tarsi and claws markedly darkened. Wings very slightly suffused with pale brown; veins C, Sc and R and cells between them whitish yellow; Rs strongly arcuated. Halteres pale greyish yellow to greyish brown, stem paler than knob. Abdomen largely dark greyish brown, lateral edges markedly paler. Wing length 3,0-3,2 mm.

**Genitalia**: Hypopygium, Figs 105, 116, 281.

Female unknown.

**Remarks**: An isolated species. Diagnostic characters (male): as above, under *G. (L.) mundewudda* group.

**Material examined**: Holotype ♂: Western Australia, Crossing Pool, Millstream, at light, 21.10.1970, D.H. Colless (ANIC). Paratype: 1♂, Western Australia, Millstream, 25.10.1970, D. H. Colless (ANIC).

**Distribution**: Western Australia (NWA).

**Name**: Mundewudda is an Australian Aboriginal word for "north-west wind".

***Gonomyia (Lipophleps) perssoni* group (Figs 110, 117, 282-286)**

**Definition**: Male hypopygium (Fig. 117): proctiger (pr) not particularly developed or elaborate; segment 9 (s9) strongly produced ventrally; gonocoxite (ge) simple, without any prominent lobe(s); outer gonostylus (og) long, strongly sclerotized and simple; inner gonostylus (ig) short, membranous, hairy, with curved apical bristle; aedeagal complex including one or two pairs of prominent lateral elements (lae).

**Distribution in Australia**: North-western, northern, eastern (mainly north-eastern), central

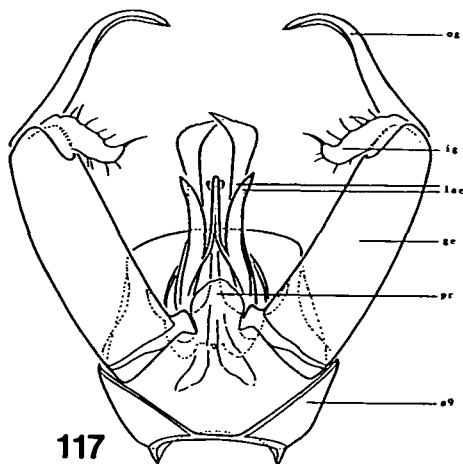


Fig. 117. *Gonomyia (Lipophleps) perssoni* ALEX., male hypopygium, dorsal aspect. Abbreviations: ge = gonocoxite; ig = inner gonostylus; lae = lateral elements of aedeagal complex; og = outer gonostylus; pr = proctiger; s9 = sternite 9.

Species in Australia:

*G. (L.) cooloola* sp. n.

*G. (L.) moma* sp. n.

*G. (L.) onya* sp. n.

*G. (L.) perssoni* ALEX.

*G. (L.) wunda* sp. n.

***Gonomyia (Lipophleps) perssoni*  
ALEXANDER (Figs 110, 117, 282)**

*Gonomyia (Lipophleps) perssoni* ALEXANDER,  
*Studia ent.* 20: 166 (1978).

Primary type: Holotype ♂:  
Queensland, Samford Valley, 14 miles  
WNW of Brisbane, July-Sep. 1972, B.  
Persson (NMNH); seen.

Published records: Queensland: Samford Valley, 14 mi. WNW of Brisbane (ALEXANDER 1978b: 166). Known only from male.

Previous illustrations: ALEXANDER 1978b: Fig. 44 (male hypopygium).

Genitalia: Hypopygium, Figs 110, 117, 282.

Remarks: Similar to the other four members of the *G. (L.) perssoni* group (see above). Diagnostic characters (male): aedeagal complex including one pair of short divergent, and one pair of long convergent, sclerotized lateral elements.

New records: Queensland: Mt Garnet Rd, 13 mi. W of Ravenshoe (ANIC); jn of Goldmine and Davies Cks, Kuranda-Mareeba Rd (ANIC); Prince of Wales Island, Torres Strait (MV); 13 km W of Ravenshoe, Mt Garnet Rd (ANIC). Northern Territory: Litchfield P., Ada Ck, at Jump Up (NTM).

Distribution: Queensland (CY, NEQ, SEQ), Northern Territory (NNT).

***Gonomyia (Lipophleps) moma* spec. nov. (Fig. 283)**

Description: Head greyish brown and whitish yellow; rostrum and palps greyish brown; scape and pedicel pale yellow, flagellum greyish yellow to dark greyish brown. Thoracic terga largely dark greyish brown; sides of pronotum and lateral edges of prescutum whitish yellow; pleura greyish- to blackish brown with narrow whitish

yellow longitudinal stripe just above coxae. Legs largely yellowish- to greyish brown, with apex of femora and tibiae and all of tarsi and claws blackish brown. Wings suffused with brown; veins C, Sc and R and cells between them, bright whitish yellow; Rs strongly arcuated. Halteres greyish yellow to pale greyish brown. Abdomen largely dark greyish brown; female terminalia brown. Wing length, male 2,6-3,6 mm, female 3,6-4,3 mm.

**Genitalia:** Male hypopygium, Fig. 283.

**Remarks:** Very similar to *G. onya* sp. n. and *G. wunda* sp. n. Diagnostic characters (male): aedeagal complex including a pair of long, distinctly angulated lateral elements.

**Material examined:** Holotype ♂: Queensland, 15°03'S/145°09'E, 3 km NE of Mount Webb, at light, 30.4.1981, D.H. Colless (ANIC). Paratypes: Queensland: 1♂, Bee Creek, near Eungella, 4.4.1993, G. Theischinger (GT); 1♂, Darr River, 31 km NW by N Longreach, at light, 7.4.1976, D.H. Colless (ANIC); 1♂, Repulse Creek, 23 km NE of Bauhinia Downs, at light, 22.4.1981, D.H. Colless (ANIC). Western Australia: 2♂♂, 3km S of Coulomb Point, West Kimberley, 20.4.1977, D.H. Colless (ANIC). Northern Territory: 2♂♂, 1♀, junction of Arnhem Highway and Oenpelli Road, MV light, 26-27.6.1980, M.B. Malipatil (NTM); 1♂, 1♀, Batten Creek, 31 km WSW of Borroloola, 15.4.1976, D.H. Colless (ANIC); 1♂, Carrabirini W/H, 33km SW of Borroloola, 21.4.1976, 1♀, s.l., 22.4.1976, D.H. Colless (ANIC); 1♂, 2♀♀, Cooper Creek, 19 km E by S of Mount Borradaile, 9.11.1972, D.H. Colless (ANIC); 1♂, Kakadu National Park, Magela Creek, 12°42'S/132°57'E, 8-9.10.1991, P. Dostine (NTM); 1♂, 1♀, McArthur River, 14 km S by W of Cape Crawford, 11.4.1976, D.H. Colless (ANIC); 1♂, McArthur River, 48 km SW by S Borroloola, 13.4.1976, D.H. Colless (ANIC); 1♂, Magela Creek, at Rum pipeline, light trap, 18-19.2.1991, P. Dostine (NTM); 2♂♂, 1♀, 12 km NNW of Mount Cahill, 15.6.1973, D.H. Colless (ANIC, GT); 1♂, 1♀, 9 km N by E of Mudginbarry H.S., at light, 10.6.1973, D.H. Colless (ANIC); 1♂, Mudginberry, 16.9.1971, H.A. Standfast and A.L. Dyce (ANIC); 3♂♂, Nourlangie Creek, 8 km N of Mount Cahill, 26.10.1972, 2♂♂, s.l., 19.11.1972, 1♀, s.l., 14.6.1973, D.H. Colless (ANIC, GT); 1♂, 8 km SW by S of Oenpelli Mission, 6.6.1973, D.H. Colless (ANIC); 1♂, Surprise Creek, 45 km SW by S of Borroloola, 14.4.1976, D.H. Colless (ANIC).

**Distribution:** Queensland (CY, NEQ, SEQ, SIQ), Western Australia (KIM), Northern Territory (NNT).

**Name:** Moma is an Australian Aboriginal word for "ghost".

***Gonomyia (Lipophleps) onya* spec. nov. (Fig. 284)**

**Description:** Head grey and greyish yellow; rostrum, palps and flagellum of antennae greyish brown, scape and pedicel whitish yellow and pale greyish brown. Thoracic terga largely greyish brown; sides of pronotum, lateral edges of prescutum



and parts of scutellum and laterotergites greyish- to whitish yellow; pleura dark greyish brown with whitish yellow longitudinal stripe just above coxae. Legs pale to dark greyish brown, with apex of femora and tibiae and most of tarsi and claws blackish brown. Wings slightly suffused with pale brown; veins C, Sc and R and cells between them, whitish yellow; Rs strongly arcuated. Halteres greyish yellow to pale greyish brown. Abdomen largely greyish brown; terminalia yellowish brown. Wing length, male 2,6-3,8 mm, female 2,8-4,3 mm.

**Genitalia:** Male hypopygium, Fig. 284.

**Remarks:** Very similar to *G. moma* sp. n. and *G. wunda* sp. n. Diagnostic characters (male): aedeagal complex including one pair of strongly sclerotized, S-curved, lateral elements.

**Material examined:** Holotype ♂: Western Australia, The Kimberleys, SW of Bedford Downs, 10 mi. S of Landsdowne H.S., 15.8.1964, R. Plumb (ANIC). Paratypes: Queensland: 3♂♂, 3♀♀, Andrewillah W.H., 45 mi. S of Birdsville 21.5.1975, J.D. Blyth (NTM); 1♂, Darr River, 31 km NW by N of Longreach, 7.4.1976, D.H. Colless (ANIC). Western Australia: 1♂, 1♀, N of Carnarvon, De Grey Stn Road, 29.6.1972, N. McFarland (NTM): 4♂♂, 3♀♀, same data as holotype (ANIC, GT); 1♀, type locality, 6.7.1964, 2♂♂, s. l., 26.7.1964, 1♂, s. l., 18-23.8.1964, R. Plumb (ANIC); 1♂, Millstream, 23.10.1970, 2♂♂, 1♀, s. l., 9.4.1971, 2♂♂, s. l., 11.4.1971, 1♂, s. l., 12.4.1971, D.H. Colless (ANIC). Northern Territory: 1♂, 1♀, Todd River, 9 km N by E Alice Springs, at light, 10.10.1978, D.H. Colless (ANIC).

**Distribution:** Queensland (SIQ), Western Australia (NWA, KIM), Northern Territory (IA).

**Name:** Onya is an Australian Aboriginal word for "ghost".

### *Gonomyia (Lipophleps) wunda* spec. nov. (Fig. 285)

**Description:** Head greyish brown and whitish yellow; rostrum and palps greyish brown; scape and pedicel whitish- to greyish yellow, flagellum dark greyish yellow to greyish brown. Thoracic terga largely greyish brown or grey (pruinose); side of pronotum and lateral edges of prescutum whitish yellow; pleura greyish brown with narrow yellowish- to greyish white longitudinal stripe just above coxae. Legs yellowish- to greyish brown, with apex of femora and tibiae and all of tarsi and claws very slightly darkened. Wings slightly suffused with grey; veins C, Sc and R and cells between them, yellowish white; Rs strongly arcuated. Halteres with stem whitish yellow and knob greyish yellow to pale greyish brown. Abdomen dark greyish brown. Wing length, male 2,8-3,7 mm, female 3,2 mm.

**Genitalia:** Male hypopygium, Fig. 285.

**Remarks:** Very similar to *G. moma* sp. n. and *G. onya* sp. n. Diagnostic characters (male): aedeagal complex including an almost straight spine-like lateral element on the left, and a strongly bent, pointed lateral element on the right side.

**Material examined:** Holotype ♂: Queensland: Annan River, 3 km W by S of Black Mount, malaise trap, 28.9.1980, D.H. Colless (ANIC). Paratypes: Queensland: 1♂, 1♀, same data as holotype (ANIC); 1♂, type locality, at light, 26.4.1981, D.H. Colless (ANIC); 2♂♂, Mount Garnet Road, 13 mi. W of Ravenshoe, 2.5.1967, D.H. Colless (ANIC, GT). New South Wales: 1♂, 2♀♀, near Bingara, Jan. 1993, G. Theischinger (GT). Western Australia: 2♂♂, 5 km SSW of Cape Bertholet, West Kimberley, 21.4.1977, D.H. Colless (ANIC). Northern Territory: 1♂, 1♀, Koongarra, 15 km E of Mount Cahill, 6-9.3.1973, D.H. Colless (ANIC); 1♂, Litchfield Park, Ada Creek, at Jump Up, light trap, 24-25.6.1992, Wells and Webber (NTM); 1♂, McArthur River, 48 km SW by S Borroloola, 13.4.1976, D.H. Colless (ANIC); 1♂, 53♀♀, Magela Creek, at Rum pipeline, light trap, 6-7.5.1991, P. Dostine (NTM).

**Distribution:** Queensland (CY, NEQ), New South Wales (NEN), Western Australia (KIM), Northern Territory (NNT).

**Name:** Wunda is an Australian Aboriginal word for "ghost".

***Gonomyia (Lipophleps) cooloola* spec. nov. (Fig. 286)**

**Description:** Head greyish white with greyish brown patch; rostrum, palps and flagellum of antennae greyish brown, scape and pedicel whitish yellow. Thoracic terga largely greyish brown; sides of pronotum and lateral edges of scutum greyish white; pleura greyish brown with yellowish white longitudinal stripe just above coxae. Legs greyish yellow to greyish brown. Wings suffused with greyish brown; veins C, Sc and R and cells between them, whitish yellow. Halteres with stem greyish brown and knob greyish yellow. Abdomen greyish brown. Wing length, male 2,3-3,1 mm; female 3,6-3,8 mm.

**Genitalia:** Male hypopygium, Fig. 286.

**Remarks:** Similar to all other members of the *G. (L.) perssoni* group (see above). Diagnostic characters (male): aedeagal complex including a pair of very long, spear-shaped lateral elements.

**Material examined:** Holotype ♂: Queensland, Mullen State Forest, 10.1.1986, G. Theischinger (ANIC). Paratypes: 4♀♀, same data as holotype (GT). 4♂♂, Northern Territory, Litchfield Park, Ada Creek, at Jump Up, light, 24-25.6.1992, Wells and Webber (NTM).

**Distribution:** Queensland (SEQ), Northern Territory (NNT).

**Name:** From Cooloola, the general area of the type locality; to be treated as a noun in apposition.

**Genus *Idiocera* DALE (Figs 118-120, 287)**

*Idiocera* DALE, Ann. Mag. nat. Hist. 8: 431 (1842) (*Limnobia* subgenus).

**Type species:** *Limnobia sexguttata* DALE 1842, by monotypy.

*Idiocera* DALE was listed as a subgenus of *Gonomyia* MEIGEN by OOSTERBROEK (1989). In this paper I follow most European workers who consider *Idiocera* as a distinct genus [as expressed by SAVCHENKO, OOSTERBROEK & STARY (1992)]. Hitherto, species of *Idiocera* DALE were not recorded from Australia. Thus it came as a surprise when during the preparation of revisions of related genera, a species of *Idiocera* was discovered. This new species is regarded as a member of the subgenus *Idiocera*.

Only one subgenus in Australia:

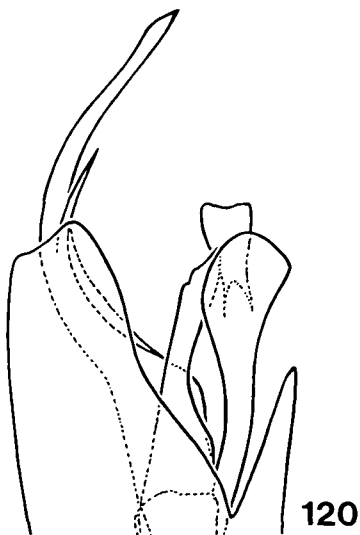
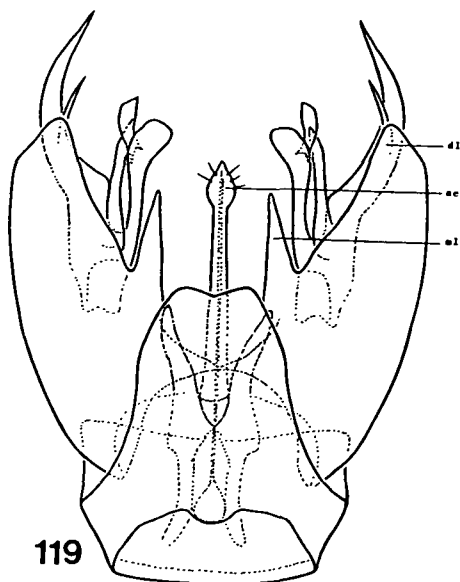
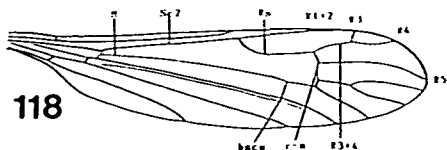
*Idiocera* DALE.

**Subgenus *Idiocera* DALE (Figs 118-120, 287)**

*Idiocera* DALE, Ann. Mag. nat. Hist. 8: 431 (1842) (*Limnobia* subgenus).

**Type species:** *Limnobia sexguttata* DALE, 1842, by monotypy.

**Definition:** Front of head only slightly produced; antennae 16 segmented. Middle and hind coxae approximated, reducing the size of the meron which is not larger than the midcoxa; setae of legs simple. Wing (Fig. 118): Sc2 well proximal to origin of Rs; Rs in alignment with R3+4; R2 absent, and 3 branches of Rs reaching wing margin; R1+2 and free anterior branch of Rs (R3) ending well beyond 2/3 wing length; R3+4 at least as long as R4; basal section of R5 aligned more closely with r-m than with Rs; R5 and anterior branch of M slightly converging towards margin; r-m rather long, bscu



Figs 118-120. *Idiocera (Idiocera) collessi* sp. n.: 118: wing venation; - 119: male hypopygium, dorsal aspect; - 120: male hypopygium, dorsal aspect, detail. Abbreviations: ae = aedeagus; dl = dorsal lobe of gonocoxite; ml = mesal lobe of gonocoxite.

some distance proximal of fork of M; cell dm open. Male hypopygium (Figs 119, 120): gonocoxite with dorsal lobe (dl) and mesal lobe (ml) strongly developed; aedeagus (ae) long, slim, rather simple.

Distribution: All zoogeographic regions. In Australia: northern.

Only one species in Australia:

*I. (I.) collessi* sp. n.

***Idiocera (Idiocera) collessi* spec. nov.  
(Figs 118-120, 287)**

Description: Head largely brownish grey, including rostrum; palps and antennae dark greyish brown. Thoracic terga largely brownish grey; pleura brownish grey to greyish- and yellowish brown with yellowish white longitudinal stripe just above coxae. Legs yellowish- to greyish brown, with apex of femora and tibiae and all of tarsi and claws slightly darkened. Wings brownish subhyaline. Halteres yellowish- to greyish brown. Abdomen brownish grey with terminalia yellowish brown. Wing length, male 4,9-5,8 mm, female 4,8-5,4 mm.

Genitalia: Male hypopygium, Figs 119, 120, 287.

Remarks: Not similar to any other described Australian species. Diagnostic characters: as above, under genus *Idiocera* DALE.

**Material examined:** Holotype ♂: Western Australia, Crossing Pool, Millstream, 22.10.1970, D.H. Colless (ANIC). Paratypes: Western Australia: 2♂♂, same data as holotype, 2♂♂, same data, at light (ANIC); 1♀, type locality, 21.10.1970, D.H. Colless (ANIC); 1♂, 1♀, Millstream, 24.10.1970, 2♂♂, s.l., 25.10.1970, D.H. Colless (ANIC, GT); 1♂, Millstream, 18.7.1958, Hamersby Expedition (WAM). Northern Territory: 1♀, Magela Creek, at Rum pipeline, light, 20-21.3.1991, P. Dostine (NTM).

**Distribution:** Western Australia (NWA), Northern Territory (NNT).

**Name:** This species is dedicated to Dr D.H. Colless, collector of most of the type material and former curator of Diptera in the ANIC.

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## Index

This alphabetical list includes all names of genus and species groups. For all names, reference to the next higher taxon (species group, subgenus, genus, tribe) is given by the following abbreviations:

- A *Amphineurus*, **166**
- AAm *Amphineurus (Amphineurus) minusculus* group, **168**
- AAu *Amphineurus (Amphineurus) umbraticus* group, **172**
- AIa *Atarba (Ischnothrix) australasiae* group, **154**
- AIg *Atarba (Ischnothrix) generosa* group, **165**
- Ali *Atarba (Ischnothrix) iyouta* group, **162**
- All *Atarba (Ischnothrix) lawsonensis* group, **159**
- Ata *Atarba*, **152**
- C *Collessophila*, **150**
- CC *Cheilotrichia (Cheilotrichia)*, **189**
- CE *Cheilotrichia (Empeda)*, **190**
- Ch *Cheilotrichia*, **188**
- E *Erioptera*, **175**
- EA *Erioptera (Alcheringa)*, **186**
- EE *Erioptera (Erioptera)*, **177**
- Eini *Eriopterini*
- EM *Eriopera (Meterioptera)*, **184**
- G *Gonomyia*, **191**

GLb	<i>Gonomyia (Lipophleps) brevivena</i> group, <b>201</b>
GLc	<i>Gonomyia (Lipophleps) cairnensis</i> group, <b>205</b>
GLd	<i>Gonomyia (Lipophleps) dischidia</i> group, <b>206</b>
GLh	<i>Gonomyia (Lipophleps) hodgkini</i> group, <b>207</b>
GLm	<i>Gonomyia (Lipophleps) mundewudda</i> group, <b>209</b>
GLp	<i>Gonomyia (Lipophleps) perssoni</i> group, <b>210</b>
GLs	<i>Gonomyia (Lipophleps) skusei</i> group, <b>194</b>
H	<i>Helius</i> , <b>40</b>
HE	<i>Helius (Eurhamphidia)</i> , <b>51</b>
HH	<i>Helius (Helius)</i> , <b>43</b>
HM	<i>Helius (Mammuthonasus)</i> , <b>53</b>
HR	<i>Helius (Rhampholimnobia)</i> , <b>49</b>
I	<i>Idiocera</i> , <b>215</b>
II	<i>Idiocera (Idiocera)</i> , <b>215</b>
L	<i>Limonia</i> , <b>64</b>
LA	<i>Limonia (Atypophthalmus)</i> , <b>141</b>
LC	<i>Limonia (Cygnomyia)</i> , <b>140</b>
LDa	<i>Limonia (Dapanoptera)</i> , <b>78</b>
LDi	<i>Limonia (Dicranomyia)</i> , <b>82</b>
LG	<i>Limonia (Goniodineura)</i> , <b>133</b>
LIni	<i>Limoniini</i> ,
LLim	<i>Limonia (Limonia)</i> , <b>70</b>
LM	<i>Limonia (Metalibnotes)</i> , <b>76</b>
LNea	<i>Limonia (Nealexandriaria)</i> , <b>137</b>
LNeo	<i>Limonia (Neolibnotes)</i> , <b>146</b>
LNes	<i>Limonia (Nesciomyia)</i> , <b>144</b>
LPan	<i>Limonia (Pandamyia)</i> , <b>135</b>
LPar	<i>Limonia (Paralibnotes)</i> , <b>75</b>
LPs	<i>Limonia (Pseudoglochina)</i> , <b>139</b>
T	<i>Tonnoiromyia</i> , <b>148</b>
TCa	<i>Toxorhina (Ceratocheilus) australasiae</i> group, <b>58</b>
TCn	<i>Toxorhina (Ceratocheilus) nasus</i> group, <b>59</b>
TCt	<i>Toxorhina (Ceratocheilus) tasmaniensis</i> group, <b>61</b>
TE	<i>Toxorhina (Eutoxorhina)</i> , <b>63</b>
Tox	<i>Toxorhina</i> , <b>55</b>

Reference is also given to the figure numbers in this paper (*italics*) and to the page numbers of the text (**bold**).

