

**REVISION OF THE AUSTRALIAN TROPIDOCEPHALINI (HEMIPTERA: DELPHACIDAE: DELPHACINAE)**

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**Abstract**

Australia has 2 genera and 4 species of Tropidocephalini: *Pseudembolophora macleayi* Muir, *Tropidocephala dryas* Kirkaldy, *T. eximia* (Kirkaldy) and *T. neoamboinensis* Muir; all are redescribed. *T. hamadryas* Kirkaldy is synonymised with *T. dryas*. A key to these genera and species is given.

**Introduction**

The Australian Tropidocephalini have been little studied. The first recorded Australian species was *Ectopiopterygodelphax eximius* described by Kirkaldy (1906) as type species of his *Ectopiopterygodelphax*. In 1907 Kirkaldy synonymised *Ectopiopterygodelphax* with *Tropidocephala* Stål and described 2 additional species, *T. dryas* and *T. hamadryas*. All were from Cairns, Queensland. Muir (1913) described *T. neoamboinensis* from Amboina (Indonesia) and Cairns. A second genus was recorded in 1920 when Muir described *Pseudembolophora* with *P. macleayi* Muir as type species from Western Australia. This revision is based on the examination of available type material and additional material which has allowed each species to be diagnosed accurately and redescribed. Both genera are also diagnosed; in the case of *Tropidocephala* this is based on the Australian species as a representative sample of non-Australian species was not available.

Abbreviations: AM, Australian Museum, Sydney; ANIC, Australian National Insect Collection, CSIRO, Canberra; BCRI, Biological and Chemical Research Institute, NSW Agriculture and Fisheries, Sydney; BM, The Natural History Museum, London; BPBM, B. P. Bishop Museum, Hawaii; QDPI, Queensland Department of Primary Industries, Brisbane; QM, Queensland Museum, Brisbane; UQIC, University of Queensland Insect Collection, Brisbane; USNM, United States National Museum, Washington.

**Tribe Tropidocephalini Muir**

Tropidocephalini Muir, 1915: 269.

The Australian Tropidocephalini are distinguished from other Australian Delphacidae by a wedge-shaped post-tibial spur which lacks teeth on the hind edge and has only a single apical tooth.

**Key to genera and species of Australian Tropidocephalini**

1. Head very elongate, vertex more than 3 times as long as wide at base (Figs 1, 2)
  - ..... **Pseudembolophora** Muir (**macleayi** Muir)
  - Head not as elongate, vertex less than 3 times as long as wide at base
    - ..... **Tropidocephala** Stål. 2
2. Frons with lateral margins meeting at apex ..... **neoamboinensis** Muir
  - Frons with lateral margins not meeting at apex but meeting basal margin of clypeus towards lateral ends ..... 3
3. Vertex less than 1.3 times as long as pronotum (Figs 18, 19) ..... **eximia** (Kirkaldy)
  - Vertex *ca* twice as long as pronotum (Figs 7, 8) . . . . . **dryas** Kirkaldy

**Pseudembolophora Muir**

*Pseudembolophora* Muir, 1920: 181. Type species *Pseudembolophora macleayi* Muir, 1920.

Head very long and laterally compressed, width across eyes nearly as wide as pronotum. Vertex much longer in midline than width at base, rounding into frons; lateral marginal carinae anterior to eyes positioned about midline of lateral areas of head in lateral view so that in dorsal view the anterolateral carinae appear as apparent lateral margins; median carina present only at base. Frons much longer in midline than greatest width, widest adjacent to anterior margins of eyes, angulate in cross section; median carina very strong and complete. Eyes elongate, *ca* 1.5 times as long as wide. Antennal segment 1 nearly as wide as long, segment 2 *ca* twice length of segment 1. Ocelli small and subobsolete. Clypeus tricarinate.

Pronotum tricarinate, lateral carinae reaching posterior margin which is broadly V-shaped; anterior

margin straight; 2 distinct pits present between carinae on disc. Mesonotum tricarinate, lateral carinae reaching posterior margin. Hind tibia with 1 lateral spine, 1 basal spine and 4 apical spines. Post-tibial spur solid with a strong apical tooth. Tegmen long, narrow, surpassing tip of abdomen, apex acute, claval suture present.

### ***Pseudembolophora macleayi* Muir (Figs 1-6)**

*Pseudembolophora macleayi* Muir, 1920: 182.

*Types*—WESTERN AUSTRALIA: 1 ♂, 2 ♀♀, King George Sound (Types not examined; see note below).

*Material examined*—WESTERN AUSTRALIA: 1 ♂ (head missing), 1 adult (apex of head, abdomen missing), King George Sound, C. Darwin (BM); 1 ♀, Maida Vale nr Perth, 29.viii.1959, T. E. Woodward, on rushes (UQIC).

*Colour*—Head uniformly light brown except for a pale elongate area on gena adjacent to eye and anterior to antenna; antennae much darker anteriorly than posteriorly, also a diffuse darkening at extreme base of both segments. Pronotum light brown, mesonotum pale with a U-shaped dark marking on each side lateral to lateral carina. Tegmen hyaline with veins dark but broken by short pale sections, tip dark.

*Head*—Width across eyes 0.95 times width of pronotum. Vertex (Fig. 1) with length in midline 3 times as long as pro- and mesonotum together, narrower at apex than at base; median carina present in basal 0.25; apex rounded; posterior margin transverse or nearly so; lateral margins adjacent to eyes slightly converging towards base; anterolateral carinae gradually converging towards apex; lateral marginal carinae anterior to eyes much below level of anterolateral carinae, diverging anterior to eyes for short distance before converging and becoming invisible in dorsal view below anterolateral carinae, but in lateral view (Fig. 2) meeting lateral marginal carinae of frons *ca* an eye length in front of eye; area between anterolateral carinae concave with lateral areas nearly vertical; posterior margin just behind midpoint of eyes. Frons with lateral margins basal to anterior margins converging towards base and apically converging towards apex; in cross section basal area adjacent to eyes only slightly angular becoming very acutely angulate towards apex. Eye 1.6 times as long as wide, wider anteriorly. First antennal segment 1.1 times as long as wide; second segment 2.5 times as long as wide, 2.2 times length of segment 1, gradually widening towards apex.

*Thorax*—Pronotum (Fig. 1) with lateral carinae straight but recurved inwards at posterior margin.

*Legs*—Hind femur 0.85 times length of tibia; hind tarsi with segment 1 subequal in length to segments 2 and 3 together; post-tibial spur with inner surface slightly concave.

*Tegmen*—Tegmen (Fig. 4) with M and Cu forked near apex; claval fork basal to midpoint.

*Dimensions*—♂: length of tegmen 3.4 mm.

### **Note**

The holotype could not be located in the Macleay Museum, University of Sydney, the stated type depository and Stevens and Carver (1986) do not list this species in material transferred from the Macleay Museum to the ANIC. The 2 specimens in the BM are almost certainly part of the type series, especially considering the illustration of the tegmen in Muir's paper. However, as some doubt exists no lectotype is designated.

### ***Tropidocephala* Stål**

*Tropidocephala* Stål, 1853: 266. Type species *Tropidocephala flaviceps* Stål, 1855.