*aequispina* (ALEX.), LDi, **84**

*albistigma* (ALEX.), LDi, *145*, **85**

*Alcheringa* sg. n., E, *91*, *98*, *99*, *265*, **186**

*allunga* sp. n., HM, *1*, *2*, *15*, *16*, *129*, **53**

- allunga allunga* sp. et ssp. n., HM, 1, 2, 15, 16, 129, **54**  
*amabilis* ALEX., EA, 91, 98, 99, 265, **187**  
*amicula* (ALEX.), LLim, 135, **71**  
*ammoula* sp. n., TE, 18, 24, 134, **63**  
*Amphineurus* SKUSE, A, 86-90, 245-254, **166**  
*Amphineurus* SKUSE, Eini, 86-90, 245-254, **166**  
*Amphinome* MEIG. [= *Limonia* MEIG.], **64**  
*angustifascia* ALEX., EM, 94, 97, 263, **184**  
*annulipes* (SKUSE), LDi, **100**  
*appa* sp. n., LDi, 159, **96**  
*aroo* sp. n., CC, 100, 101, 266, **189**  
*Ataracta* LOEW [= *Dicranomyia* STEPH.], **82**  
*Atarba* OST.-SACK., Eini, 77-85, 223-244, **152**  
*atnitta* sp. n., LLim, 136, **72**  
*Atypophthalmus* BRUN., L., 43, 67, 68, 214, 215, **141**  
*augusta* sp. n., AIa, 225, 226, **156**  
*auratipennis* OOST. & JONAS [= *auripennis* (SKUSE)], **88**  
*auripennis* (SKUSE), LDi, 148, **88**  
*australasiae* (ALEX.), TCa, **58**  
*australasiae* (SKUSE), AIa, 77, 78b, 80, 82, 223, 224, **155**  
*baiame* sp. n., GLs, 270, **198**  
*balli* sp. n., LDi, 174, **108**  
*bidentata* (SKUSE), LPar, 34, 49, 50, 140, **75**  
*boorana* sp. n., LDi, 191, **122**  
*brevirama* (ALEX.), LDi, 153, **92**  
*brevispinula* ALEX. [= *whitei monacha* ALEX.], **129**  
*brevivena* (SKUSE), GLb, 109, 112, 272, **201**  
*bugledichae* sp. n., LDi, 176, **109**  
*bunyip* sp. n., LDi, 192, **122**  
*cairnensis* (ALEX.), LLim, 137, **73**  
*cairnensis* ALEX., GLc, 107, 113, 276, **205**  
*canithorax* ALEX. [= *auripennis* (SKUSE)], **88**  
*Ceratocheilus* WESCHE, Tox, 17, 19-23, 130-133, **57**  
*Cheilotrichia* ROSSI, Ch, 100, 101, 266, **189**  
*Cheilotrichia* ROSSI, Eini, 100-102, 266, **189**  
*Chematida* ROND. [= *Eriopterea* MEIG.]  
*chintoo* sp. n., HH, 121j, 121k, 125, **49**  
*chookachooka* sp. n., C, 75, 76, 222, **151**  
*cinctitibia* ALEX., LDi, 167, **103**  
*clarki* ALEX., LDi, 183, **115**



- collessi* sp. n., AAm, 246, 169  
*collessi* sp. n., II, 118-120, 287, 216  
*Collessophila* g. n., Lini, 75, 76, 222, 150  
*communis* (SKUSE), HH, 3, 4, 9, 10, 121a, 122, 44  
*Conithorax* BRUN. [= *Ceratocheilus* WESCHE], 57  
*coolbyngga* sp. n., EE, 259, 181  
*cooloola* sp. n., GLp, 286, 214  
*cuneata* (SKUSE), LDi, 144, 85  
*cunninghamensis* ALEX., LDi, 194, 123  
*Cygnomyia* sg. n., L, 40, 42, 65, 66, 213, 140  
*Dapanoptera* WEST., L, 27, 53, 54, 142, 143, 78  
*davidsoni* (ALEX.) [= *tasmaniensis* ALEX.], 149  
*deentoo* sp. n., HR, 5, 6, 11, 12, 126, 50  
*delectabilis* ALEX. [= *amabilis* ALEX.], 187  
*dicksoniae* ALEX., LDi, 195, 124  
*Dicranomyia* STEPH., L, 41, 44, 55, 56, 144-206, 82  
*diplacantha* ALEX., EE, 93, 95, 96, 256, 178  
*dischidia* ALEX., GLd, 108, 114, 277, 206  
*dorrigenis* ALEX., Ldi, 118  
*dorsalis* (SKUSE), LDi, 152, 91  
*durroon* sp. n., LNes, 36, 39, 69, 70, 216, 145  
*emacerata* (ALEX.), LA, 215, 143  
*Empeda* OST.-SACK., Ch, 102, 267, 190  
*Erioptera* MEIG., E, 93, 95, 96, 255-262, 175  
*Erioptera* MEIG., Eini, 91-99, 255-265, 175  
*etnurra* sp. n., LDi, 168, 103  
*eungellae* ALEX. [= *tasmaniensis* ALEX.], 149  
*Eurhamphidia* ALEX., H, 7, 8, 13, 14, 127, 128, 51  
*Eutoxorhina* ALEX., Tox, 18, 24, 134, 63  
*exosa* ALEX. [= *amicula* (ALEX.)], 71  
*fata* sp. n., LDi, 151, 90  
*fergusoni* ALEX., AAu, 253, 174  
*flagellifera* (ALEX.), LDi, 187, 119  
*flavidella* ALEX., LDi, 155, 94  
*flavoscutellatus* ALEX. [= *umbraticus* (SKUSE)], 172  
*fragilis* sp. n., LDi, 156, 94  
*fullawayi* (ALEX.), LDi, 173, 107  
*fullowayi* [= error for *fullawayi* (ALEX.)], 107  
*fulvithorax* (SKUSE), HH, 121c, 121d, 124, 46  
*funesta* ALEX., EE, 179

*Furcomyia* MEIG. [= *Dicranomyia* STEPH.], 82  
*fuscohalterata* ALEX., GLs, 196  
*fuscomacula* ALEX. [= *verticalis* (ALEX.)], 160  
*gemina* ALEX., LDi, 165, 101  
*generosa* (ALEX.), AIG, 78a, 85, 243, 244, 165  
*Glochina* MEIG. [= *Dicranomyia* STEPH.], 82  
*Goniodineura* WULP, L, 45, 46, 57, 58, 207, 133  
*Gonomyia* MEIG., Eini, 103-117, 268-286, 191  
*gracilis* (SKUSE) [= *skusei* ALEX.], 195  
*grampiana* (ALEX.), AIa, 157  
*growea* sp. n., TCn, 131, 60  
*Helius* LE PEL. & SERV., H, 3, 4, 9, 10, 121-125, 40  
*Helius* LE PEL. & SERV., Lini, 1-16, 121-129, 40  
*helmsi* (SKUSE), LDi, 149, 89  
*hipmilita* sp. n., LDa, 143, 81  
*hodgkini* ALEX., GLh, 278, 207  
*Idiocera* DALE, Eini, 118-120, 287, 215  
*Idiocera* DALE, I, 118-120, 287, 215  
*idonea* (ALEX.), LDi, 164, 101  
*Ilisophila* ROND. [= *Erioptera* MEIG.], 177  
*illingworthi* (ALEX.), LDi, 184, 115  
*illingworthi* ALEX., EM, 185  
*inanis* ALEX., LDi, 124  
*incisuralis* (SKUSE), LDi, 180, 112  
*inculta* (ALEX.) [= *obscura* (SKUSE)], 95  
*inhonora* (ALEX.) [= *marina* (SKUSE)], 130  
*innocens* (BRUN.) [= *sordida* (BRUN.)], 116  
*invenustipes* (ALEX.), HE, 128, 52  
*Ischnothrix* BIGOT, Ata, 77-85, 223-244, 152  
*iyouta* sp. n., AII, 79, 84, 237, 238, 162  
*kallakkure* sp. n., LDi, 206, 133  
*kamballa* sp. n., GLh, 279, 208  
*kandu* sp. n., AAm, 249, 170  
*kiandra* sp. n., GLb, 273, 202  
*kowinka* sp. n., LDi, 196, 126  
*kulin* ALEX., LDi, 172, 107  
*kumbu* sp. n., LLim, 35, 47, 48, 138, 73  
*kuranda* sp. n., CE, 102, 267, 190  
*kurnai* ALEX., LDi, 154, 93  
*Lachnocera* PHIL. [= *Ischnothrix* BIGOT], 152

- lagunta* sp. n., LDi, 146, **86**  
*lagunta lagunta* sp. et ssp. n., LDi, 146, **86**  
*lawsonensis* (SKUSE), All, 81, 83, 229, 230, **159**  
*Leiponeura* SKUSE [= *Lipophleps* BERG.], 191  
*Leptorhina* STEPH. [= *Helius* LE PEL. & SERV.], **43**  
*Limnaea* [= error for *Limnoea* ROND.], 177  
*Limnobia* MEIG. [= *Limonia* MEIG.], **70**  
*Limnoea* ROND. [= *Erioptera* MEIG.], 177  
*Limnoica* ROND. [= *Erioptera* MEIG.], 177  
*Limonia* MEIG., L, 35, 47, 48, 135-139, **70**  
*Limonia* MEIG., Lini, 25-72, 135-218, **70**  
*Lipophleps* BERG., G, 103-117, 268-286, **191**  
*loarinna* sp. n., LDi, 193, **123**  
*lucerna* ALEX., EE, 255, **178**  
*ludmilla* sp. n., LNea, 211, **138**  
*maculosus* (SKUSE), AAu, 252, **173**  
*magnistyla* ALEX. [= *fullawayi* (ALEX.)], **107**  
*makoo* ssp. n., [= *lagunta* sp. n., ssp.], LDi, **87**  
*Mammuthonasus* sg. n., H, 1, 2, 15, 16, 129, **53**  
*marina* (SKUSE), LDi, 201, **130**  
*mathewsi* (ALEX.), AIa, 227, 228, **157**  
*Megarhina* LE PEL. & SERV. [= *Helius* LE PEL. & SERV.], **40, 43**  
*mendolo* ssp. n., [= *nullanulla* sp. n., ssp.], LDi, 178, **111**  
*mesoneura* ALEX., GLs, **200**  
*mesorrhynchus* ALEX., HH, **45**  
*Metalibnotes* ALEX., L, 33, 51, 52, 141, **76**  
*Meterioptera* ALEX., E, 92, 94, 97, 263, 264, **184**  
*milkurli* sp. n., LNea, 25, 61, 62, 210, **138**  
*millaamillaa* sp. n., All, 235, 236, **161**  
*millemurro* sp. n., LDi, 163, **99**  
*minusculus* ALEX., AAm, 87, 89, 245, **168**  
*moma* sp. n., GLp, 283, **211**  
*monacha* ALEX. [= *whitei* (ALEX.), ssp.], LDi, 129  
*monteithi* sp. n., AAm, 247, **169**  
*montina* ALEX., T, 220, **149**  
*motepa* sp. n., LDi, 181, **113**  
*mundewudda* sp. n., GLm, 105, 116, 281, **210**  
*muta* ALEX., LDi, 150, **89**  
*nasus* sp. n., TCn, 17, 19, 21, 22, 130, **60**  
*Nealexandriaria* ALEX., L, 25, 61, 62, 210, 211, **137**

- Neolibnotes* ALEX., L, 37, 71, 72, 217, 218, 146  
*Neostyringomyia* ALEX. [= *Ceratocheilus* WESCHE], 57  
*Nesciomyia* sg. n., L, 36, 39, 69, 70, 216, 144  
*niveitarsis* (SKUSE), HE, 7, 8, 13, 14, 127, 51  
*nooroobunda* ssp. n. [= *richmondiana* (SKUSE), ssp.], LDi, 80  
*nowankareena* sp. n., LPan, 208, 136  
*nullanulla* sp. n., LDi, 177-179, 110  
*nullanulla nullanulla* sp. et ssp. n., LDi, 177, 110  
*Numantia* BIGOT [= *Dicranomyia* STEPH.], 82  
*obliqua* (ALEX.), LNeo, 37, 71, 72, 217a, 218, 146  
*obscura* (SKUSE), LDi, 157, 95  
*obscuripennis* (SKUSE), LDi, 197, 126  
*occidentalis* (ALEX.) [= *punctipennis* (SKUSE), ssp.], LDi, 170, 105  
*ochracea* SKUSE [= *simulans* ALEX.], 186  
*ochrirostris* (ALEX.) [= *brevirama* ALEX.], 92  
*octacantha* ALEX., LDi, 198, 127  
*omi* sp. n., LDi, 160, 97  
*onya* sp. n., GLp, 284, 212  
*oolyarra* sp. n., GLh, 106, 115, 280, 208  
*opima* (ALEX.), LDi, 189, 120  
*Orolimnophila* ALEX. [= *Ischnothrix* BIGOT], 152  
*Oromyia* ALEX. [= *Ischnothrix* BIGOT], 152  
*otayba* sp. n., EE, 261, 183  
*Pandamyia* sg. n., L, 26, 59, 60, 208, 209, 135  
*pangarinda* ssp. n. [= *richmondiana* (SKUSE), ssp.], LDi, 80  
*panthera* sp. n., LDi, 121  
*Paralibnotes* ALEX., L, 34, 49, 50, 140, 75  
*parvistigma* (ALEX.), LGo, 45, 46, 57, 58, 207, 134  
*patya* sp. n., AAp, 250, 171  
*perexquisita* ALEX., EE, 257, 180  
*perpulchra* ALEX., LDi, 190, 120  
*perssoni* ALEX., GLp, 110, 117, 282, 211  
*pino* sp. n., GLb, 274, 203  
*pita* sp. n., AAu, 254, 174  
*pita* ssp. n. [= *nullanulla* sp. n., ssp.], LDi, 179, 111  
*pitoa* sp. n., LDi, 200, 129  
*Polymeda* MEIG. [= *Erioptera* MEIG.], 175, 177  
*Polyraphia* MEIG. [= *Erioptera* MEIG.], 177  
*Polyrhaphia* AGAS. [= *Erioptera* MEIG.], 177  
*protenta* ALEX., GLs, 269, 197

*Pseudoglochina* ALEX., L, 38, 63, 64, 212, **139**  
*puckowe* sp. n., GLs, 103, 271, **199**  
*pulchripes* (ALEX.), LPs, 38, 63, 64, 212, **139**  
*pullybuntor* sp.n., AAm, 248, **170**  
*punctipennis* (SKUSE), LDi, 169, 170, **104**  
*punctipennis punctipennis* (SKUSE), LDi, 169, **104**  
*punctulatella* ALEX., LDi, 175, **108**  
*queenslandica* ALEX., GLb, **204**  
*rapae* (ALEX.) [= *illingworthi* (ALEX.)], **115**  
*remota* (SKUSE), LDi, 147, **87**  
*Rhamphidia* MEIG. [= *Helius* LE PEL. & SERV.], **43**  
*Rhampholimnobia* ALEX., H, 5, 6, 11, 12, 126, **49**  
*richmondiana* (SKUSE), LDa, 27, 53, 54, 142, **79**  
*richmondiana richmondiana* (SKUSE), LDa, 27, 53, 54, 142, **79**  
*saxatilis* (SKUSE), LDi, 162, **98**  
*saxemarina* ALEX., LDi, 205, **132**  
*sedata* (ALEX.), LA, **143**  
*semiermis* (ALEX.), LM, 33, 51, 52, 141, **77**  
*semiermis semiermis* (ALEX.), LM, 33, 51, 52, 141, **77**  
*semitristis* ALEX. [= *bidentata* (SKUSE)], **75**  
*Siagona* MEIG. [= *Dicranomyia* STEPH.], **82**  
*simulans* ALEX., EM, 92, 264, **186**  
*skusei* ALEX., GLs, 104, 111, 268, **195**  
*sordida* (BRUN.), LDi, 185, **116**  
*sordida sordida* (BRUN.), LDi, 185, **116**  
*spinitergatus* ALEX. [= *maculosus* (SKUSE)], **173**  
*subaequalis* (ALEX.), LNeo, 217b, **147**  
*subdorsalis* ALEX. [= *dorsalis* (SKUSE)], **91**  
*submarina* sp. n., LDi, 202, **131**  
*substricta* (ALEX.), LDi, 188, **119**  
*tamborina* ALEX., LA, 43, 67, 68, 214, **142**  
*tasmaniensis* (ALEX.), TCt, 20, 23, 132, **61**  
*tasmaniensis* ALEX., T, 73, 74, 219, **149**  
*tattakae* (ALEX.) [= *sordida sordida* (BRUN.)], **116**  
*tayloriana* ALEX. [= *parvistigma* (ALEX.)], **134**  
*Tedotea* SAN. ABR. [= *Dicranomyia* STEPH.], **82**  
*Telecephala* PIERRE [= *Dicranomyia* STEPH.], **82**  
*terraereginae* ALEX., GLs, **197**  
*thambaroo* sp. n., GLb, 275, **203**  
*thowla* sp. n., Ai, 241, 242, **164**

*tonahleah* sp. n., HH, 121i, 48  
*Tonnoiromyia* ALEX., Lini, 73, 74, 219-221, 148  
*Toxorhina* LOEW, Lini, 17-24, 130-134, 55  
*tshintia* sp. n., HH, 121e, 121f, 47  
*uckillya* sp. n., LPan, 25, 59, 60, 209, 136  
*umbraticus* (SKUSE), AAu, 88, 90, 251, 172  
*undoolya* sp. n., T, 221, 150  
*ungjeeburra* sp. n., LDi, 41, 44, 55, 56, 166, 102  
*validistyla* ALEX., LDi, 158, 96  
*venustus* (SKUSE), HH, 121b, 123, 45  
*verticalis* (ALEX.), All, 231, 232, 160  
*viridiventris* (SKUSE) [= *dorsalis* (SKUSE)], 91  
*wattamolla* sp. n., LDi, 203, 131  
*waylehmina* sp. n., All, 233, 234, 160  
*wellingtonia* (ALEX.) [= *cuneata* (SKUSE)], 85  
*wellsae* sp. n., EE, 262, 183  
*westralis* sp. n., TCt, 233, 62  
*whitei* (ALEX.), LDi, 199, 128  
*whitei whitei* (ALEX.), LDi, 199, 128  
*williamsae* sp. n., LDi, 171, 106  
*williamsi* sp. n., Ali, 239, 240, 163  
*wirruna* ssp. n. [= *allunga* sp. n., ssp.], HM, 54  
*woggoon* sp. n., LDi, 186, 117  
*wunda* sp. n., GLp, 285, 213  
*wundurra* sp. n., LDi, 204, 132  
*yarraga* sp. n., EE, 260, 182  
*yarto* sp.n, EE, 258, 180  
*yeranda* sp. n., LLim, 139, 74  
*yerrawar* sp. n., LDi, 161, 97  
*yindi* sp. n., HH, 121g, 121h, 47  
*youngoloy* sp.n., LC, 40, 42, 65, 66, 213, 141  
*zonata* (SKUSE), LDi, 182, 114

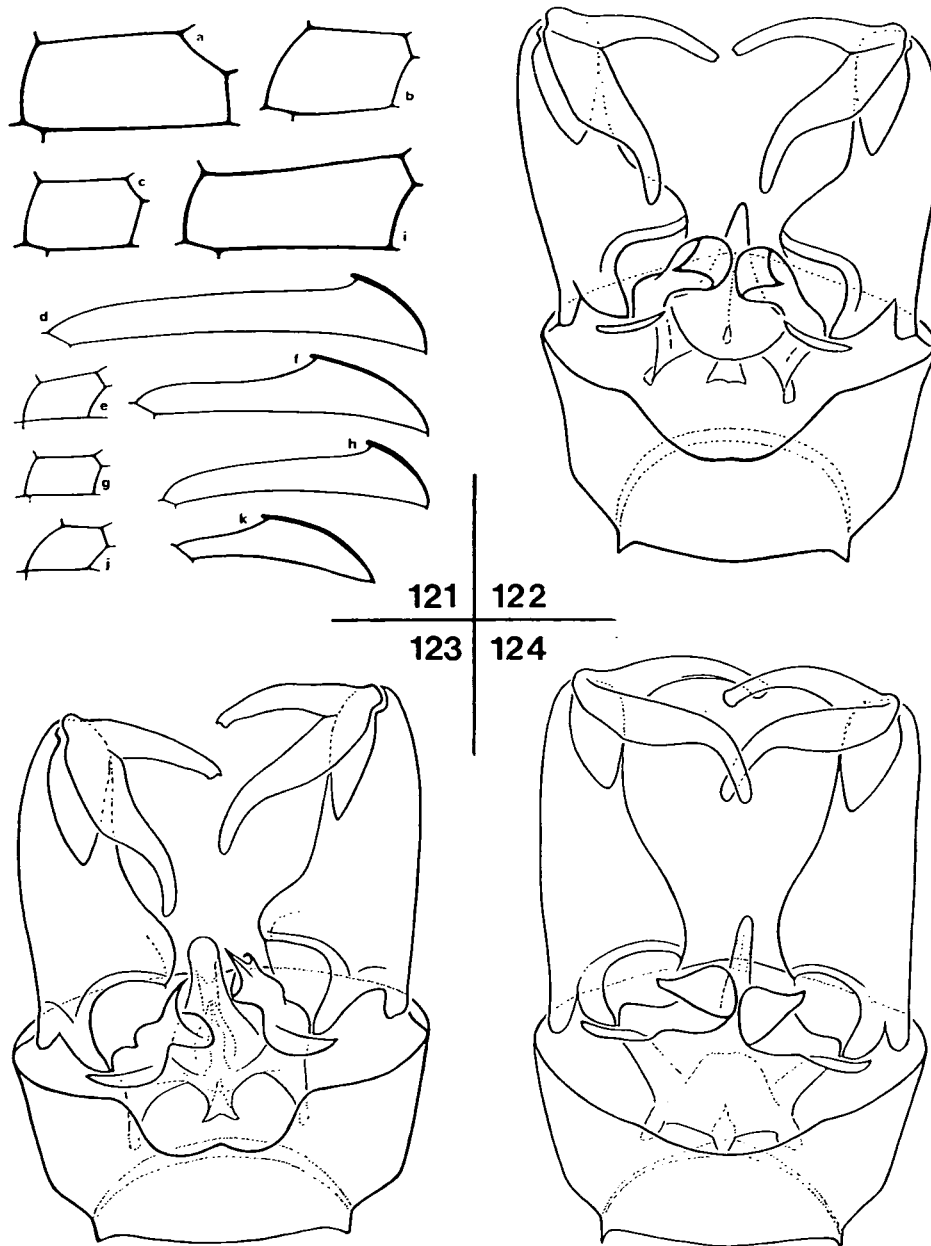
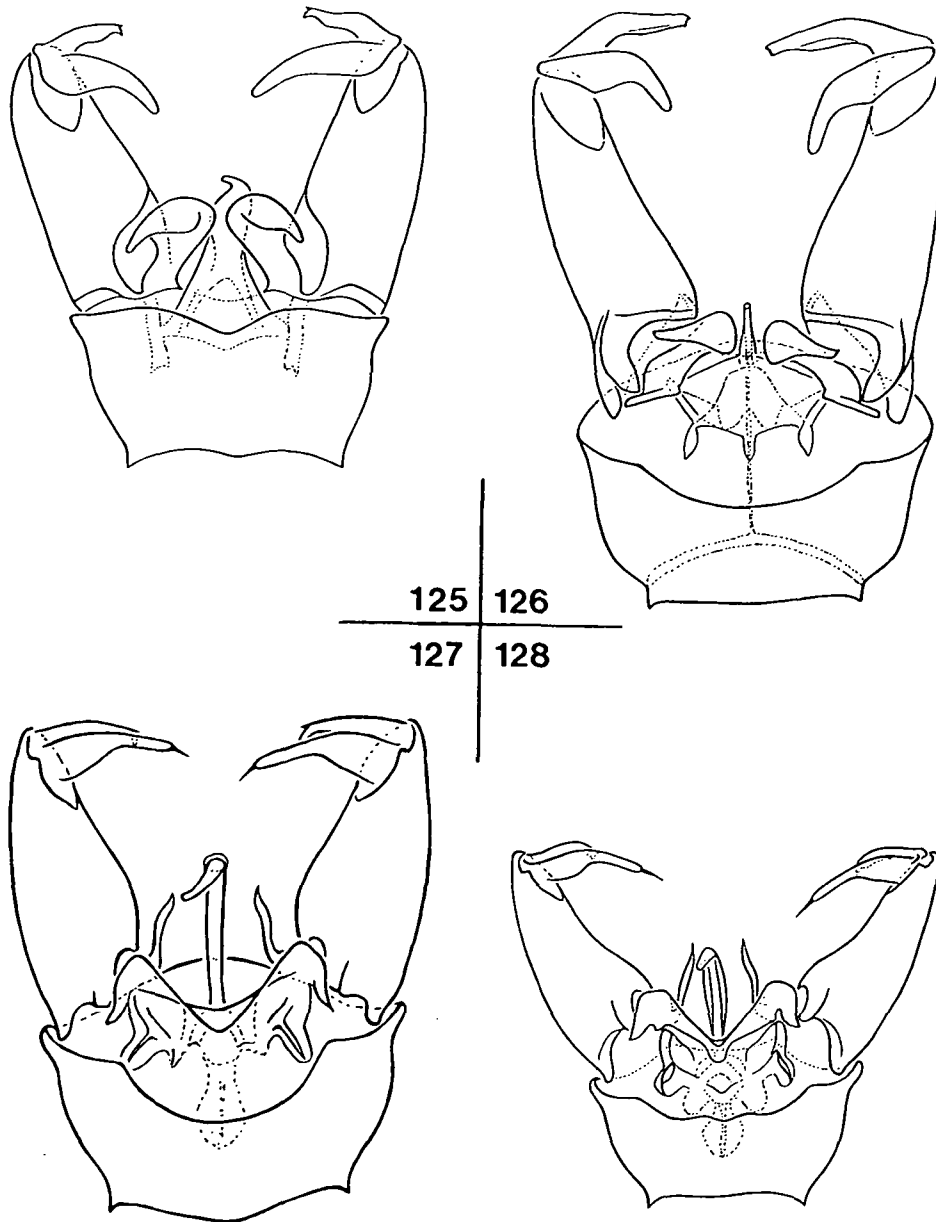
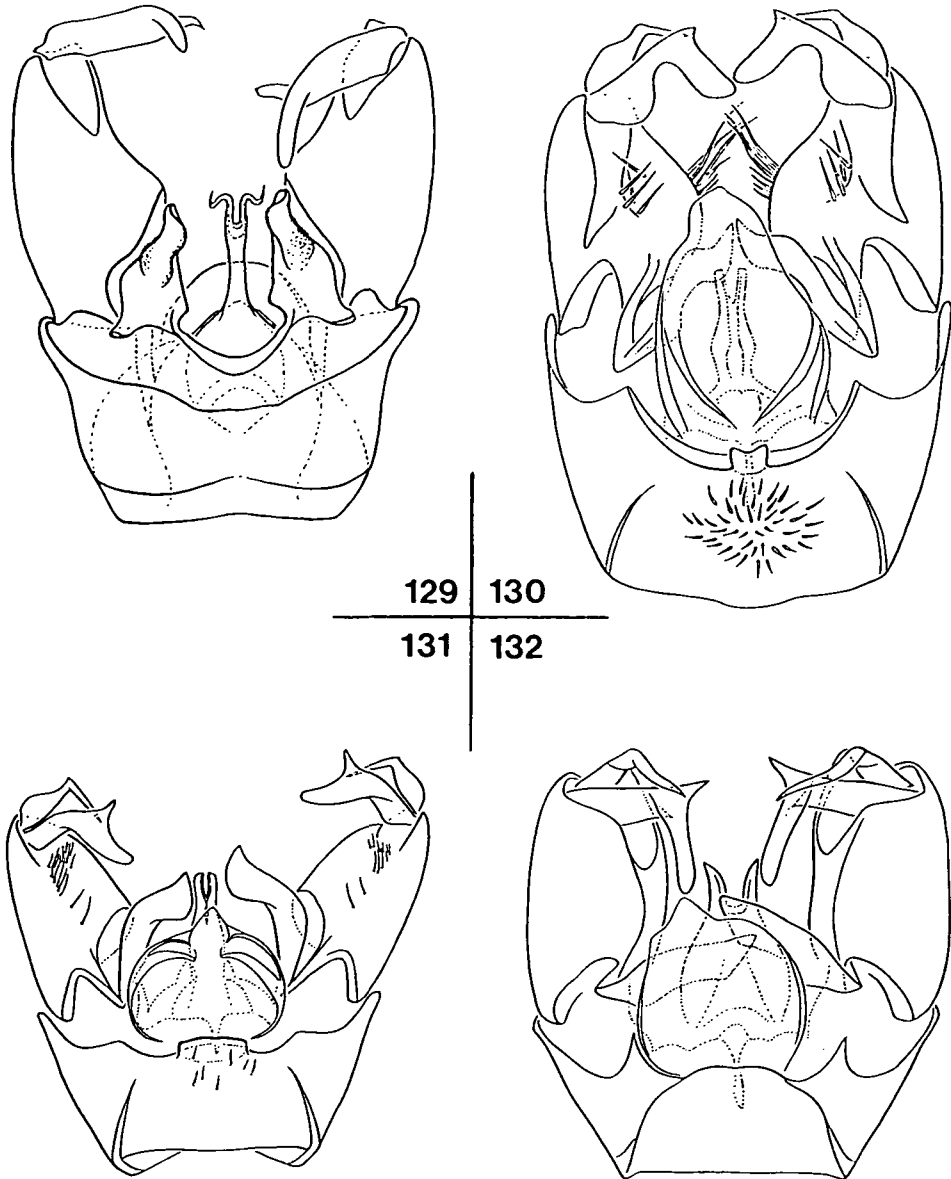


Fig. 121. Venational details (cells dm and R3) of *Helius* (*Helius*): a, *communis* (SKUSE); - b, *venustus* (SKUSE); - c, d, *fulvithorax* (SKUSE); - e, f, *tshintia* sp. n.; - g, h, *yindi* sp. n.; - i, *tonaleah* sp. n.; - j, k, *chintoo* sp. n. Figs 122-124. Male hypopygium, dorsal aspect, of *Helius* (*Helius*): 122: *communis* (SKUSE); - 123: *venustus* (SKUSE); - 124: *fulvithorax* (SKUSE).

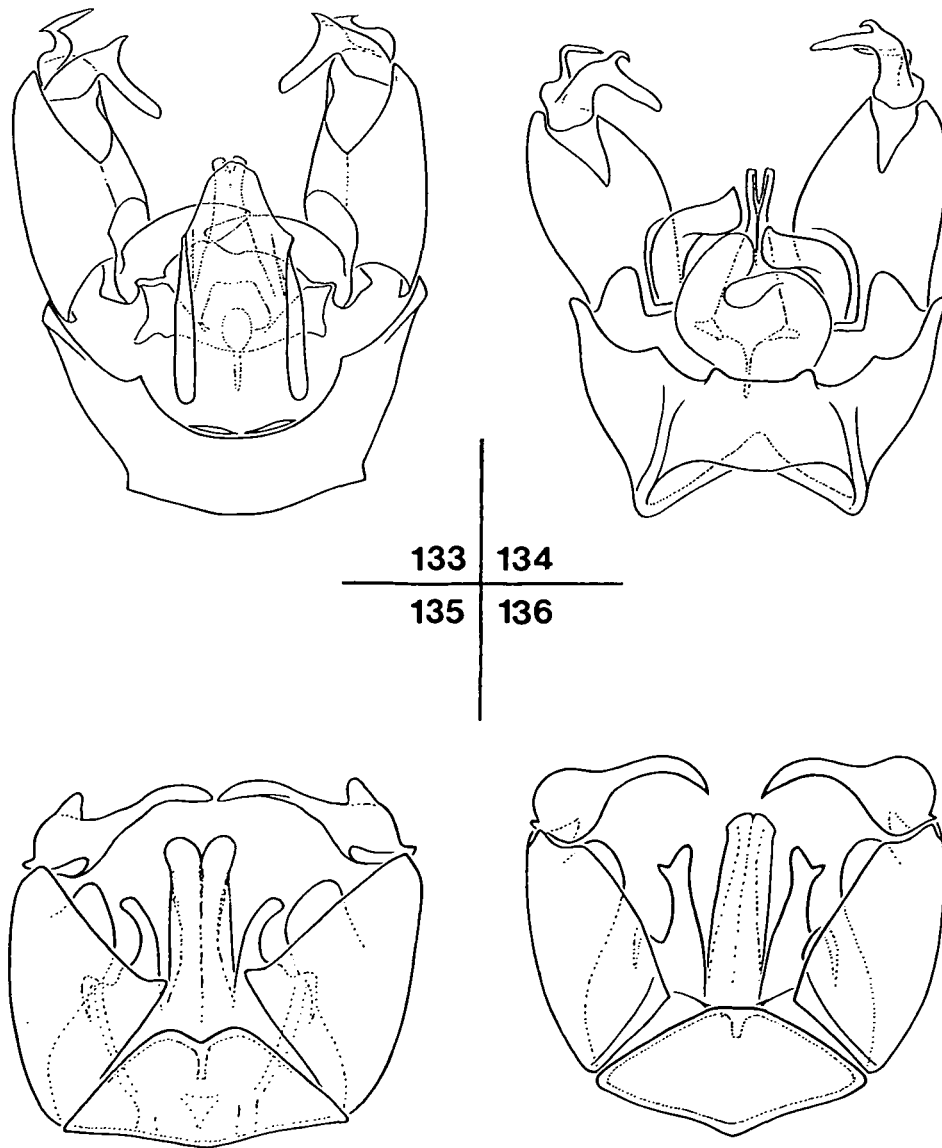


Figs 125-128. Male hypopygium, dorsal aspect, of *Helius*: 125: *Helius (Helius) chintoo* sp. n.; - 126: *Helius (Rhampholimnobia) deentoo* sp. n.; - 127, 128: *Helius (Eurhamphidia)*: 127: *niveitarsis* (SKUSE); - 128: *invenustipes* (ALEX.).

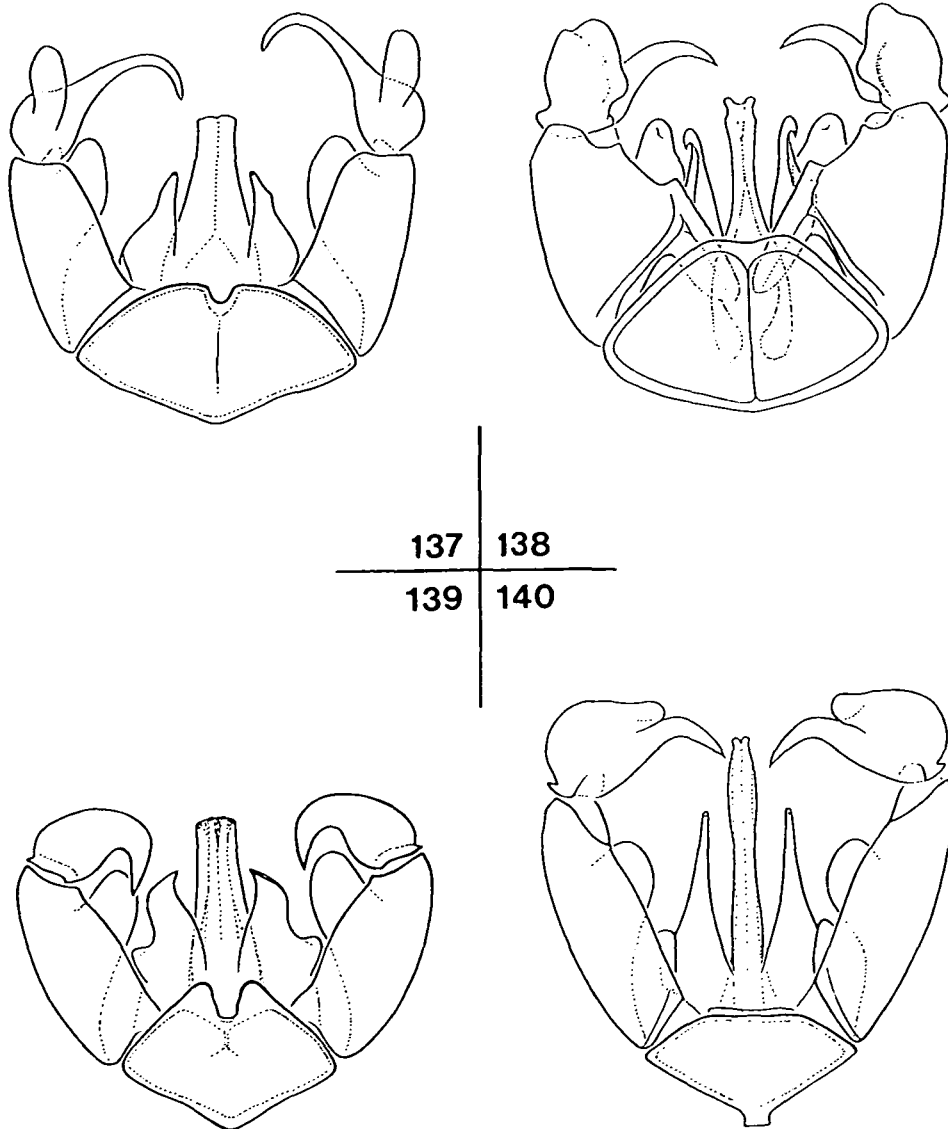




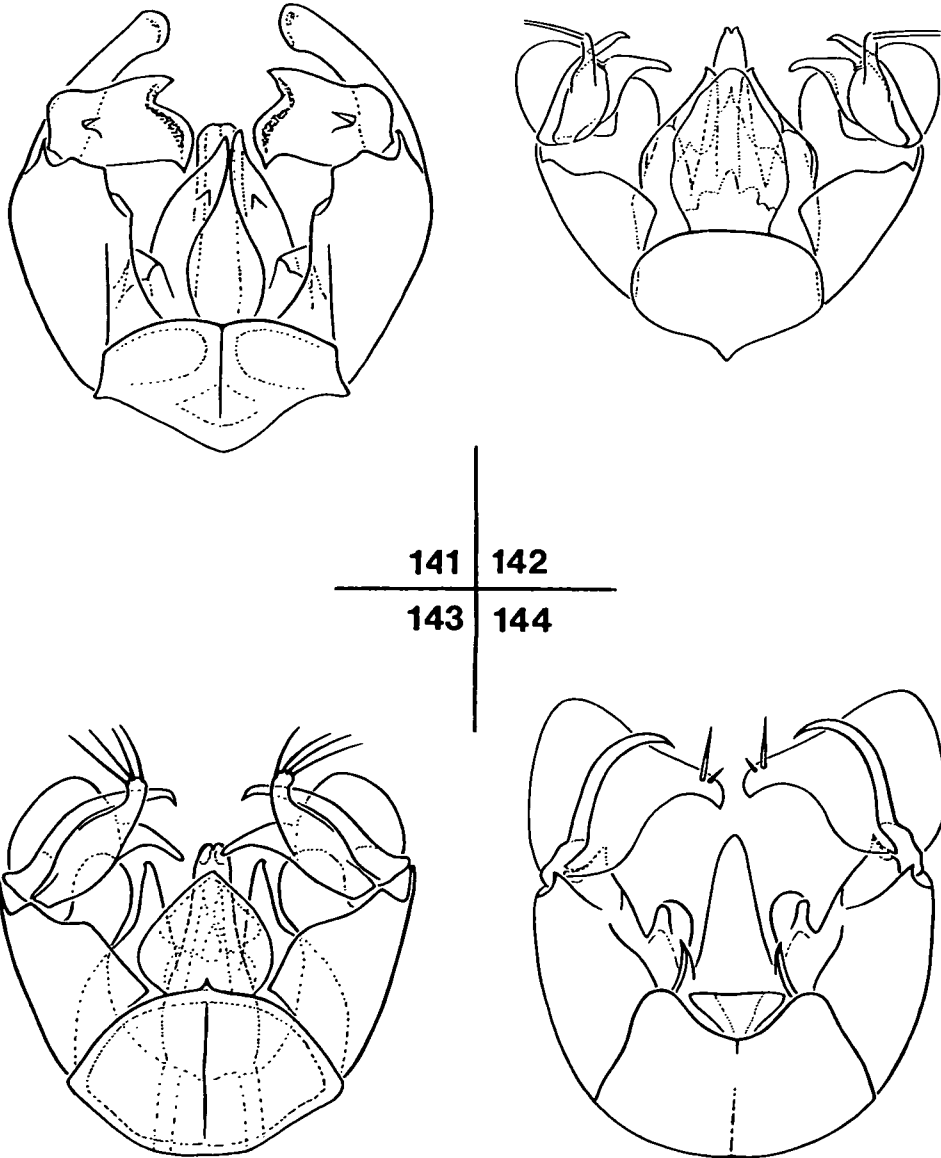
Figs 129-132. Male hypopygium, dorsal aspect, of: 129: *Helius (Mammuthonasus) allunga allunga* sp. et ssp. n.; - 130-132: *Toxorhina (Ceratocheilus)*: 130: *nasus* sp. n.; - 131: *growea* sp. n.; - 132: *tasmaniensis* (ALEX.).



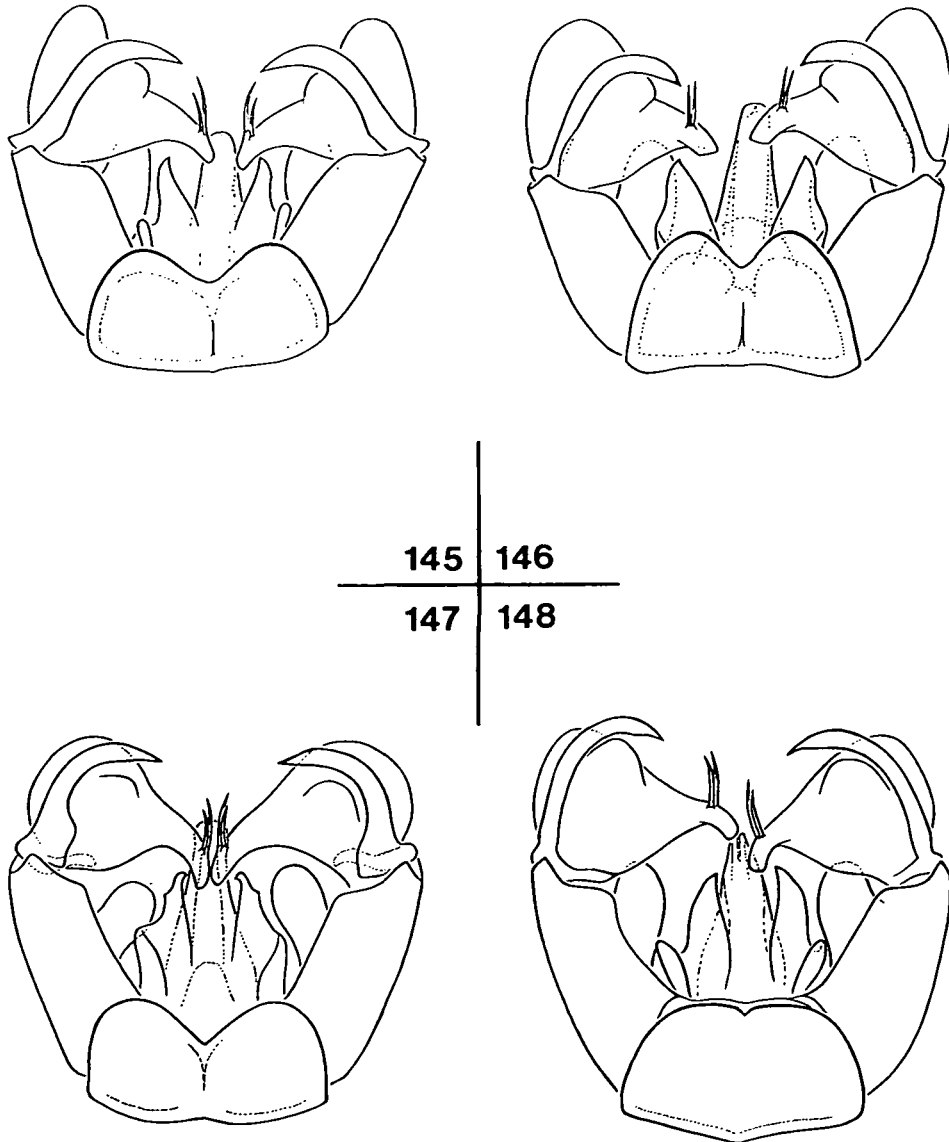
Figs 133-136. Male hypopygium, dorsal aspect, of: 133: *Toxorhina (Ceratocheilus) westralis* sp. n. - 134: *Toxorhina (Eutoxorhina) ammoula* sp. n.; - 135, 136: *Limonia (Limonia)*: 135: *amicula* (ALEX.); - 136: *atnitta* sp. n.



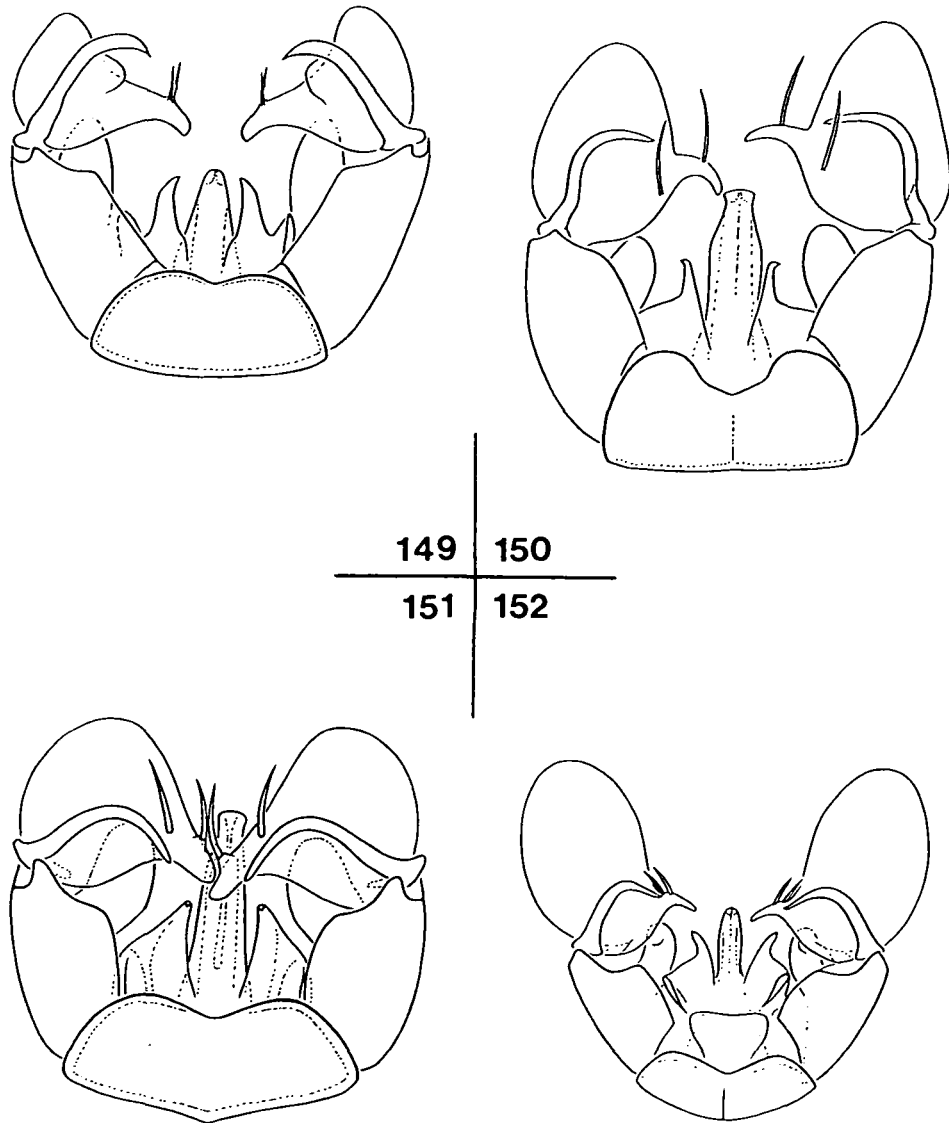
Figs 137-140. Male hypopygium, dorsal aspect, of *Limonia*: 137-139: *Limonia (Limonia)*: 137: *cairnensis* (ALEX.); - 138: *kumbu* sp. n.; - 139: *yeranda* sp. n.; - 140: *Limonia (Paralibnotes) bidentata* (SKUSE).



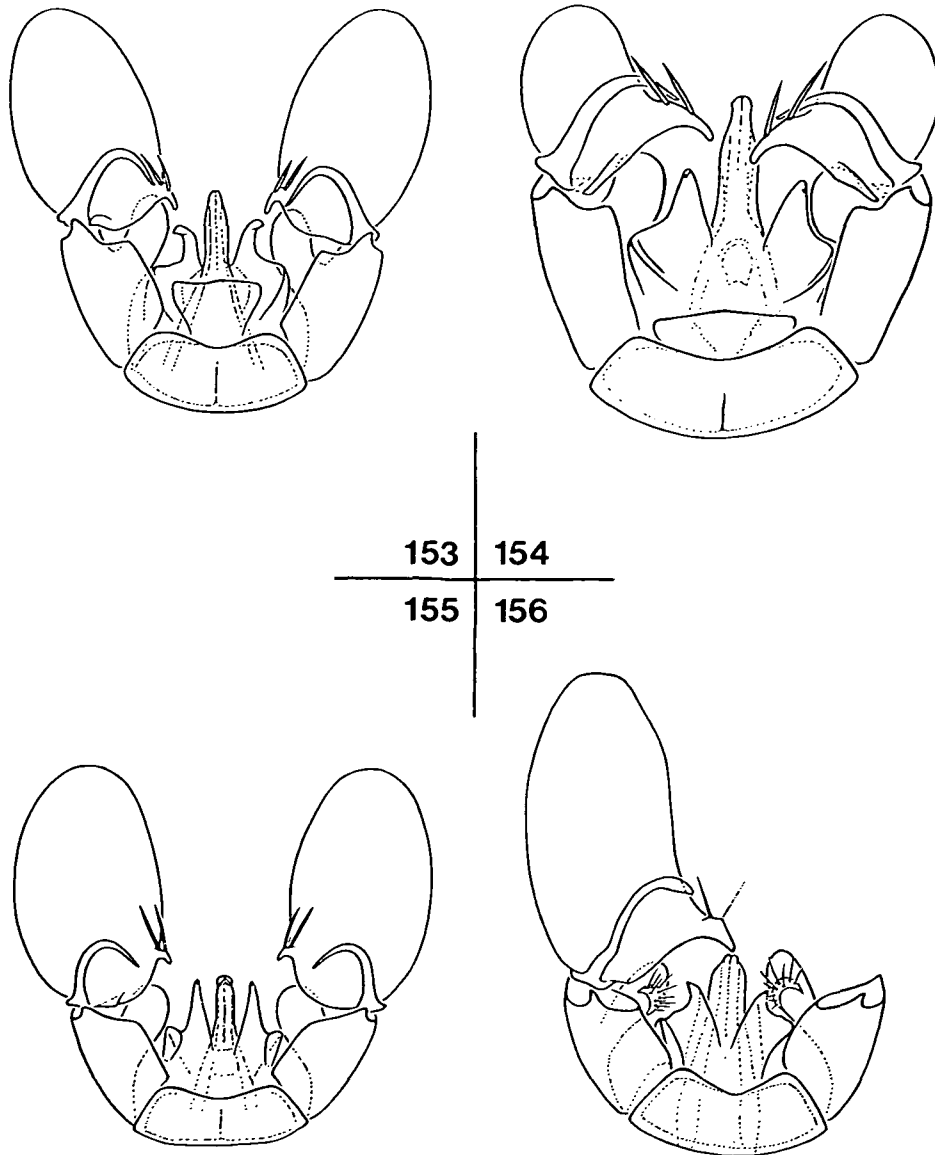
Figs 141-144. Male hypopygium, dorsal aspect, of *Limonia*: 141: *Limonia (Metalibnotes) semiermis semiermis* (ALEX.); - 142, 143: *Limonia (Dapanoptera)*: 142: *richmondiana richmondiana* (SKUSE); - 143: *hipmilita* sp. n.; - 144: *Limonia (Dicranomyia) cuneata* (SKUSE).



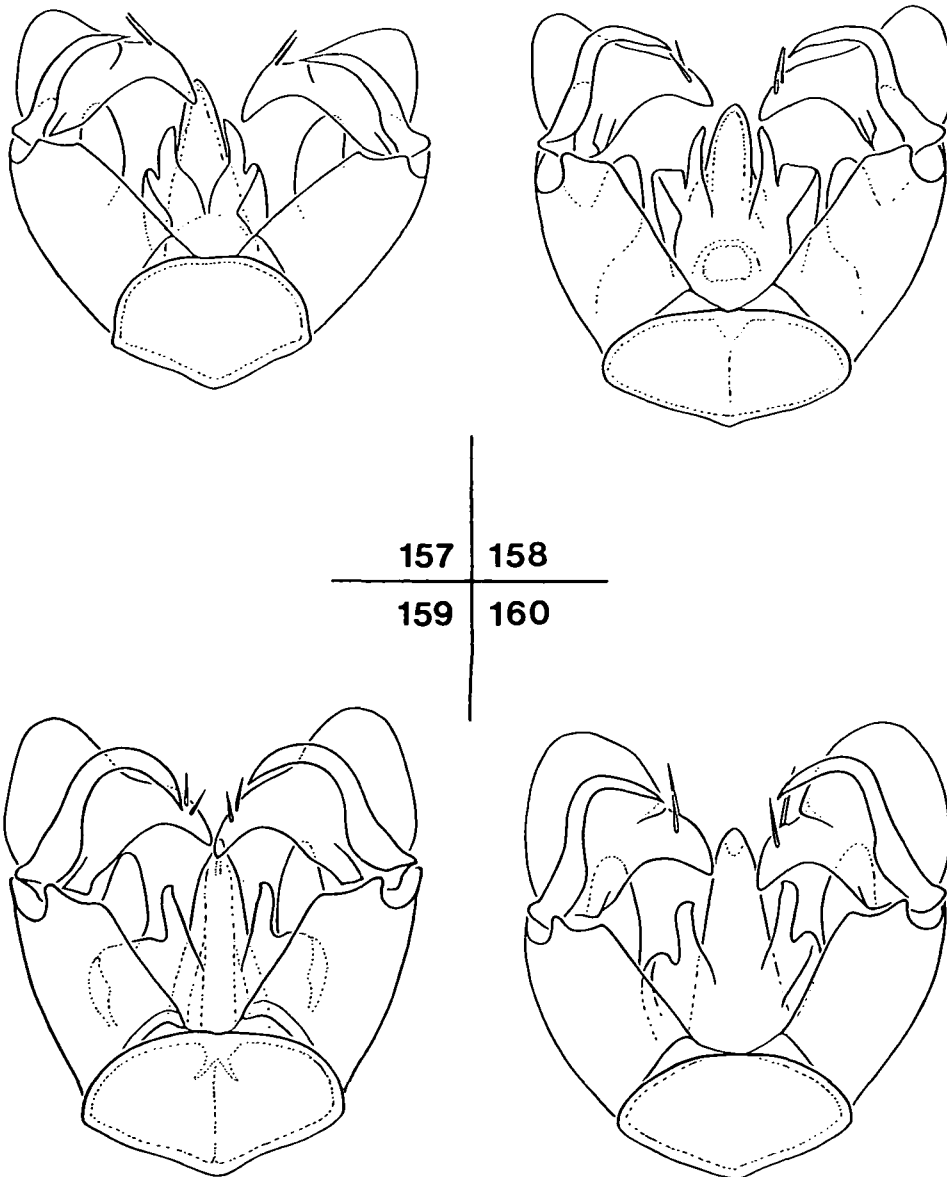
Figs 145-148. Male hypopygium, dorsal aspect, of *Limonia* (*Dicranomyia*): 145: *albistigma* (ALEX.); - 146: *lagunta lagunta* sp. et ssp. n.; - 147: *remota* (SKUSE); - 148: *auripennis* (SKUSE).



Figs 149-152. Male hypopygium, dorsal aspect, of *Limonia* (*Dicranomyia*): 149: *helmsi* (SKUSE); - 150: *muta* ALEX.; - 151: *fata* sp. n.; - 152: *dorsalis* (SKUSE).

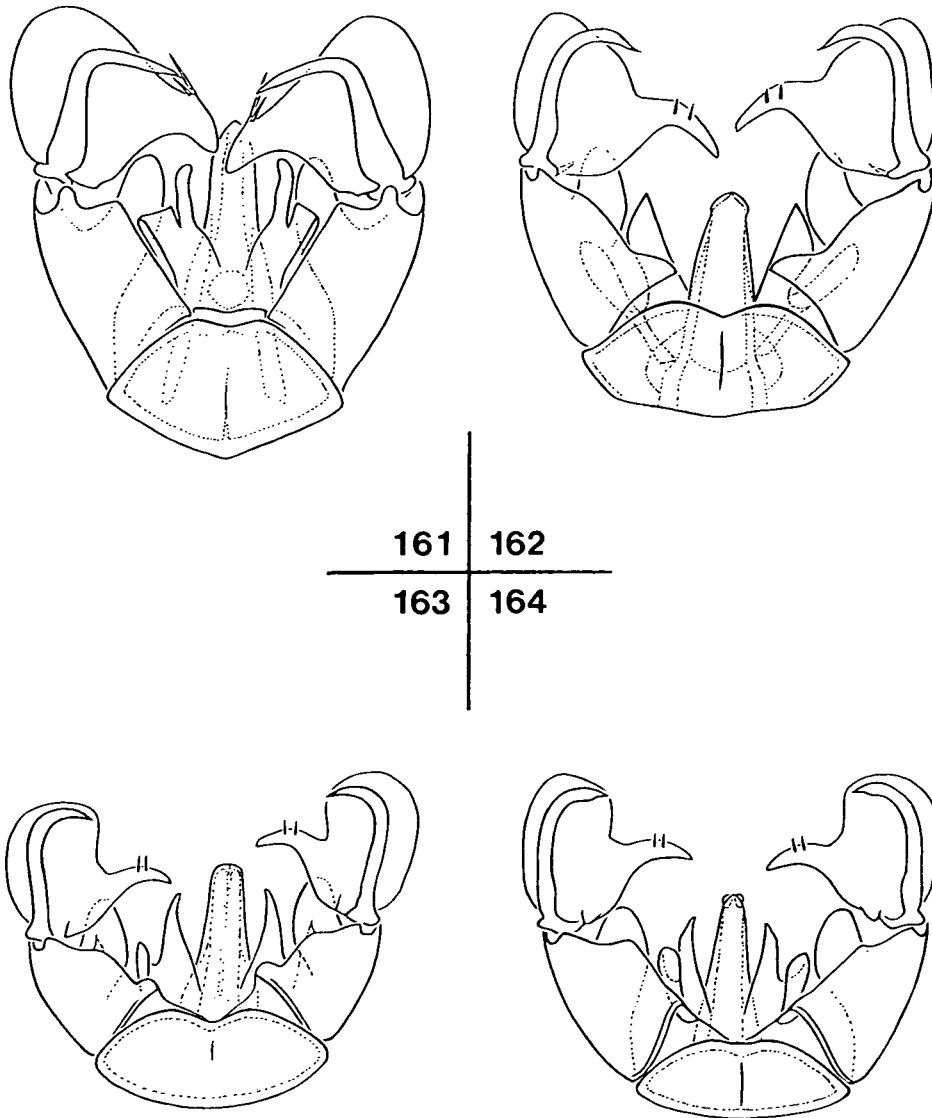


Figs 153-156. Male hypopygium, dorsal aspect, of *Limonia (Dicranomyia)*: 153: *brevirama* (ALEX.); - 154: *kurnai* ALEX.; - 155: *flavidella* ALEX.; - 156: *fragilis* sp. n.

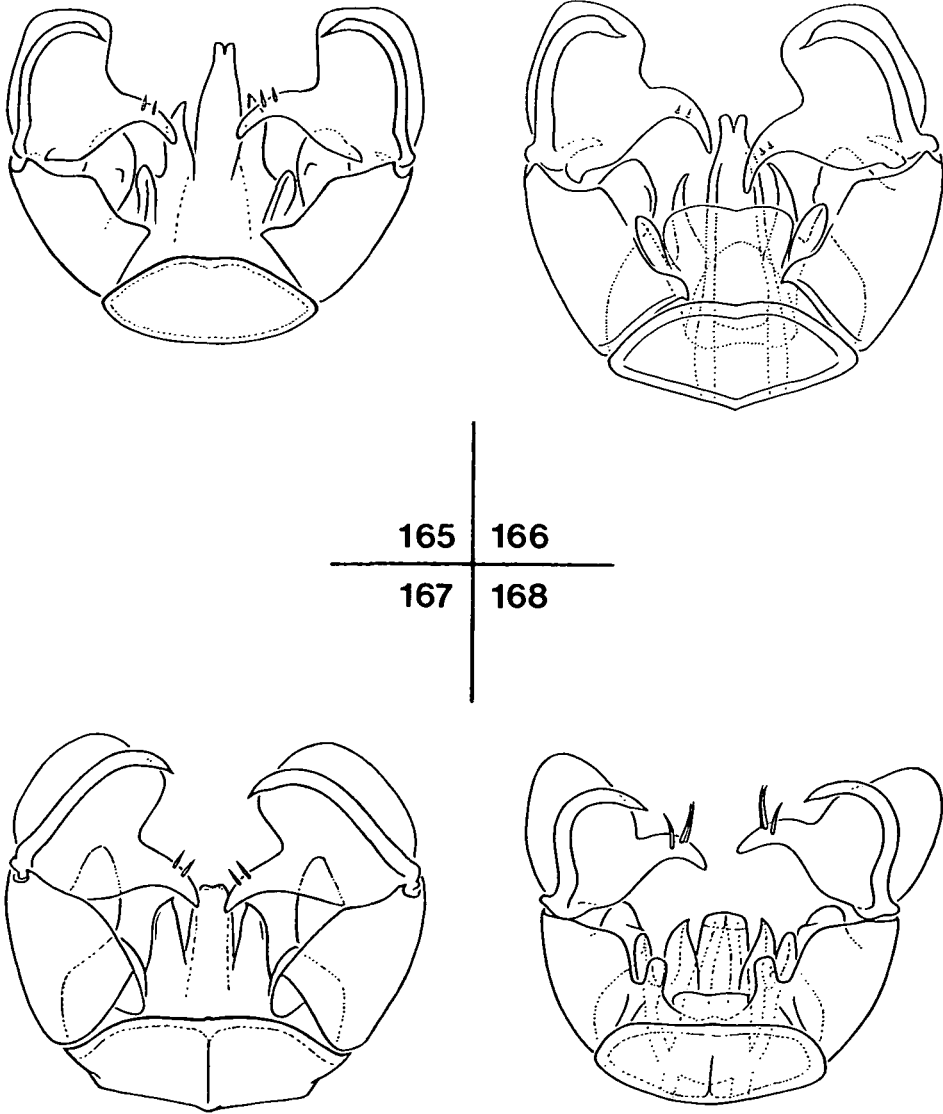


Figs 157-160. Male hypopygium, dorsal aspect, of *Limonia* (*Dicranomyia*): 157, *obscura* (SKUSE); - 158, *validistyla* ALEX.; - 159, *appa* sp. n.; - 160, *omi* sp. n.

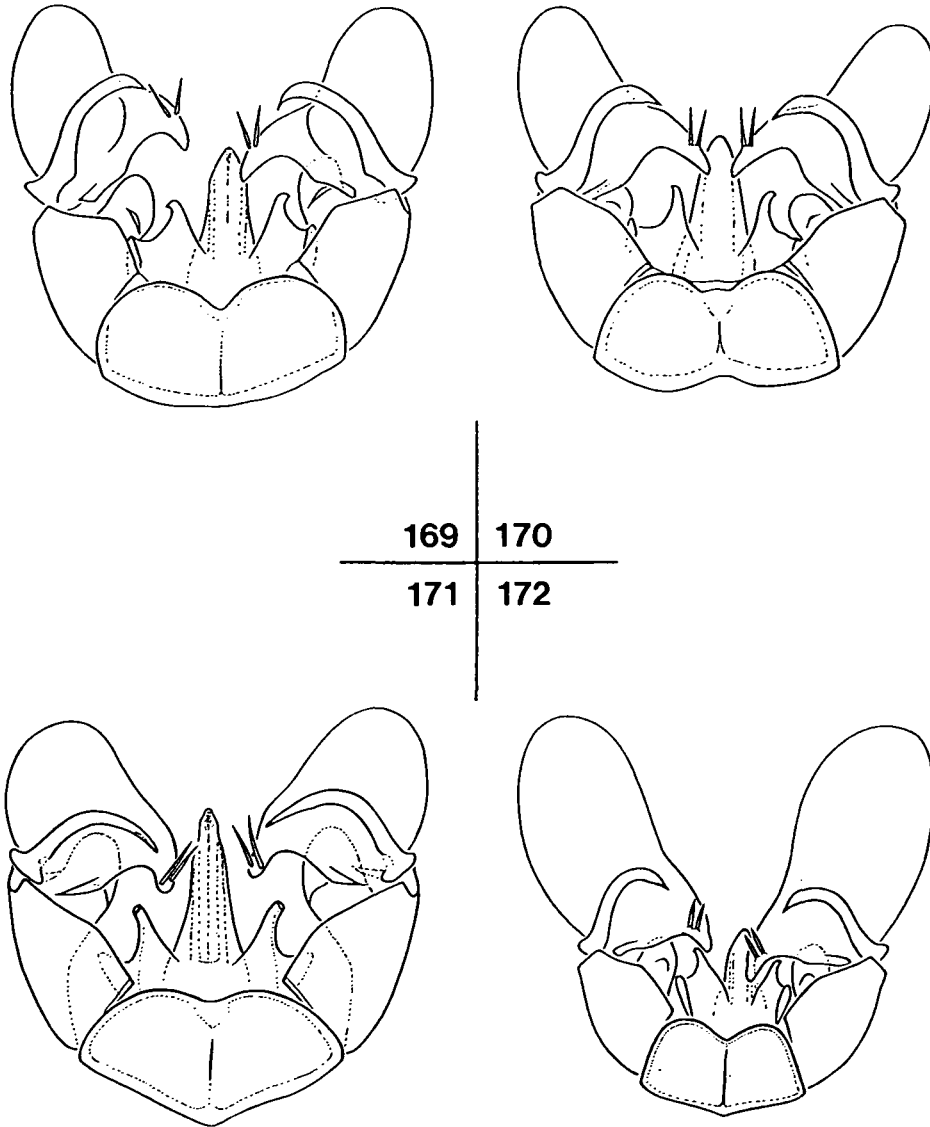




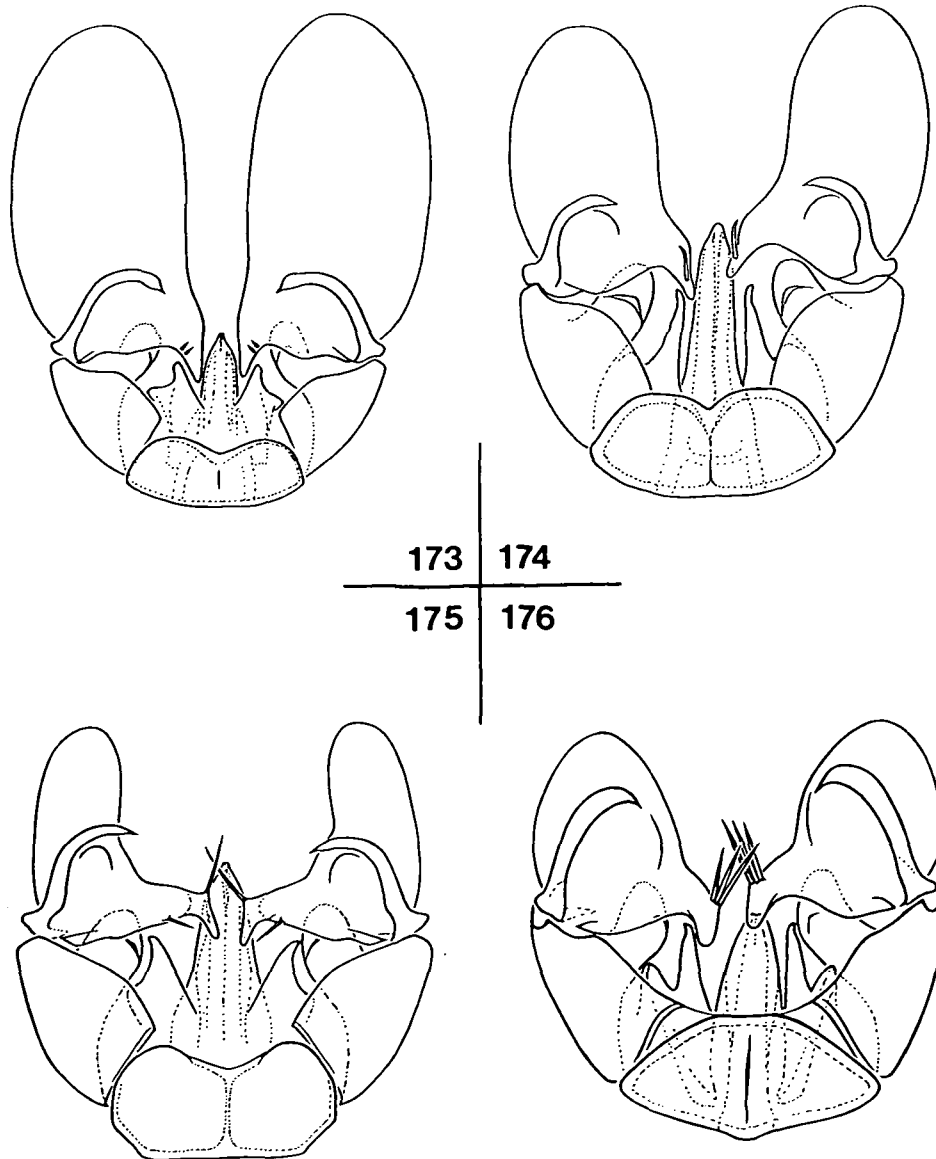
Figs 161-164. Male hypopygium, dorsal aspect, of *Limonia (Dicranomyia)*: 161, *yerrawar* sp. n.; - 162, *saxatilis* (SKUSE); - 163, *millemurro* sp. n.; - 164, *idonea* ALEX.



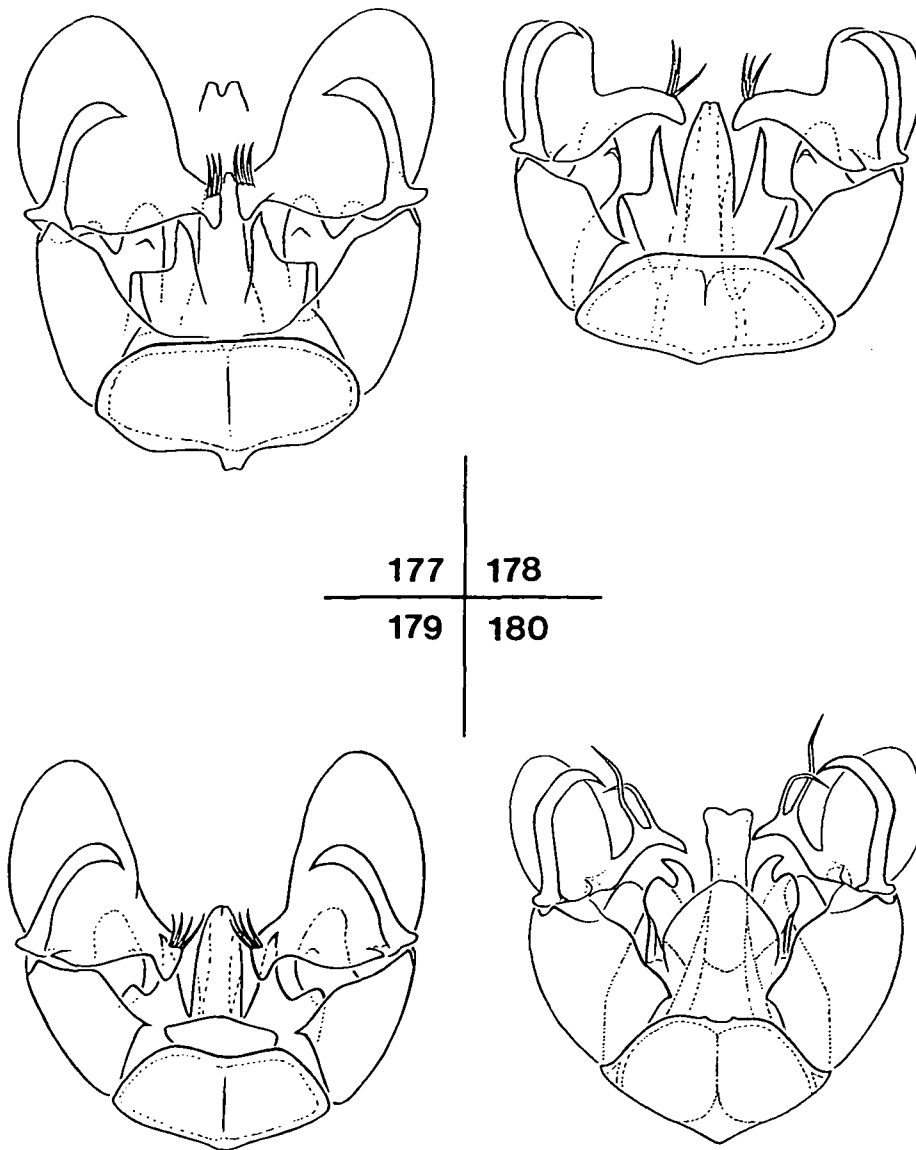
Figs 165-168. Male hypopygium, dorsal aspect, of *Limonia* (*Dicranomyia*): 165, *gemina* ALEX.; - 166, *ungjeeburra* sp. n.; - 167, *cinctitibia* ALEX.; - 168, *etmurra* sp. n.



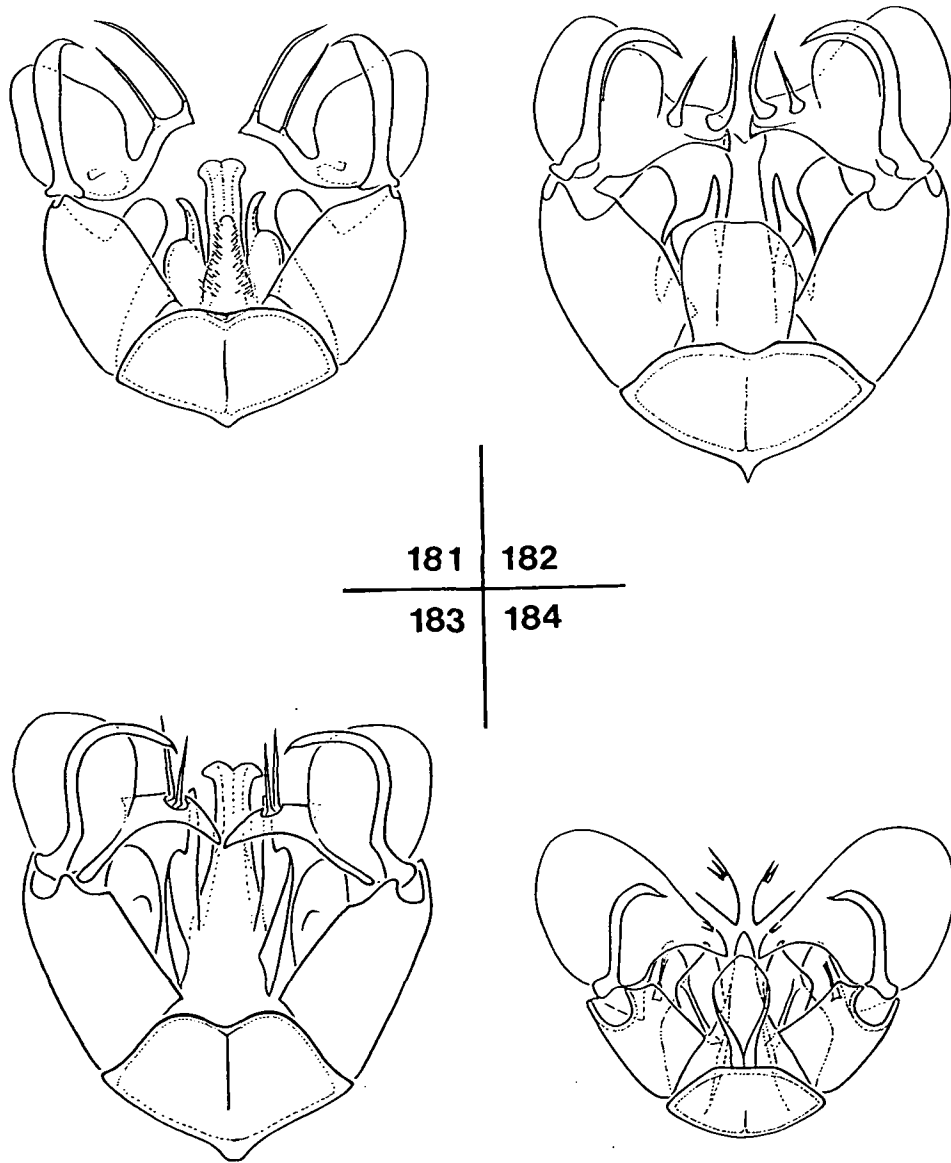
Figs 169-172. Male hypopygium, dorsal aspect, of *Limonia (Dicranomyia)*: 169, *punctipennis punctipennis* (SKUSE); - 170, *punctipennis occidentalis* (ALEX.); - 171, *williamsae* sp. n.; - 172, *kulin* ALEX.



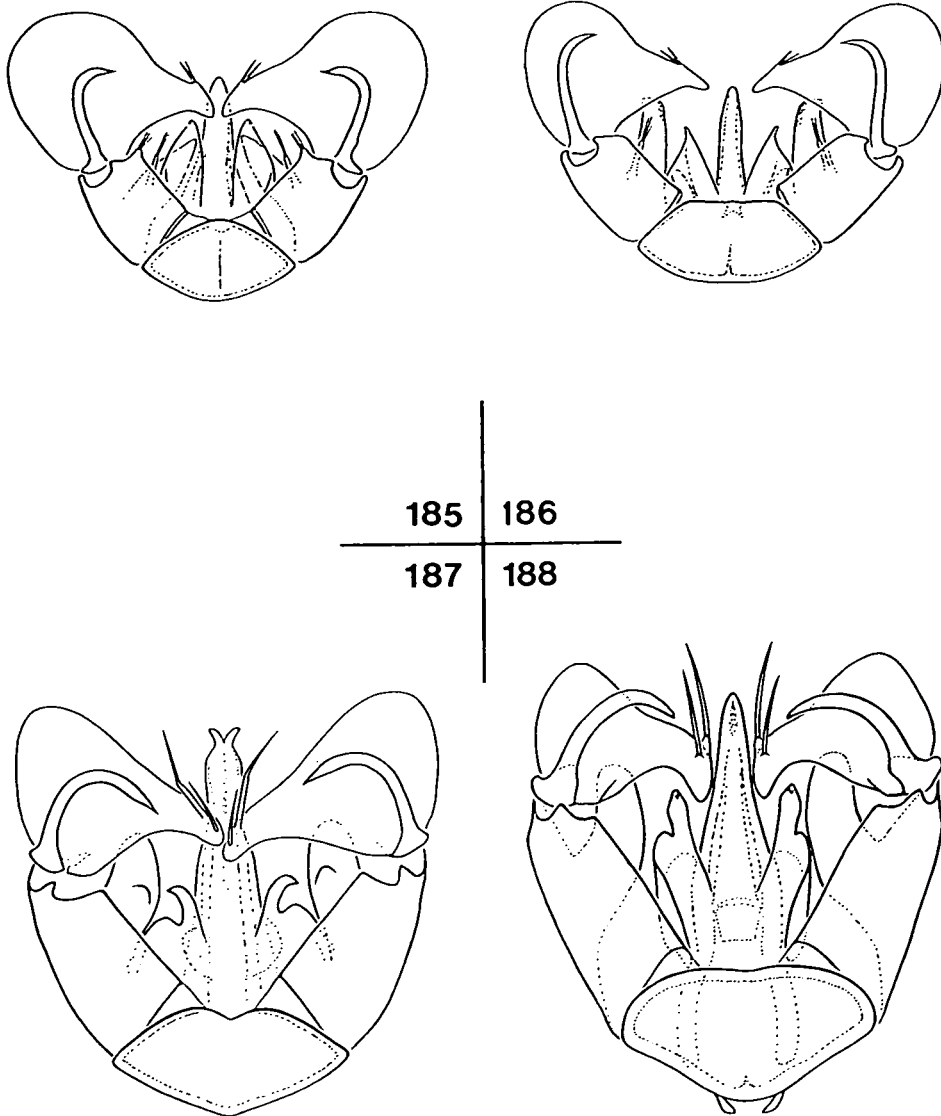
Figs 173-176. Male hypopygium, dorsal aspect, of *Limonia* (*Dicranomyia*): 173, *fullawayi* (ALEX.); - 174, *balli* sp. n.; - 175, *punctulatella* ALEX.; - 176, *bugledichae* sp. n.



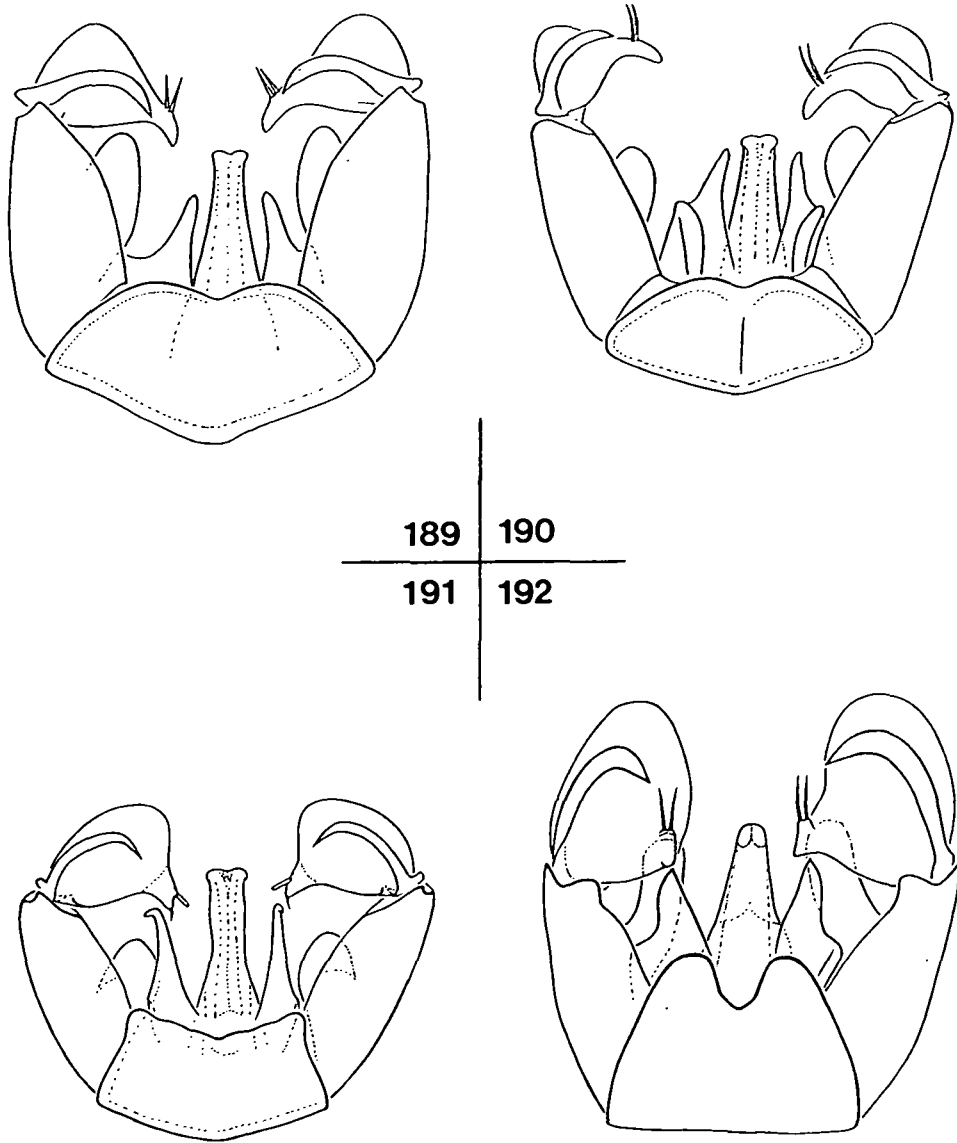
Figs 177-180. Male hypopygium, dorsal aspect, of *Limonia (Dicranomyia)*: 177, *nullanulla nullanulla* sp. et ssp. n.; - 178, *nullanulla mendolo* ssp. n.; - 179, *nullanulla pita* ssp. n.; - 180, *incisuralis* (SKUSE).



Figs 181-184. Male hypopygium, dorsal aspect, of *Limonia* (*Dicranomyia*): 181, *motepa* sp. n.; - 182, *zonata* (SKUSE); - 183, *clarki* ALEX.; - 184, *illingworthi* ALEX.

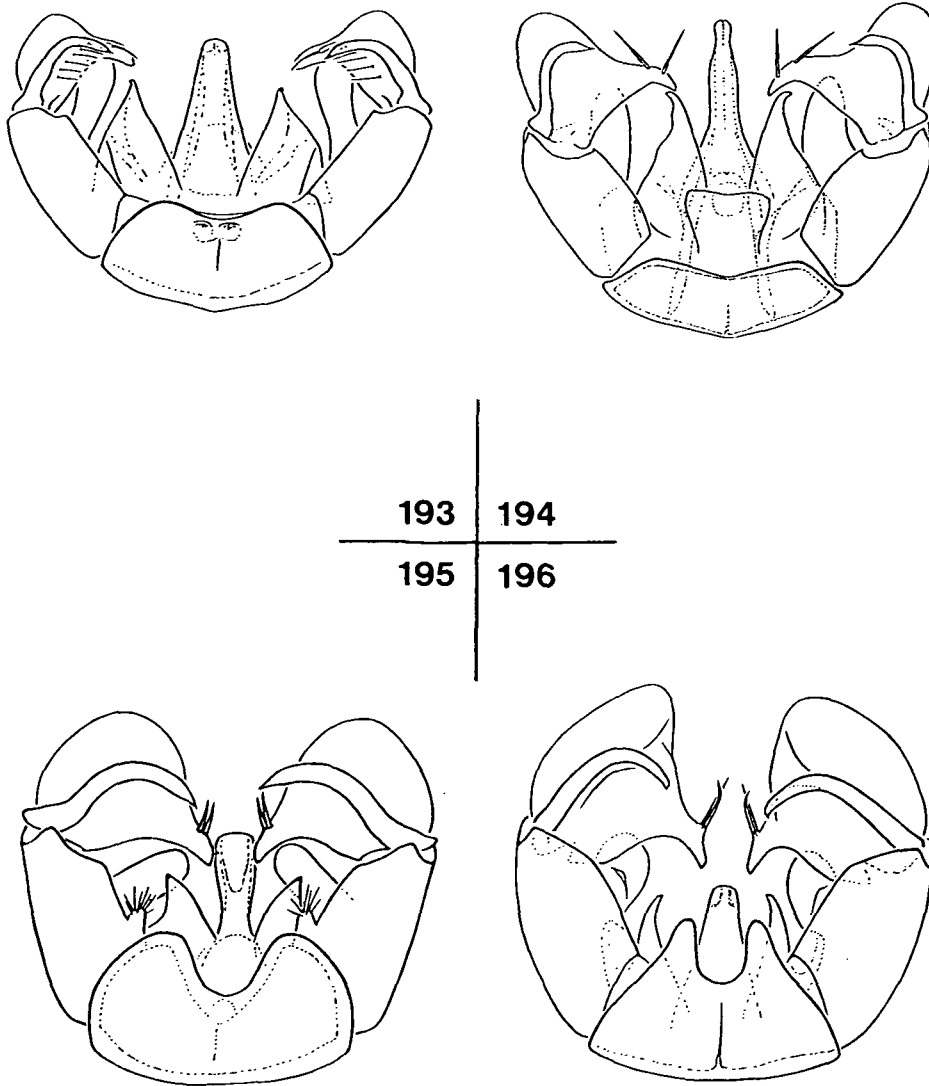


Figs 185-188. Male hypopygium, dorsal aspect, of *Limonia* (*Dicranomyia*): 185, *sordida* (BRUN.); - 186, *woggoon* sp. n.; - 187, *flagellifera* (ALEX.); - 188, *substricta* (ALEX.).

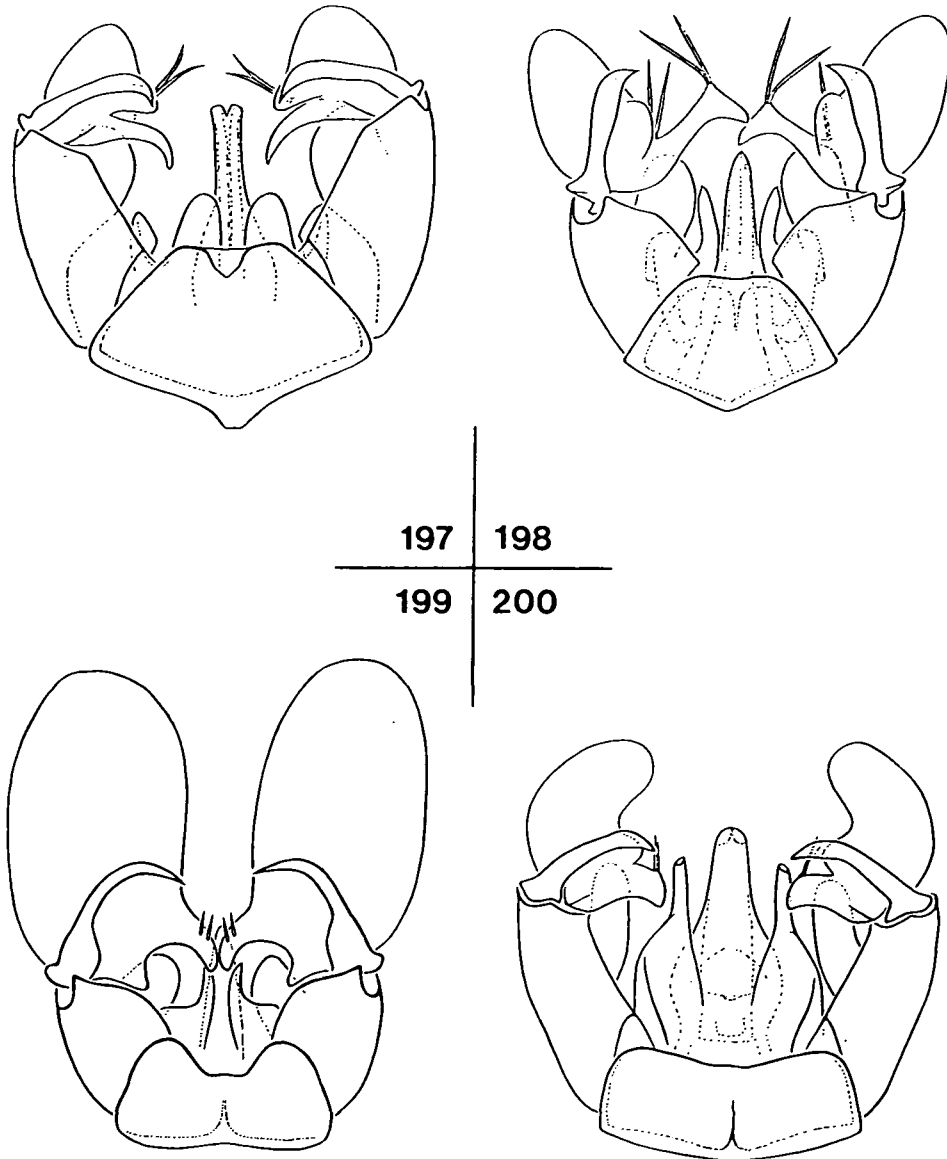


Figs 189-192. Male hypopygium, dorsal aspect, of *Limonia* (*Dicranomyia*): 189, *opima* (ALEX.); - 190, *perpulchra* ALEX.; - 191, *boorana* sp. n.; - 192, *bunyip* sp. n.

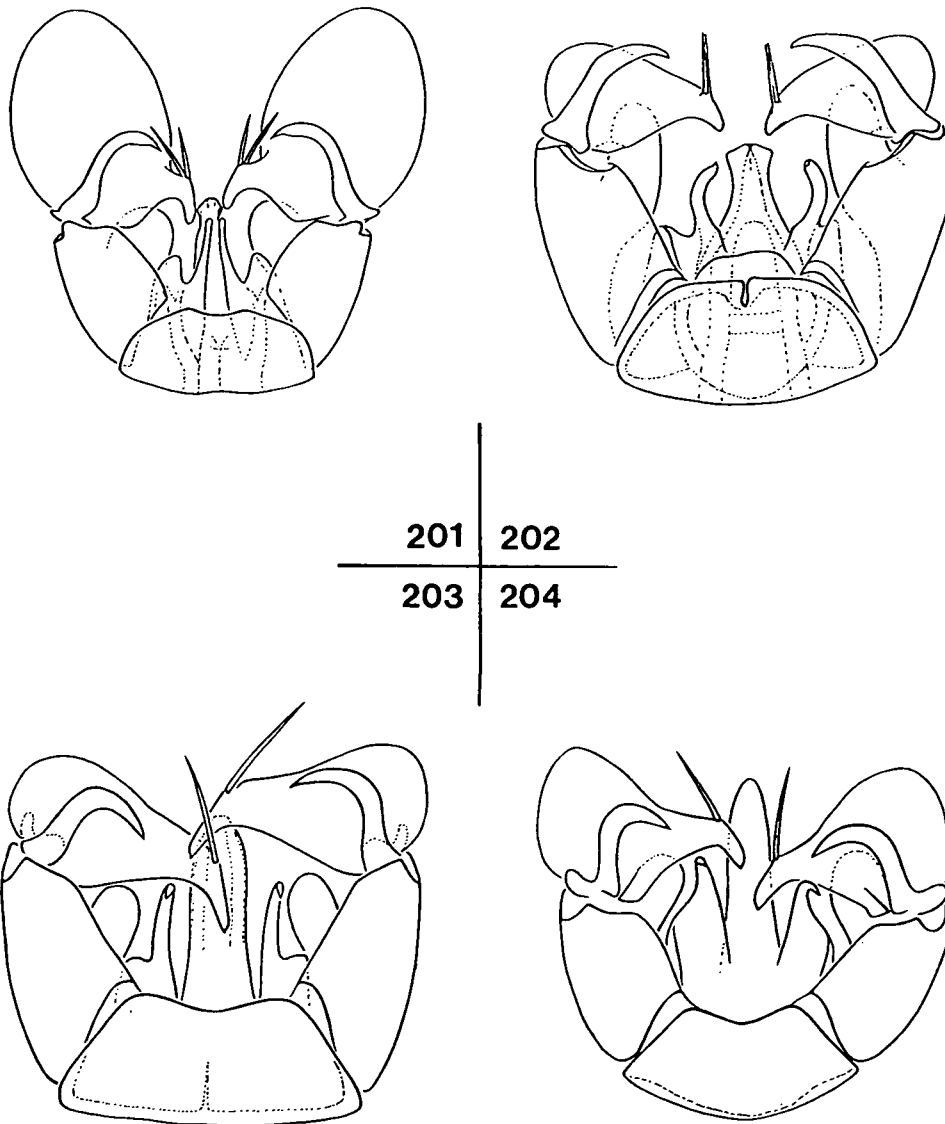




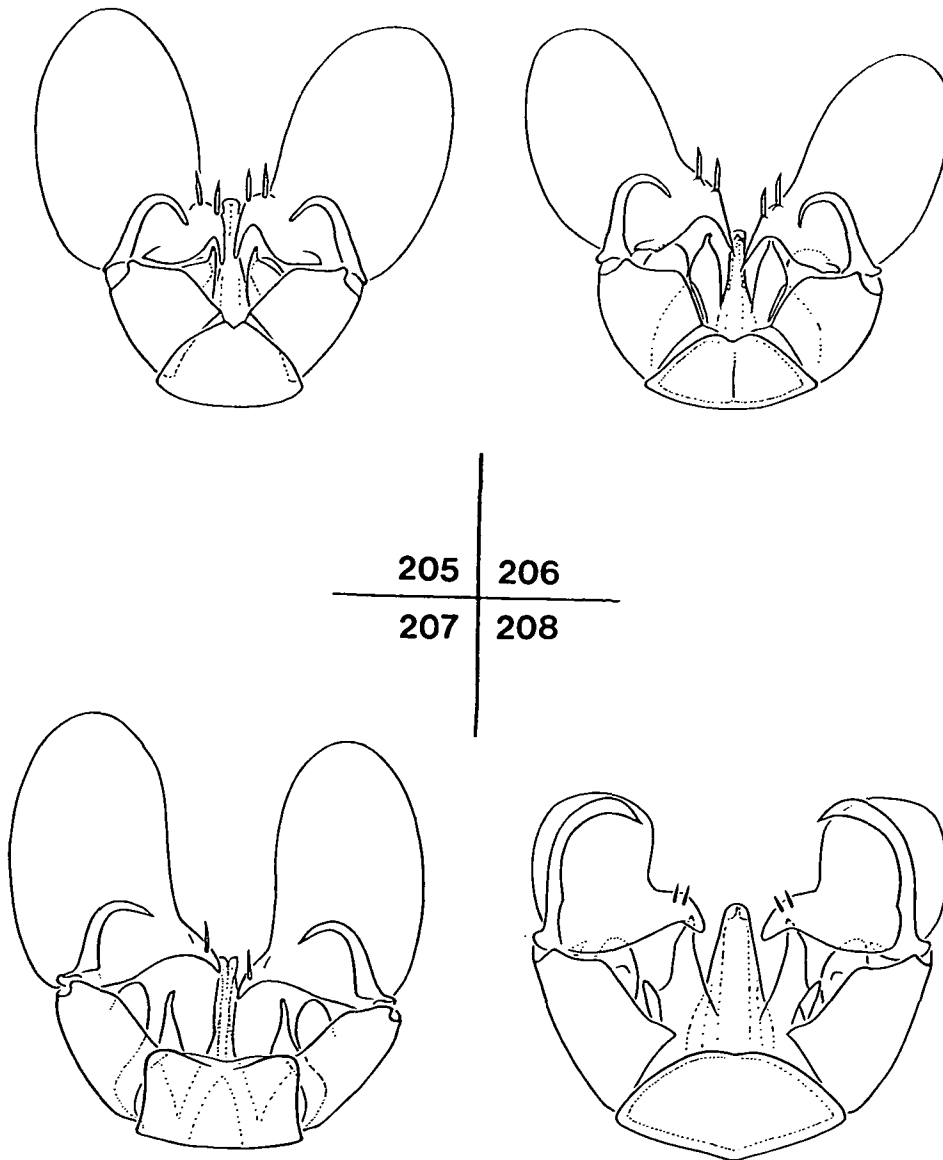
Figs 193-196. Male hypopygium, dorsal aspect, of *Limonia* (*Dicranomyia*): 193, *loarina* sp. n.; - 194, *cunninghamensis* ALEX.; - 195, *dicksoniae* ALEX.; - 196, *kowinka* sp. n.



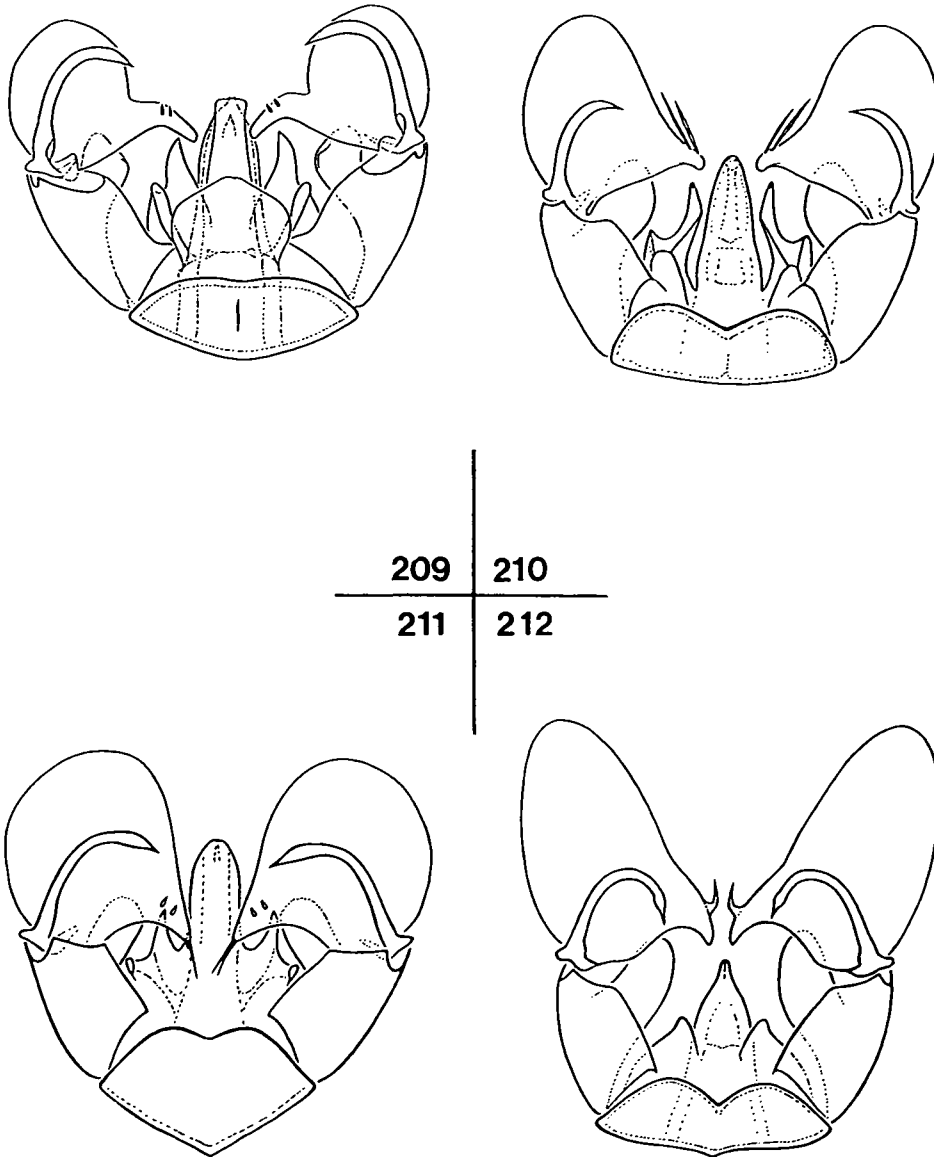
Figs 197-200. Male hypopygium, dorsal aspect, of *Limonia* (*Dicranomyia*): 197, *obscuripennis* (SKUSE); - 198, *octacantha* ALEX.; - 199, *whitei whitei* (ALEX.); - 200, *pitoa* sp. n.



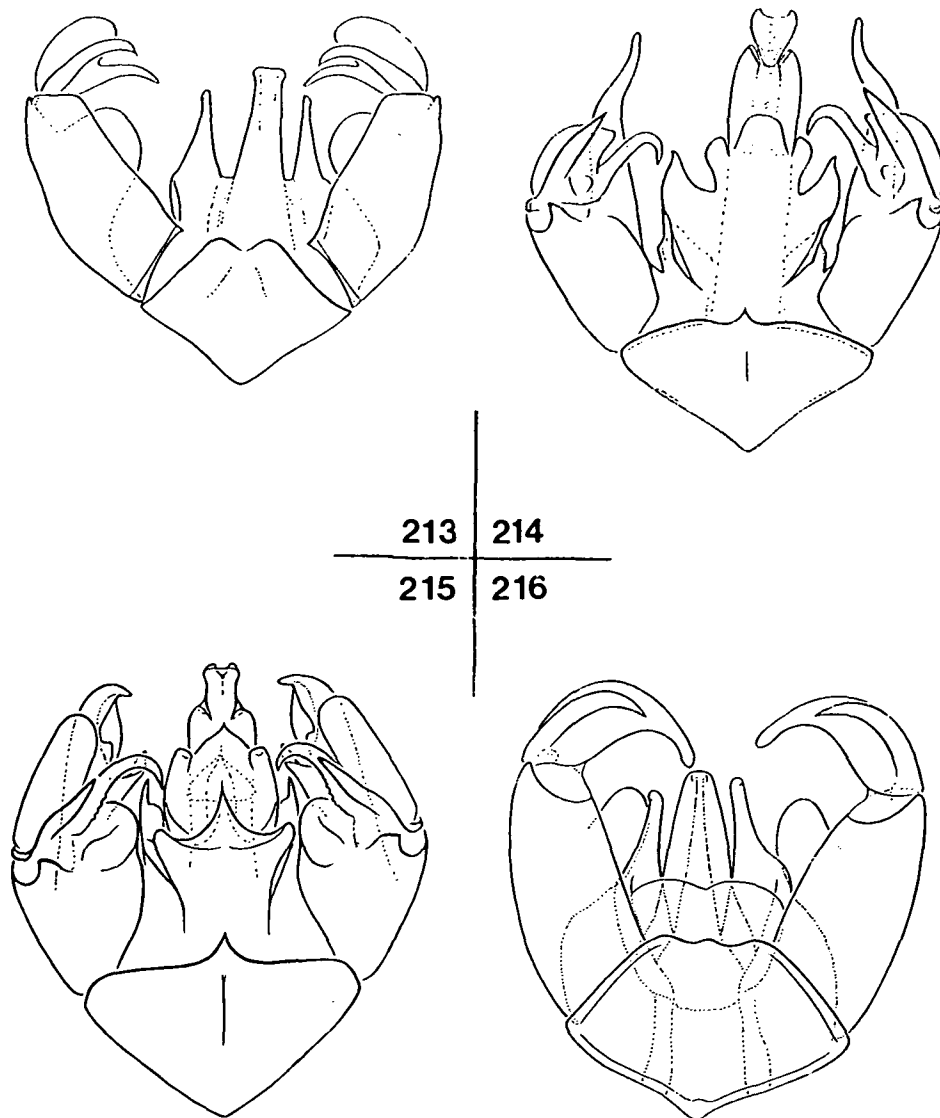
Figs 201-204. Male hypopygium, dorsal aspect, of *Limonia (Dicranomyia)*: 201, *marina* (SKUSE); - 202, *submarina* sp. n.; - 203, *wattamolla* sp. n.; - 204, *wundurra* sp. n.



Figs 205-208. Male hypopygium, dorsal aspect, of: 205, 206, *Limonia (Dicranomyia)*: 205, *saxemarina* ALEX.; - 206, *kallakkure* sp. n.; - 207, *Limonia (Goniodineura) parvistigma* (ALEX.); - 208, *Limonia (Pandamyia) nowankareena* sp. n.



Figs 209-212. Male hypopygium, dorsal aspect, of *Limonia*: 209, *Limonia (Pandamyia) uckillya* sp. n.; - 210, 211, *Limonia (Nealexandriaria)*: 210, *milkurli* sp. n.; - 211, *ludmilla* sp. n.; - 212, *Limonia (Pseudoglochina) pulchripes* (ALEX.).



Figs 213-216. Male hypopygium, dorsal aspect, of *Limonia*: 213, *Limonia* (*Cygnomyia*) *youngoloy* sp. n.; - 214, 215, *Limonia* (*Atypophthalmus*): 214, *tamborina* ALEX.; - 215, *emacerata* (ALEX.); - 216, *Limonia* (*Nesciomyia*) *durroon* sp. n.

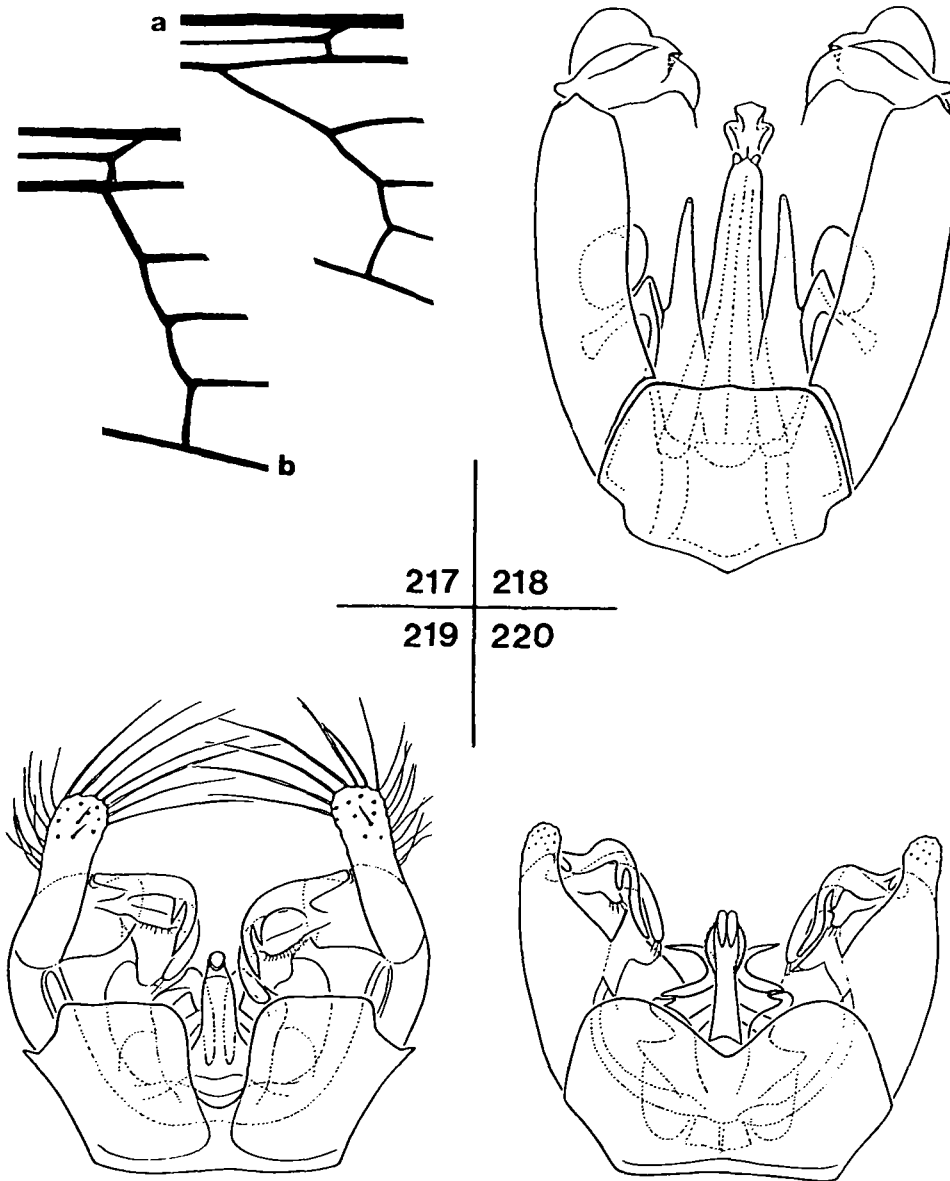
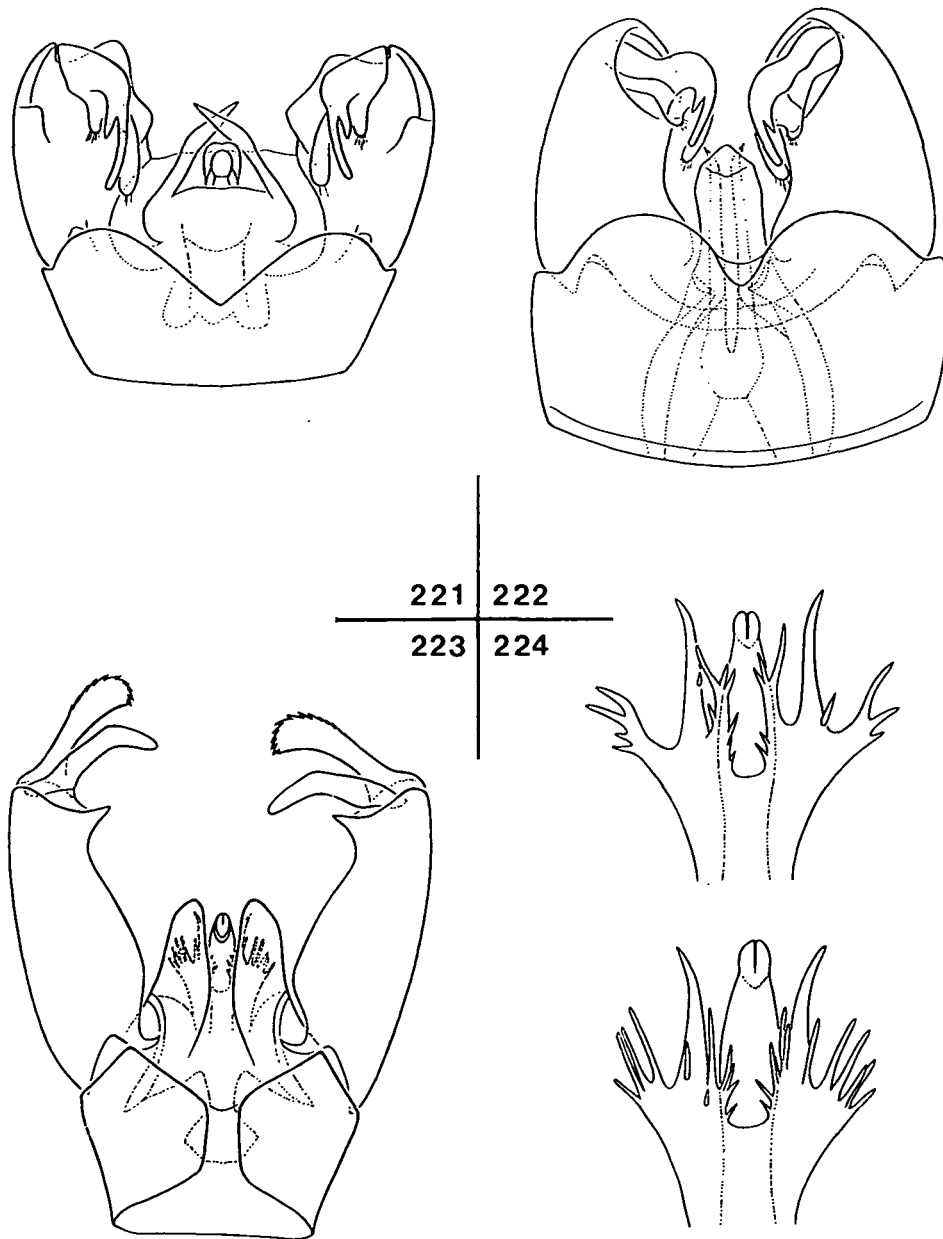
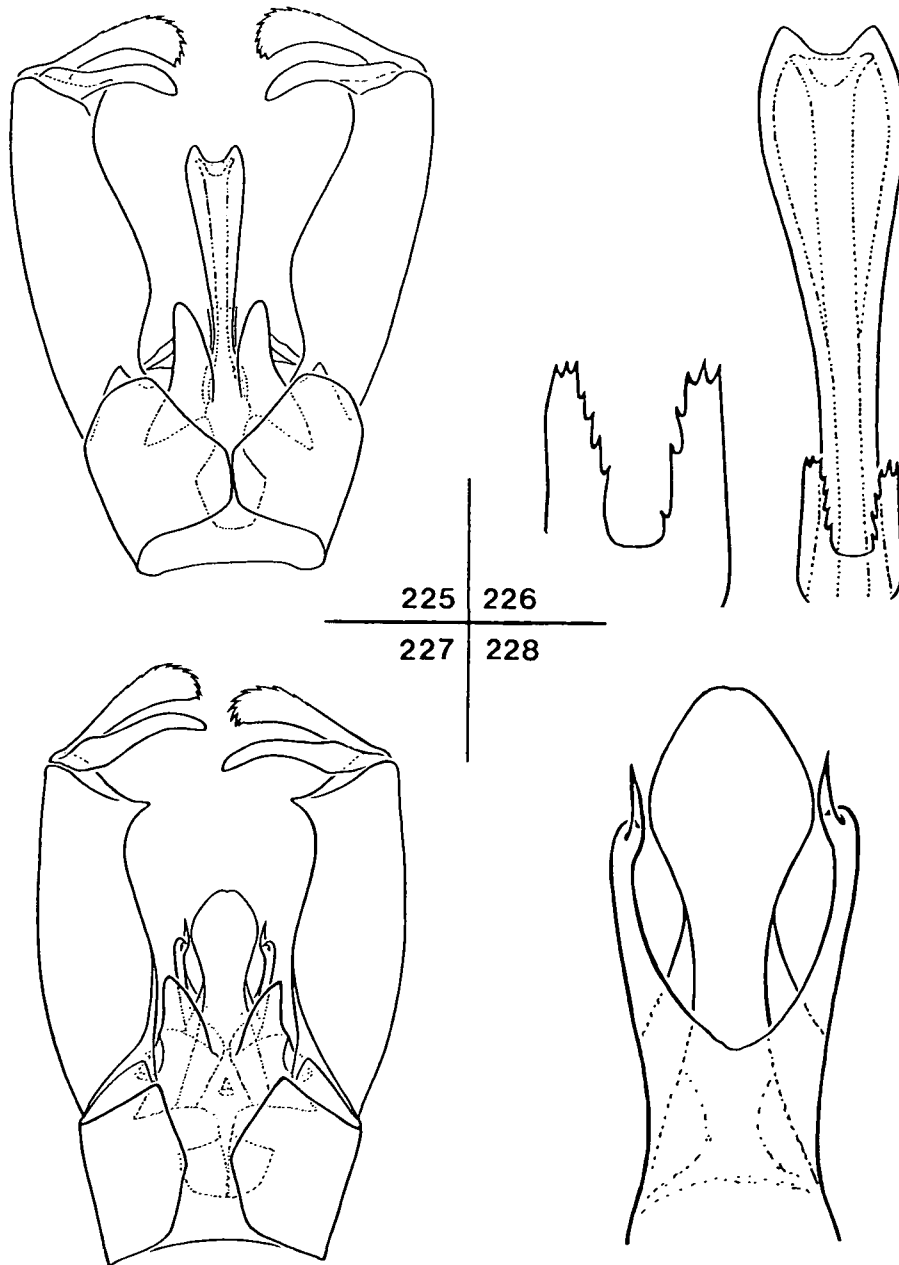


Fig. 217-220. Venational details (cord area) and male hypopygium, dorsal aspect, of: 217, 218, *Limonia (Neolibnotes)*: 217a, 218, *obliqua* (ALEX.); - 217b, *subaequalis* (ALEX.); - 219, 220, *Tonnoiromyia*: 219, *tasmaniensis* ALEX.; - 220, *montina* ALEX.

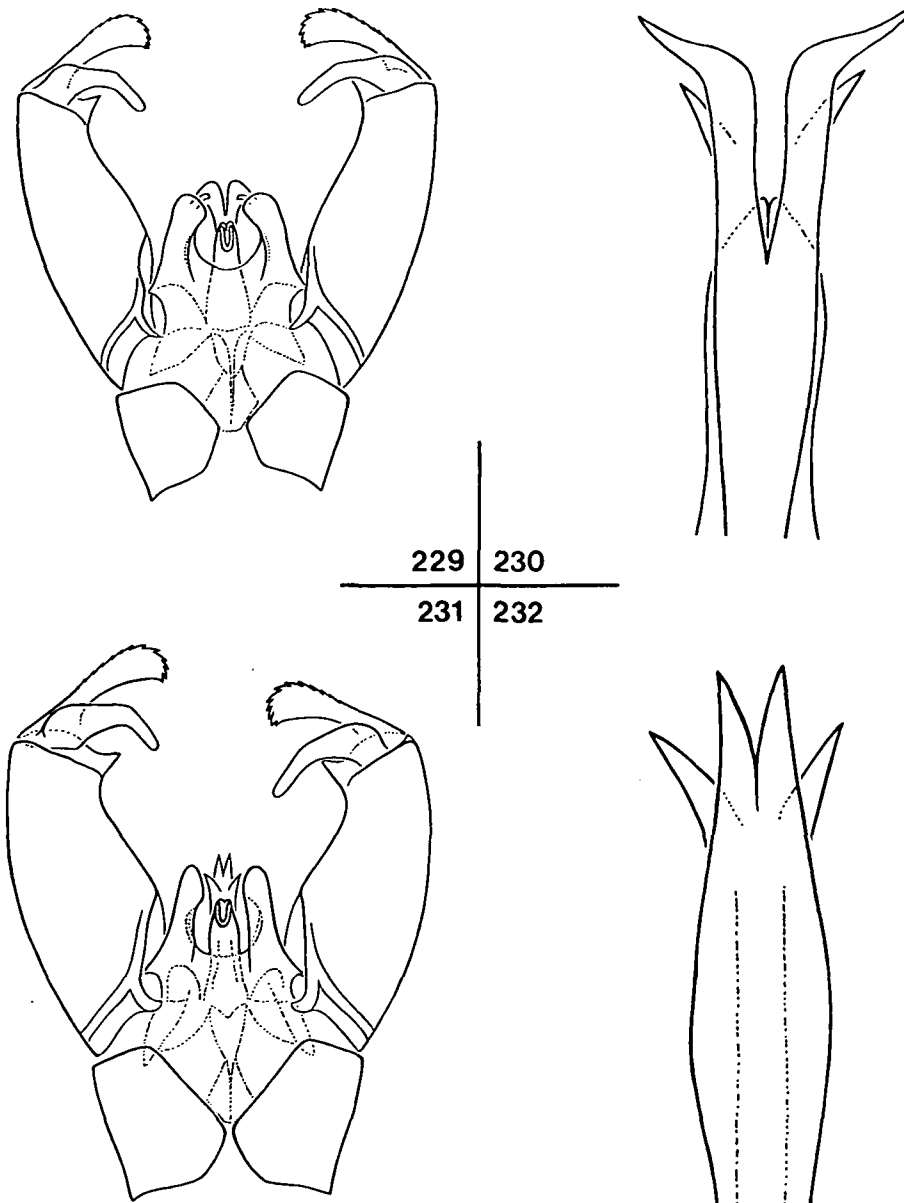


Figs 221-224. Male hypopygium, dorsal aspect, and part of aedeagal complex, ventral aspect, of: 221, *Tonnoiromyia undoolya* sp. n.; - 222, *Collessophila chookachooka* sp. n. - 223, 224. *Atarba (Ischnothrix) australasiae* (SKUSE).

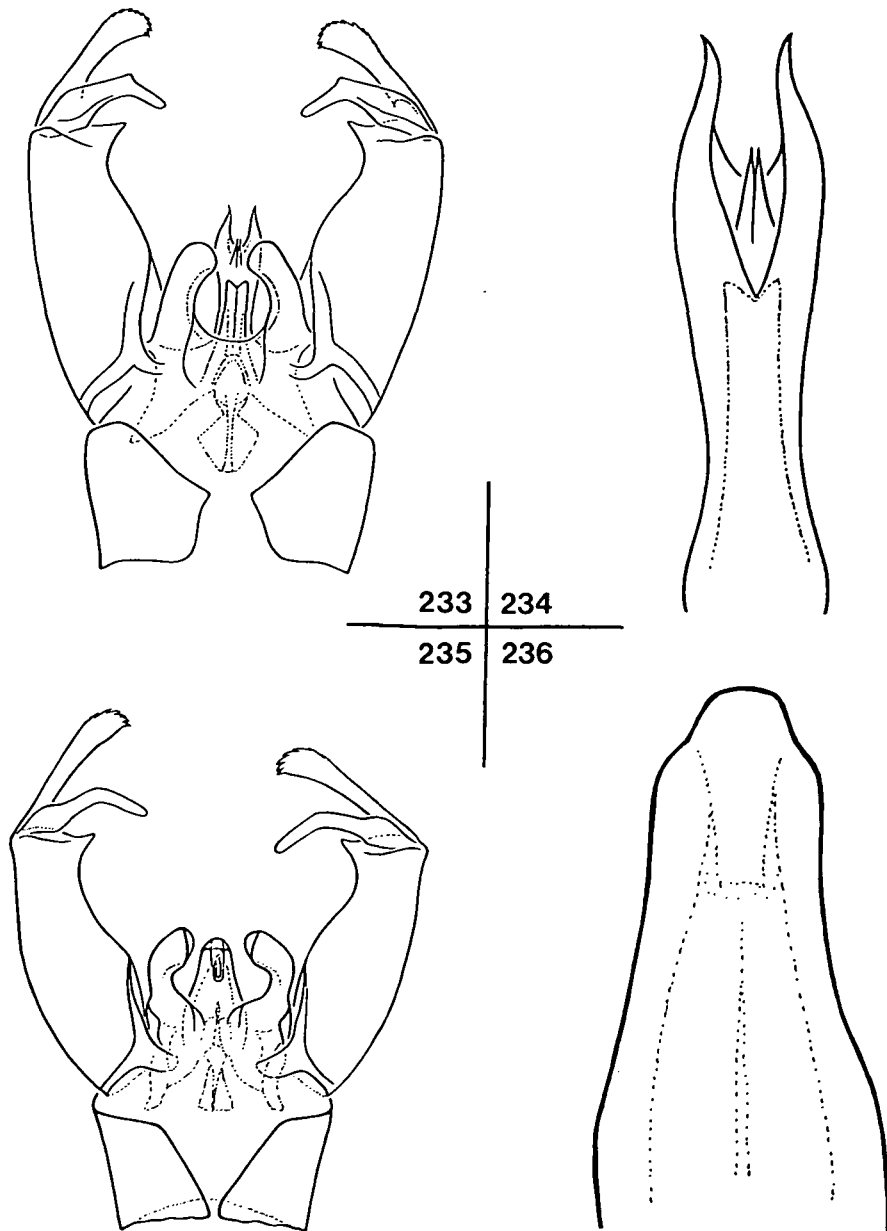




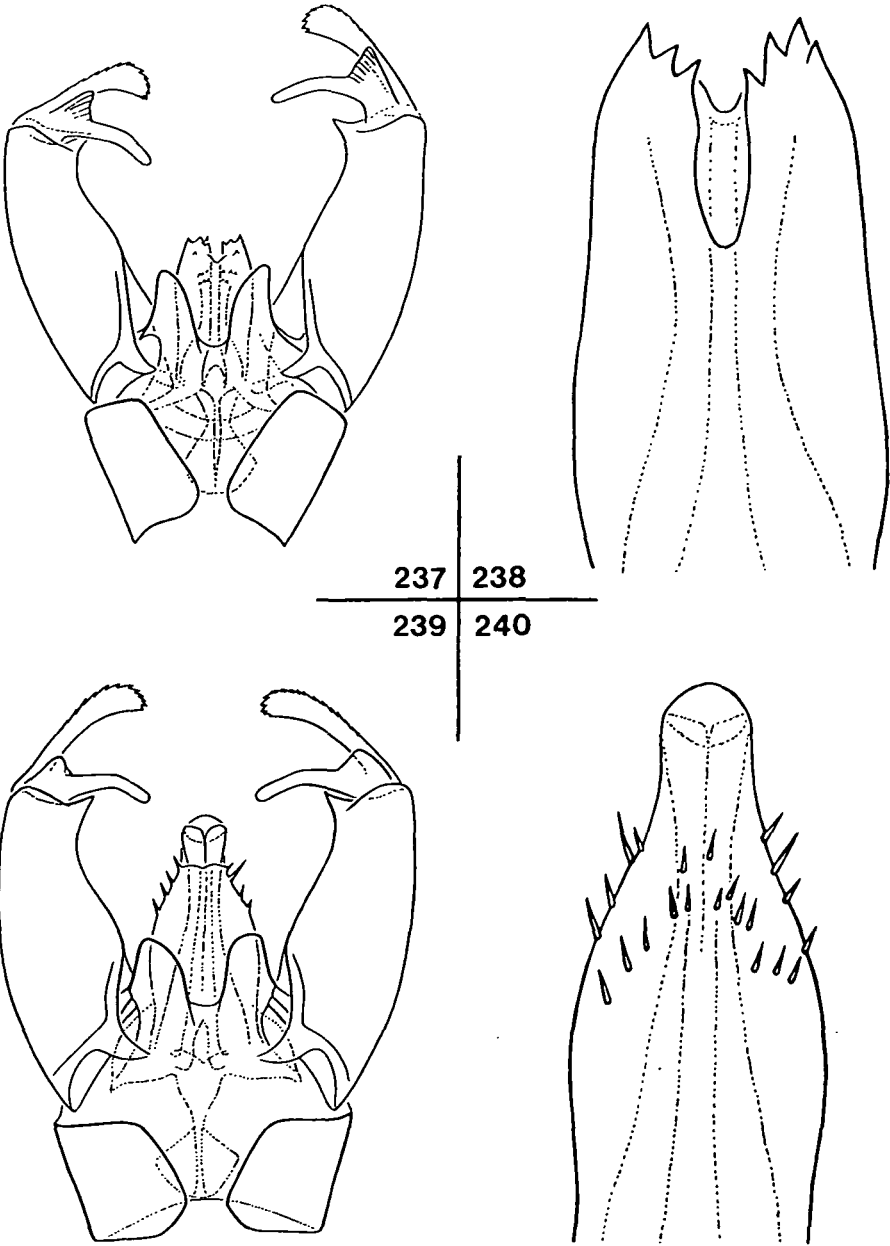
Figs 225-228. Male hypopygium, dorsal aspect, and part of aedeagal complex, ventral aspect, of *Atarba (Ischnothrix)*: 225, 226, *augusta* sp. n. - 227, 228, *mathewsi* (ALEX.).



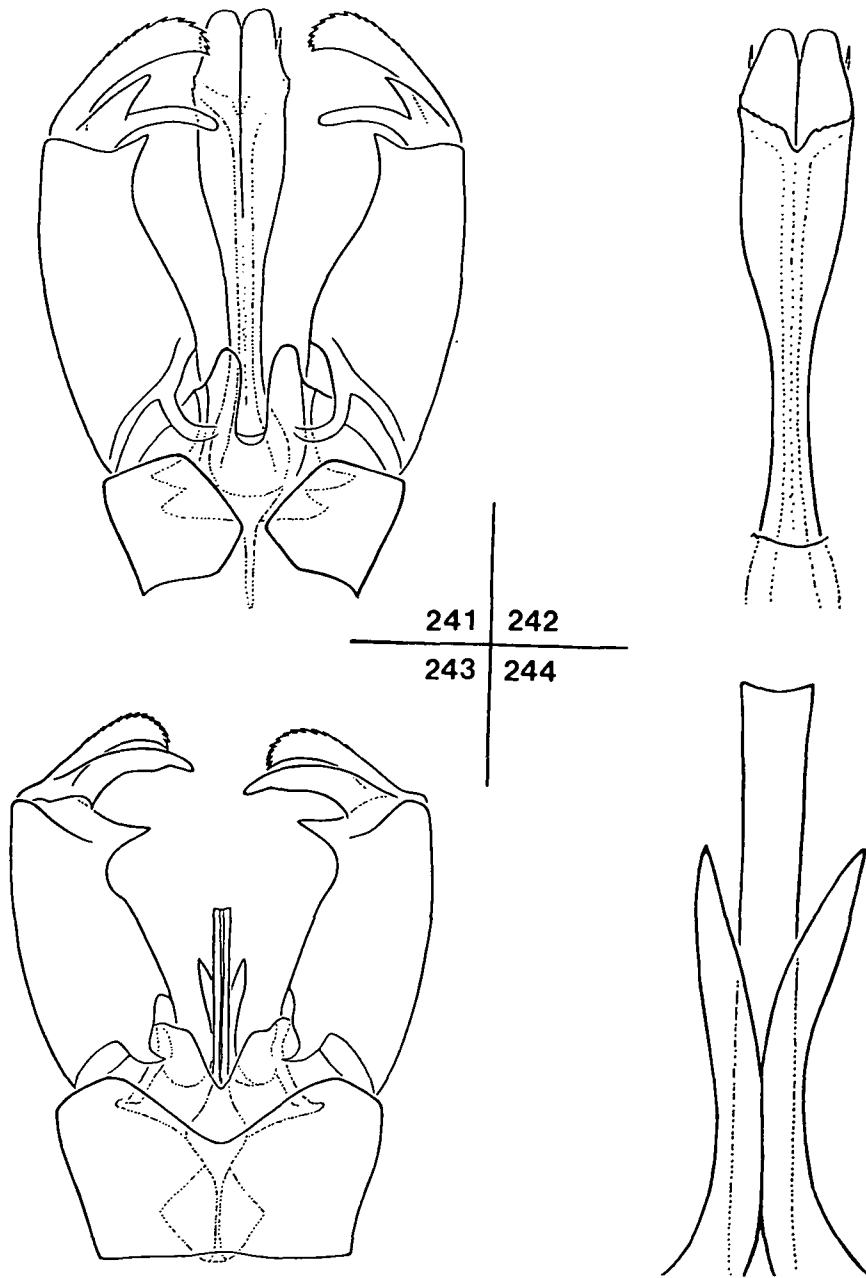
Figs 229-232. Male hypopygium, dorsal aspect, and part of aedeagal complex, ventral aspect, of *Atarba (Ischnothrix)*: 229, 230, *lawsonensis* (SKUSE); - 231, 232, *verticalis* (ALEX.).



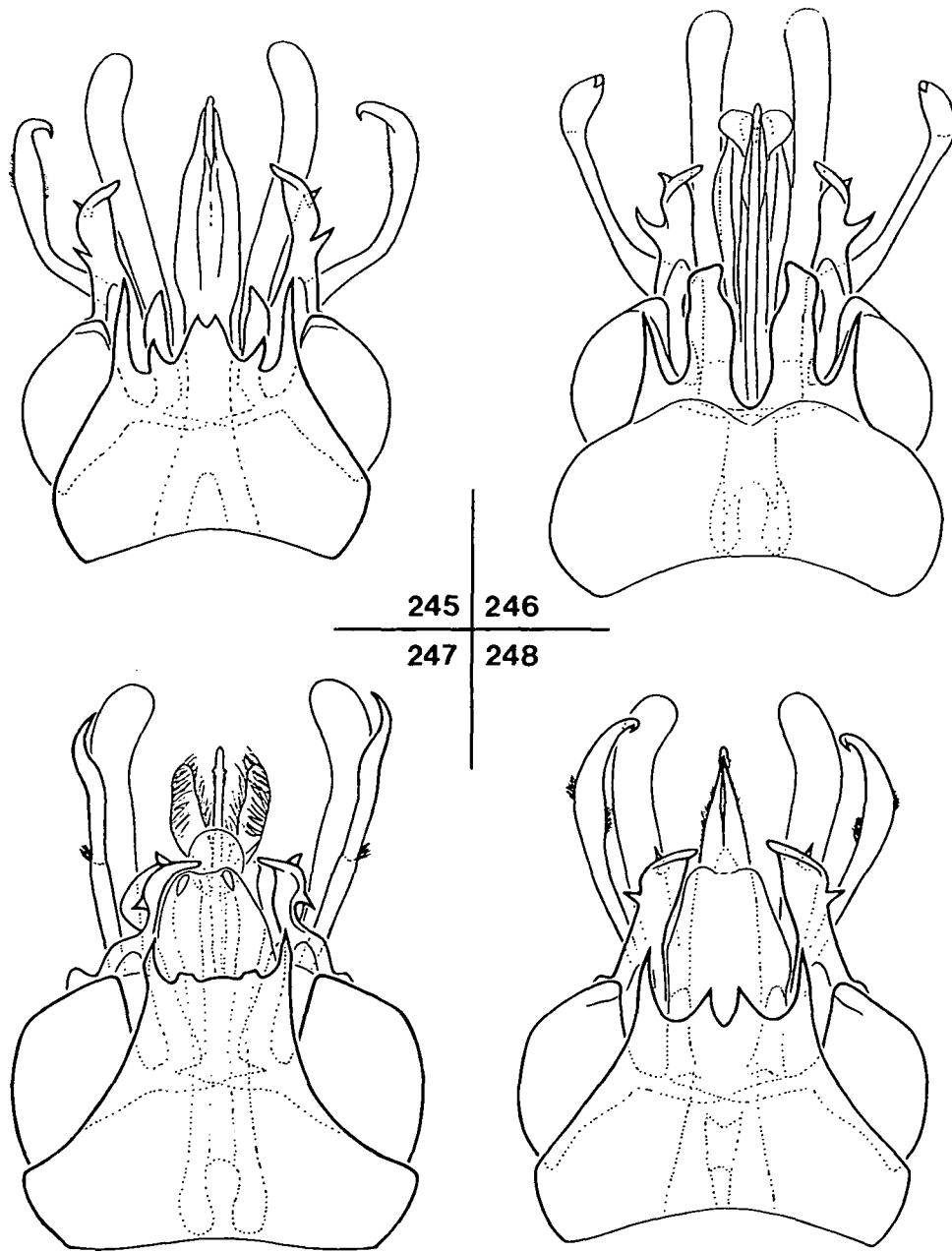
Figs 233-236. Male hypopygium, dorsal aspect, and part of aedeagal complex, ventral aspect, of *Atarba (Ischnothrix)*: 233, 234, *waylehmina* sp. n.; - 235, 236, *millaamillaa* sp. n.



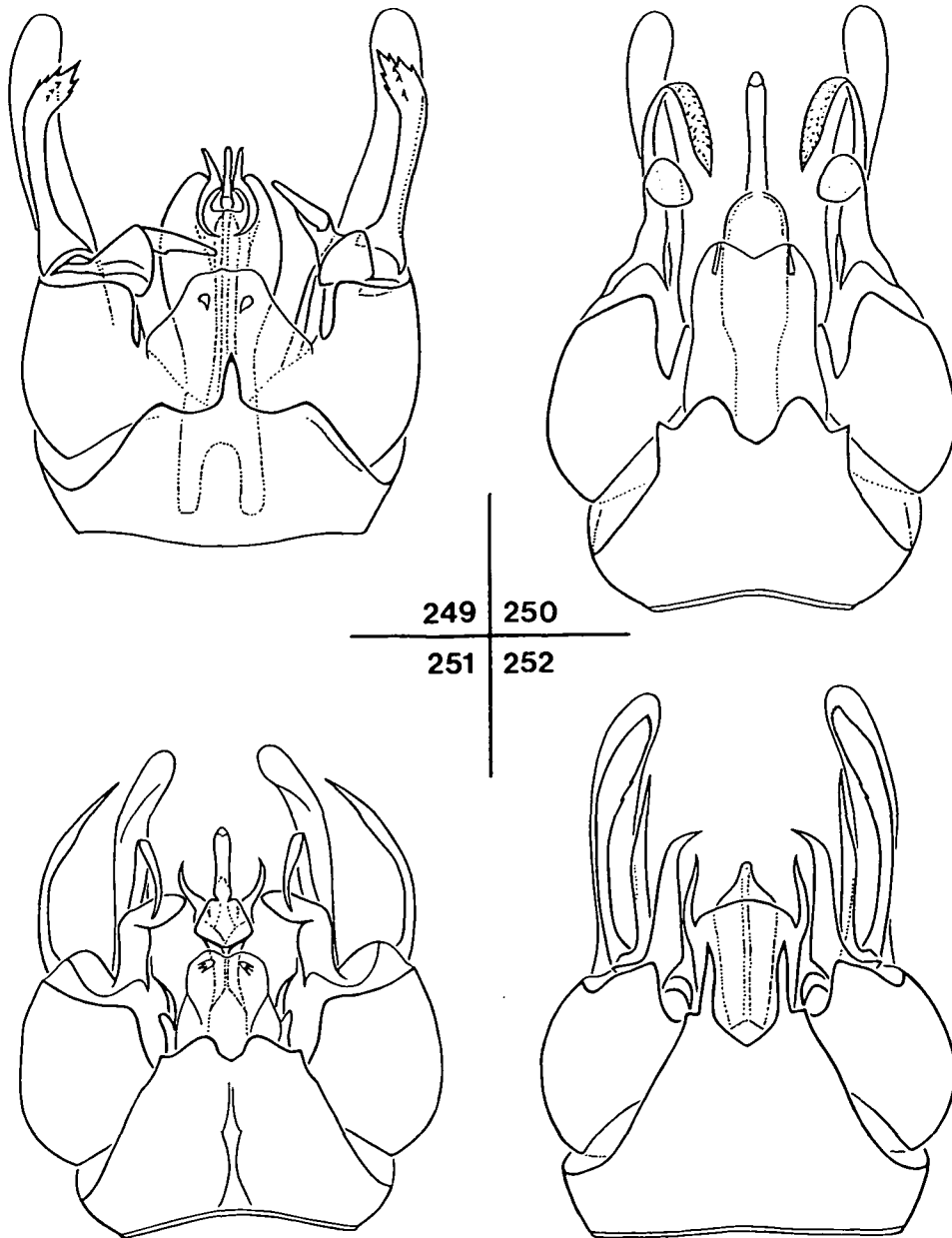
Figs 237-240. Male hypopygium, dorsal aspect, and part of aedeagal complex, ventral aspect, of *Atarba (Ischnothrix)*: 237, 238, *iyouta* sp. n.; - 239, 240, *williamsi* sp. n.



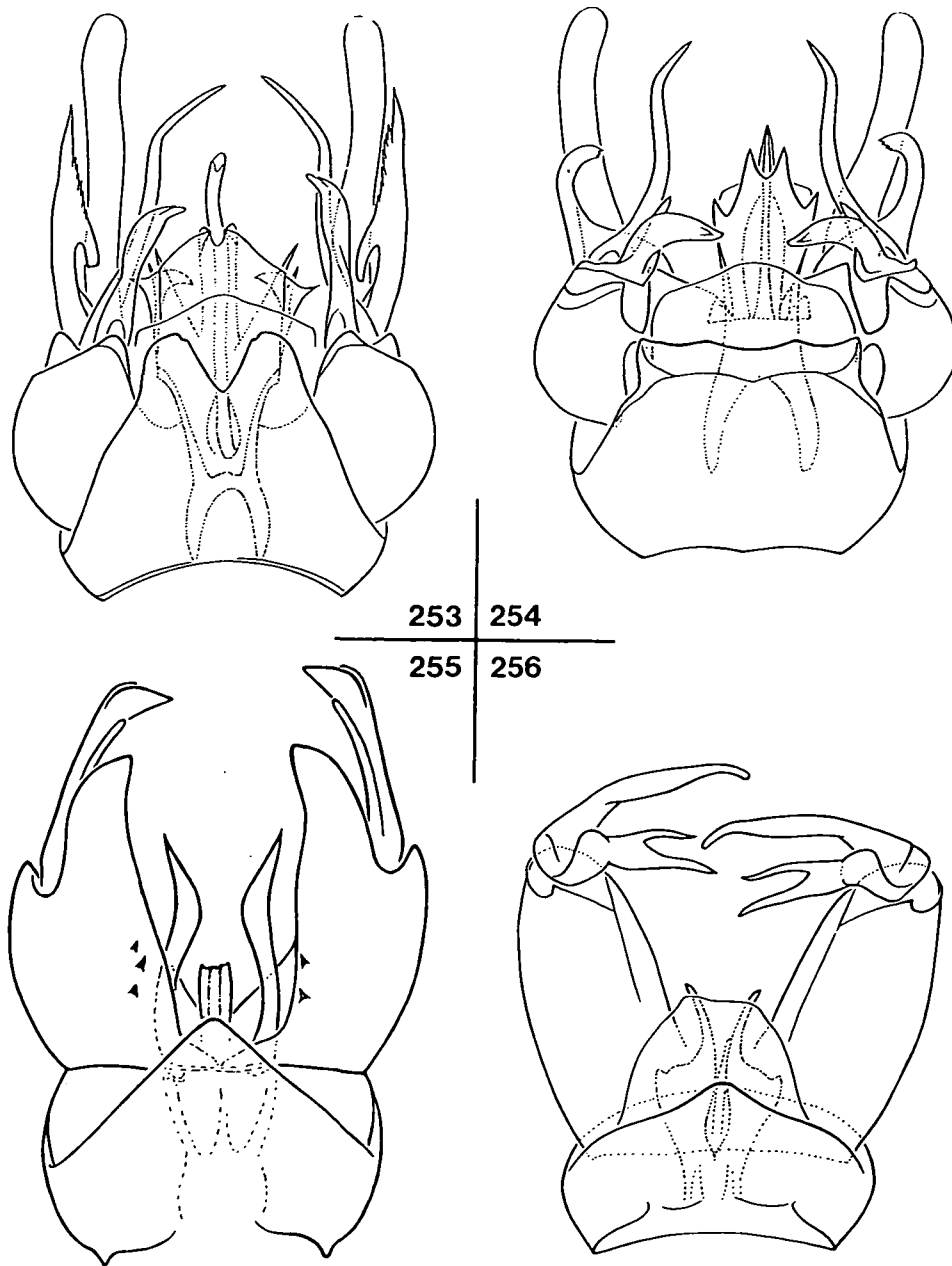
Figs 241-244. Male hypopygium, dorsal aspect, and part of aedeagal complex, ventral aspect, of *Atarba* (*Ischnothrix*): 241, 242, *thowla* sp. n.; - 243, 244, *generosa* (ALEX.).



Figs 245-248. Male hypopygium, dorsal aspect, of *Amphineurus* (*Amphineurus*): 245, *minusculus* ALEX.; - 246, *collessi* sp. n.; - 247, *monteithi* sp. n.; - 248, *pullybuntor* sp. n.

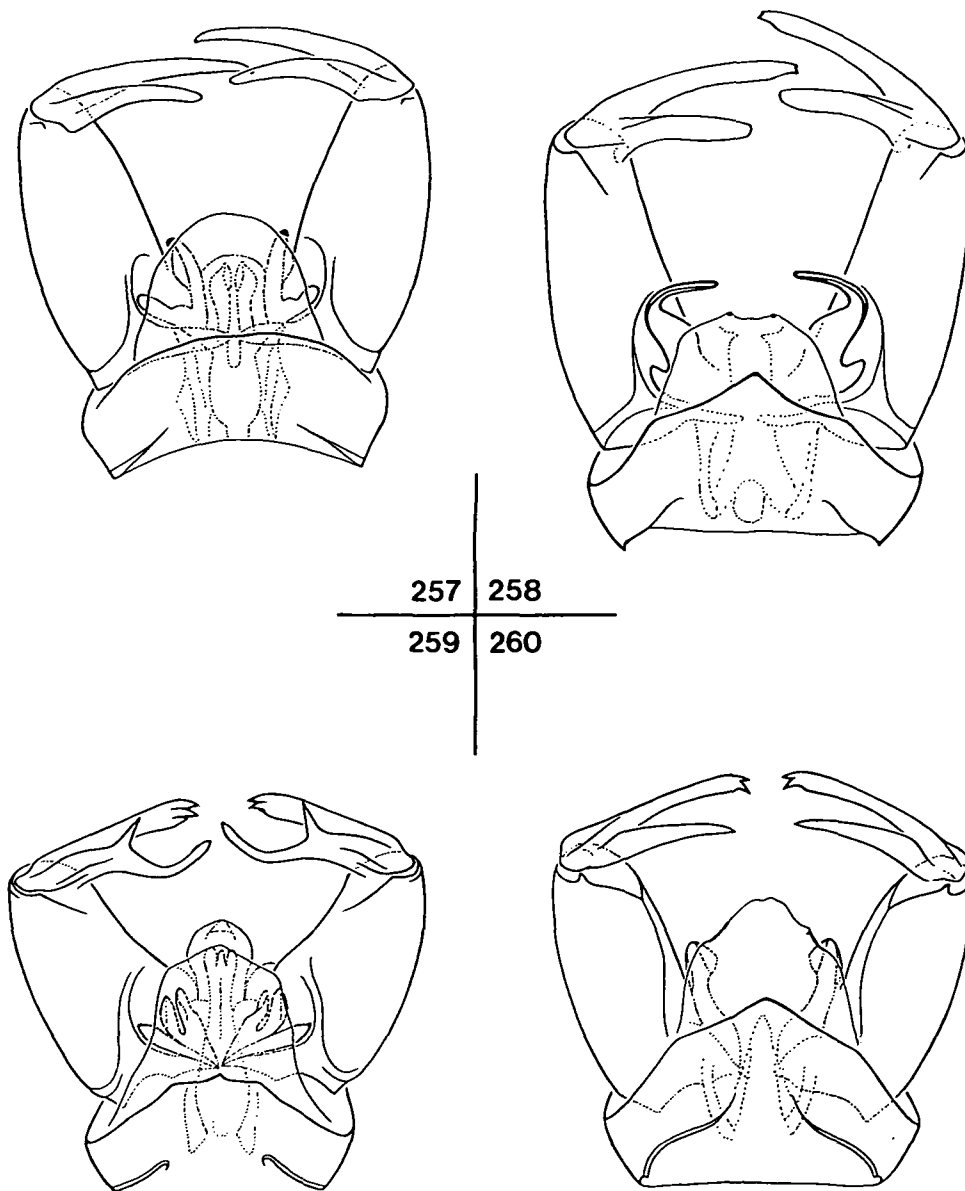


Figs 249-252. Male hypopygium, dorsal aspect, of *Amphineurus* (*Amphineurus*): 249, *kandu* sp. n.; - 250, *patya* sp. n.; - 251, *umbraticus* (SKUSE); - 252, *maculosus* (SKUSE).

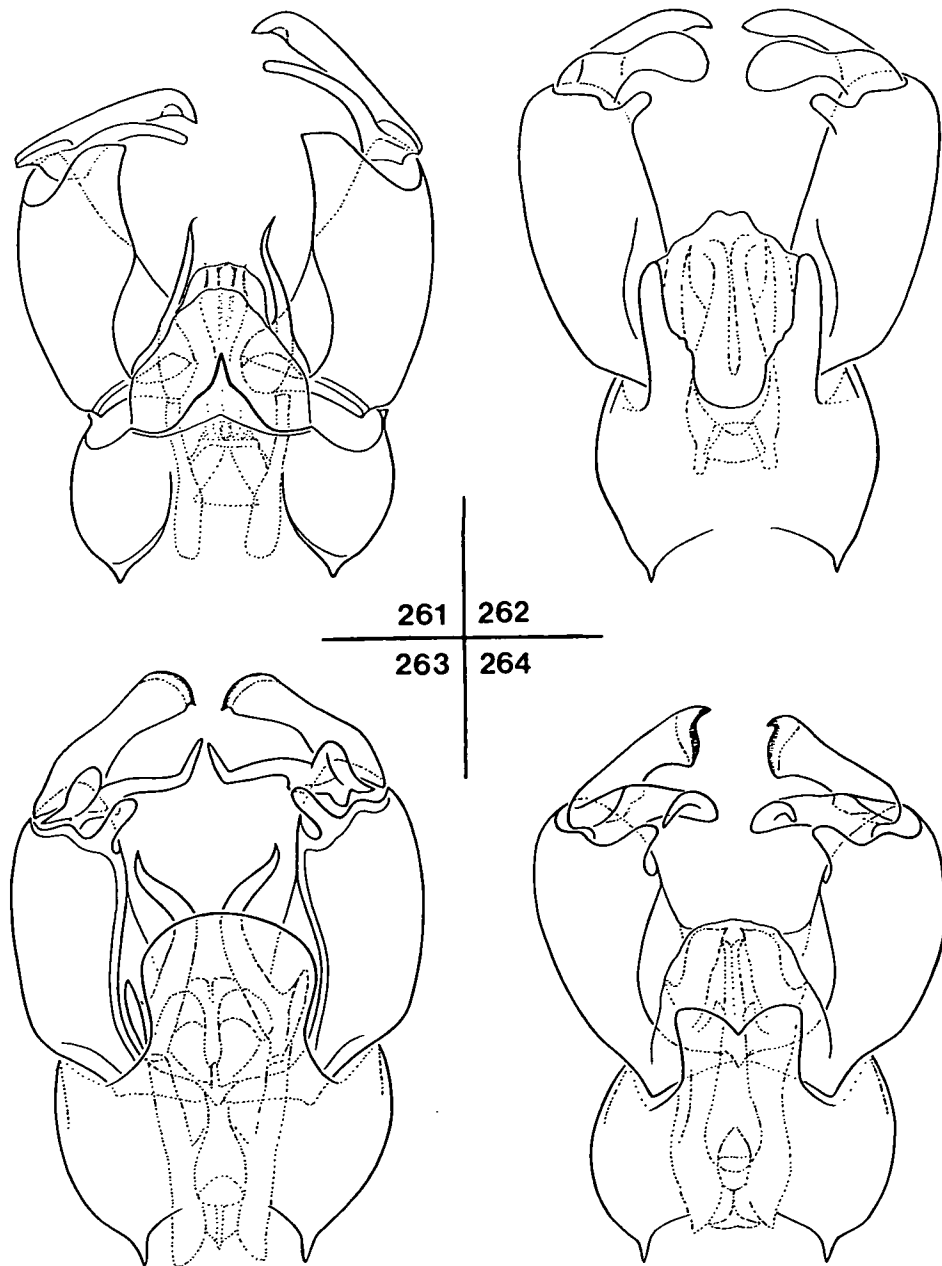


Figs 253-256. Male hypopygium, dorsal aspect, of: 253, 254, *Amphineurus* (*Amphineurus*): 253, *fergusoni* ALEX.; - 254, *pita* sp. n.; - 255, 256, *Erioptera* (*Erioptera*): 255, *lucerna* ALEX.; - 256, *diplocantha* ALEX.

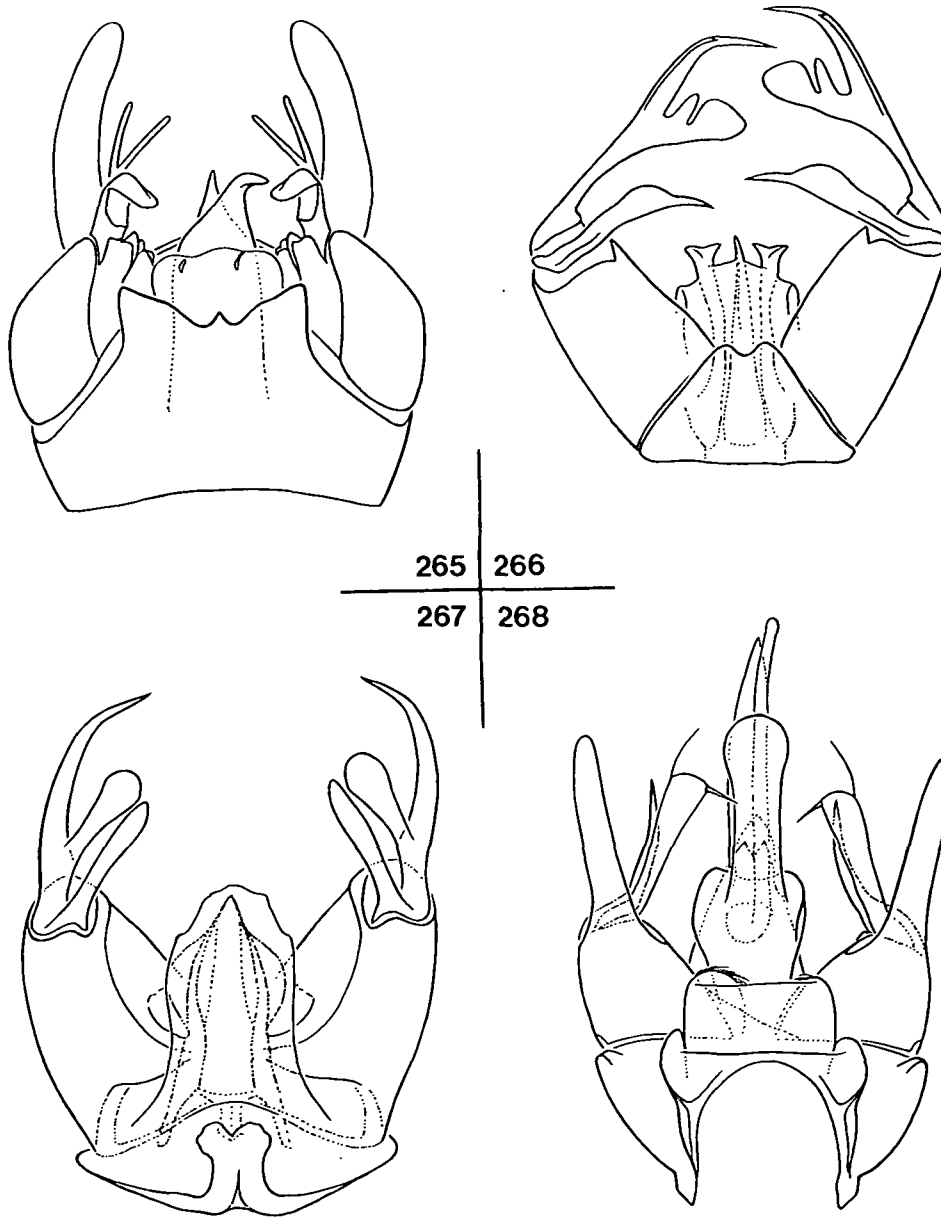




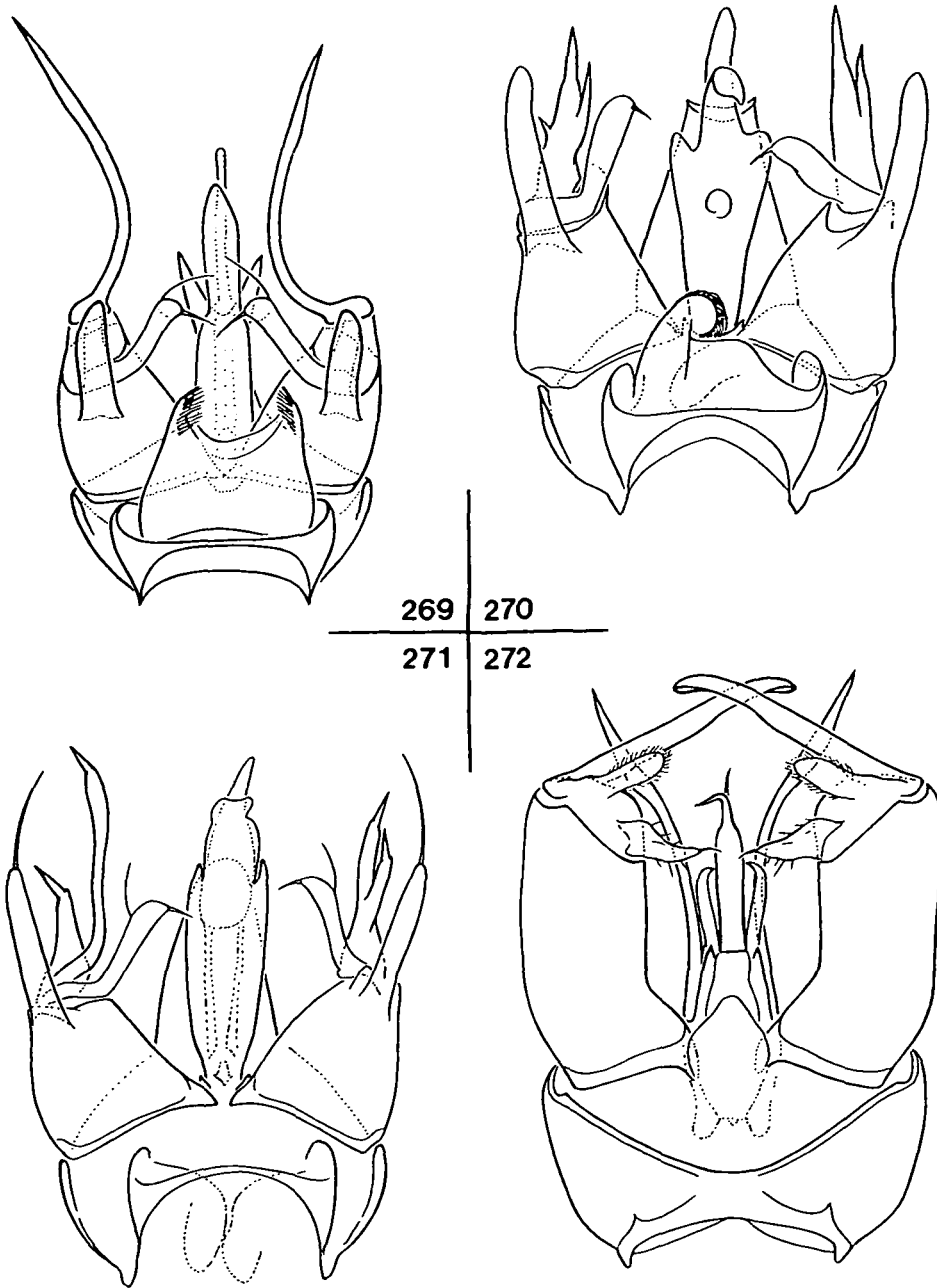
Figs 257-260. Male hypopygium, dorsal aspect, of *Erioptera* (*Erioptera*): 257, *perexquisita* ALEX.; - 258, *yarto* sp. n.; - 259, *coolbyngga* sp. n.; - 260, *yarraga* sp. n.



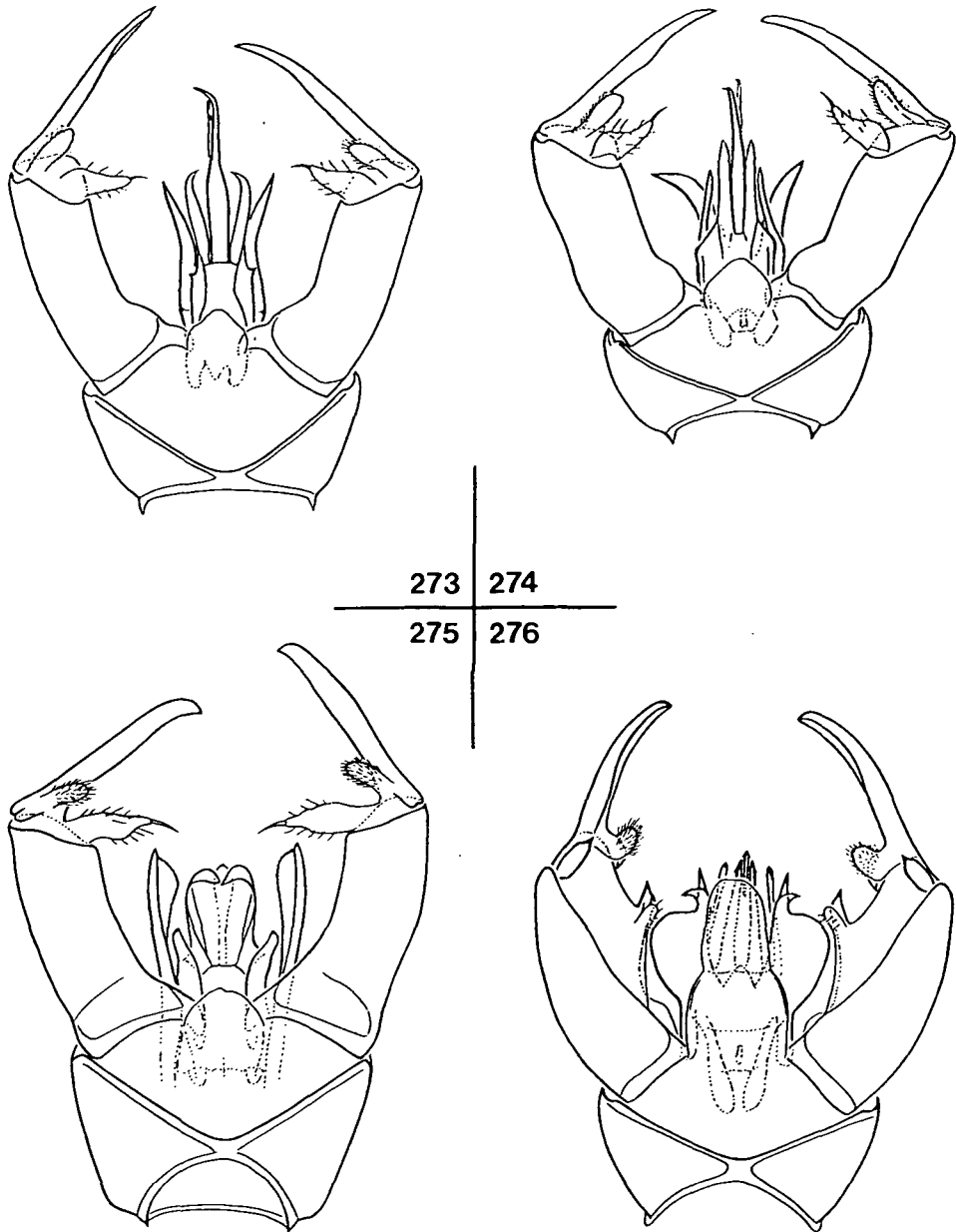
Figs 261-264. Male hypopygium, dorsal aspect, of *Erioptera*: 261, 262, *Erioptera* (*Erioptera*): 261, *otayba* sp. n.; - 262, *wellsae* sp. n.; - 263, 264, *Erioptera* (*Meterioptera*): 263, *angustifascia* ALEX.; - 264, *simulans* ALEX.



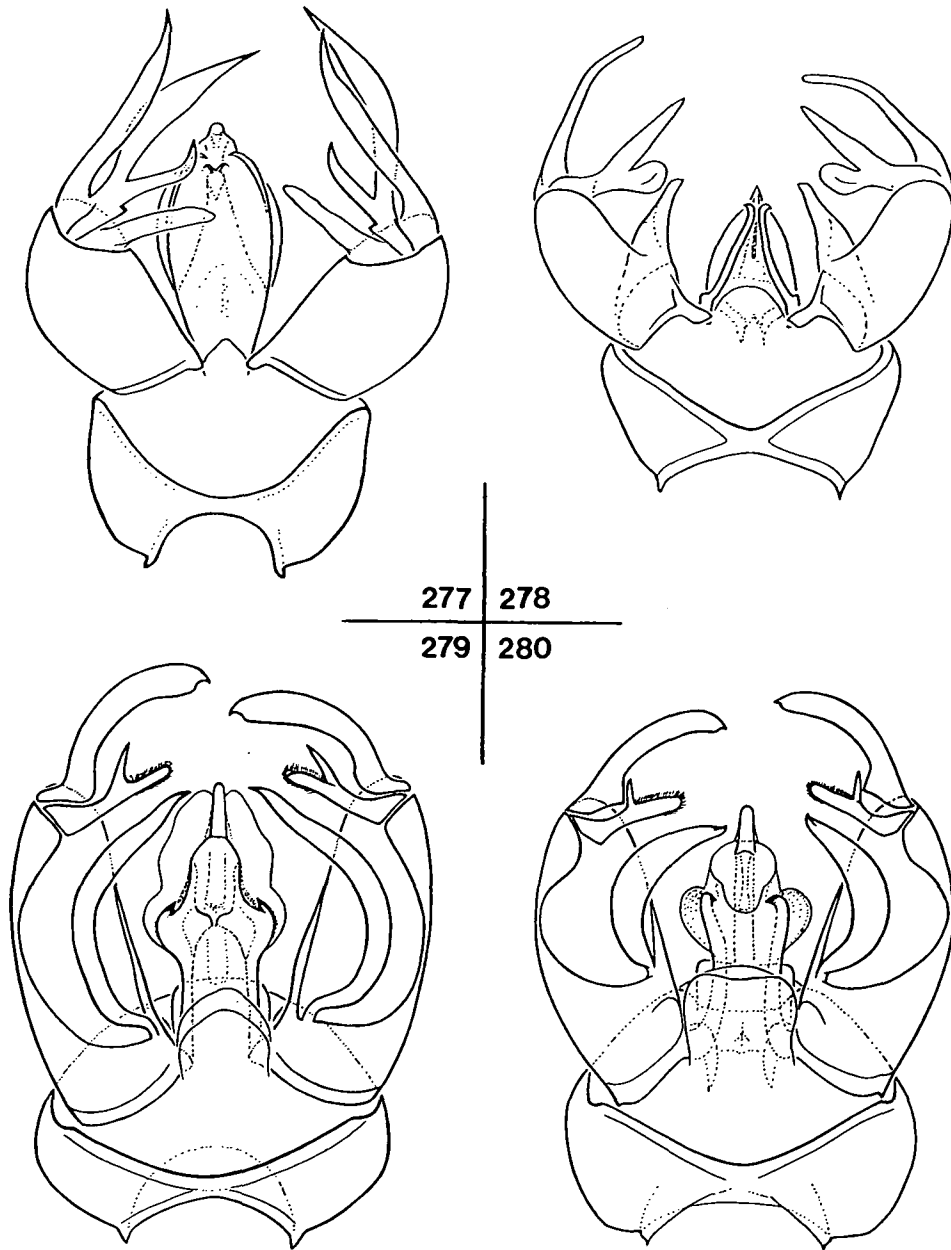
Figs 265-268. Male hypopygium, dorsal aspect, of: 265, *Erioptera* (*Alcheringa*) *amabilis* ALEX.; - 266, *Cheilotrichia* (*Cheilotrichia*) *aroo* sp. n.; - 267, *Cheilotrichia* (*Empeda*) *kuranda* sp. n.; - 268, *Gonomyia* (*Lipophleps*) *skusei* ALEX.



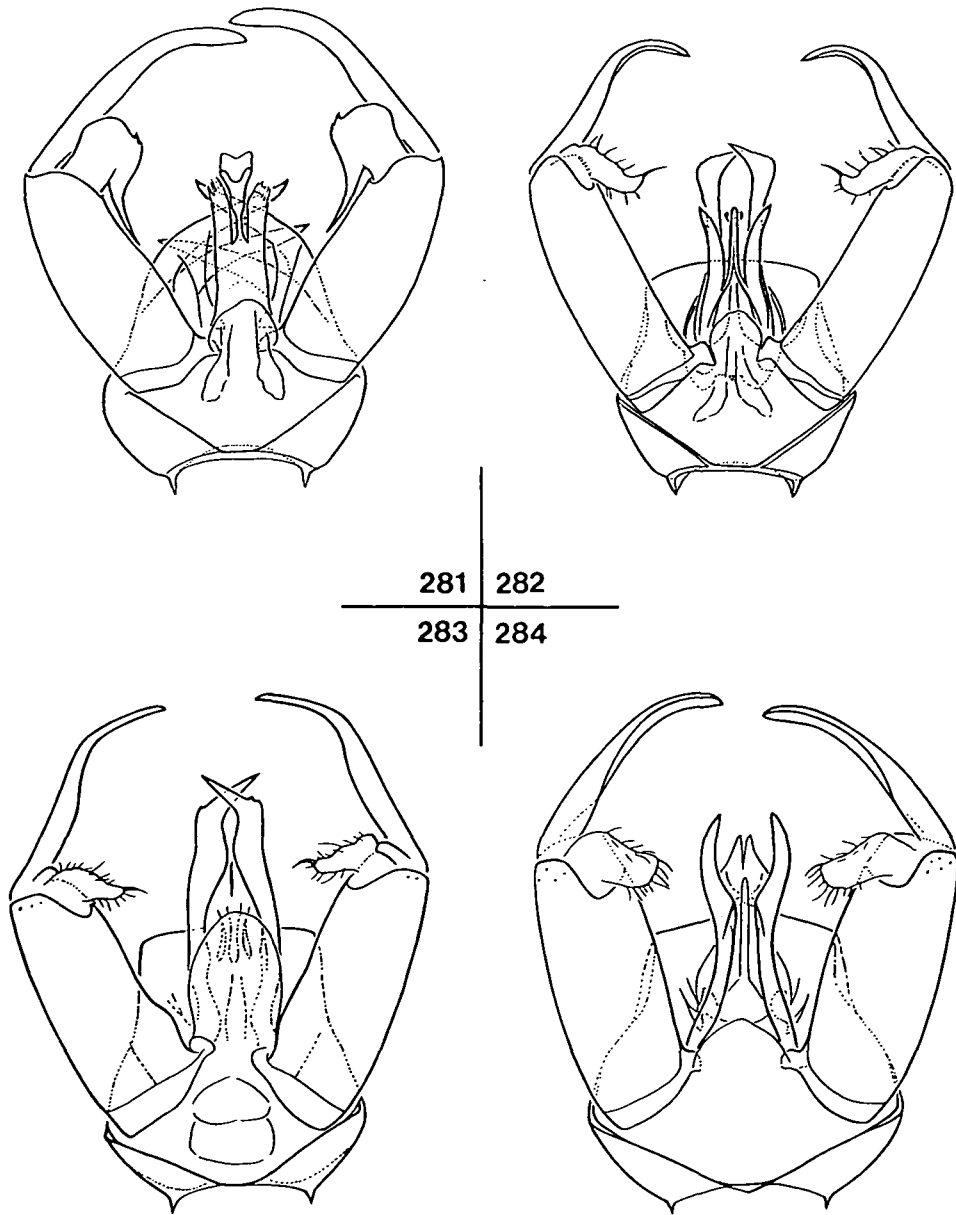
Figs 269-272. Male hypopygium, dorsal aspect, of *Gonomyia* (*Lipophleps*): 269, *protenta* ALEX.; - 270, *baiame* sp. n.; - 271, *puckowe* sp. n.; - 272, *brevivena* (SKUSE).



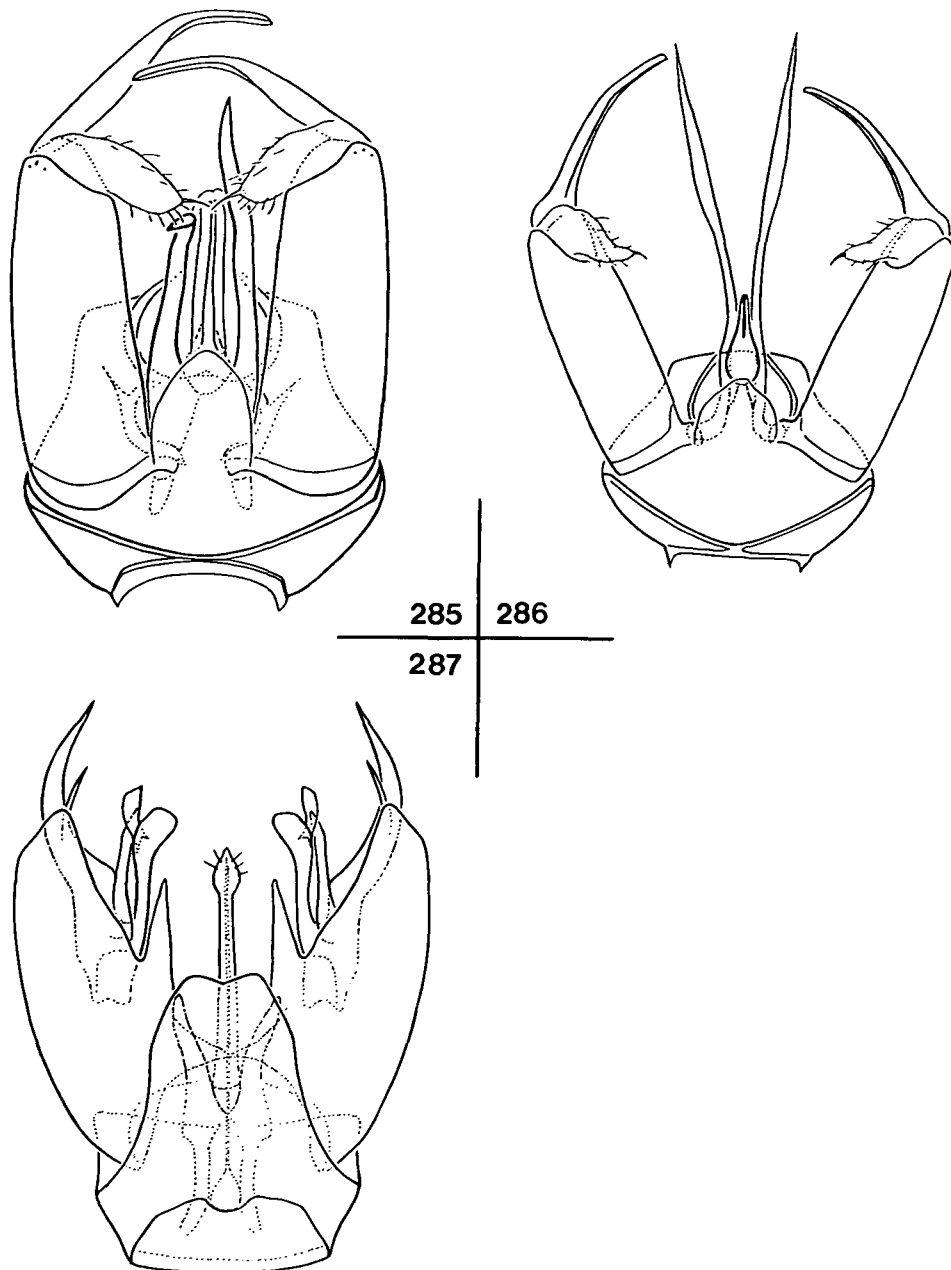
Figs 273-276. Male hypopygium, dorsal aspect, of *Gonomyia* (*Lipophleps*): 273, *kiandra* sp. n.; - 274, *pino* sp. n.; - 275, *thambaroo* sp. n.; - 276, *cairnensis* ALEX.



Figs 277-280. Male hypopygium, dorsal aspect, of *Gonomyia* (*Lipophleps*): 277, *dischidia* ALEX.; - 278, *hodgkini* ALEX.; - 279, *kamballa* sp. n.; - 280, *oolyarra* sp. n.



Figs 281-284. Male hypopygium, dorsal aspect, of *Gonomyia* (*Lipophleps*): 281, *mundewudda* sp. n.; - 282, *perssoni* ALEX.; - 283, *moma* sp. n.; - 284, *onya* sp. n.



Figs 285-287. Male hypopygium, dorsal aspect, of: 285, 286, *Gonomyia (Lipophleps)*: 285, *wunda* sp. n.; - 286, *cooloola* sp. n.; - 287, *Idiocera (Idiocera) collessi* sp. n.





### Cover photographs:

The great dipterologist Baron Osten Sacken [Berl. ent. Z. 31:179 (1887)] aptly remarked on what is now the subgenus *Dapanoptera* Westwood of the genus *Limonia* MEIGEN: "The wings of the four species hitherto described are more handsomely colored than those of any other Tipulidae. They are the birds of paradise in this family, the more so as they come from New Guinea and the adjacent islands, the home of the true birds of paradise." The equally handsome species illustrated on the cover have since been found in eastern Australia. They are (from top): *Limonia (Dapanoptera) hipmilita* sp. n.; *Limonia (Dapanoptera) richmondiana nooroobunda* ssp. n.; *Limonia (Dapanoptera) richmondiana pangarinda* ssp. n. The wing of *Limonia (Dapanoptera) richmondiana richmondiana* (SKUSE) is very similar to *L. (D.) r. pangarinda* ssp. n.

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### Impressum:

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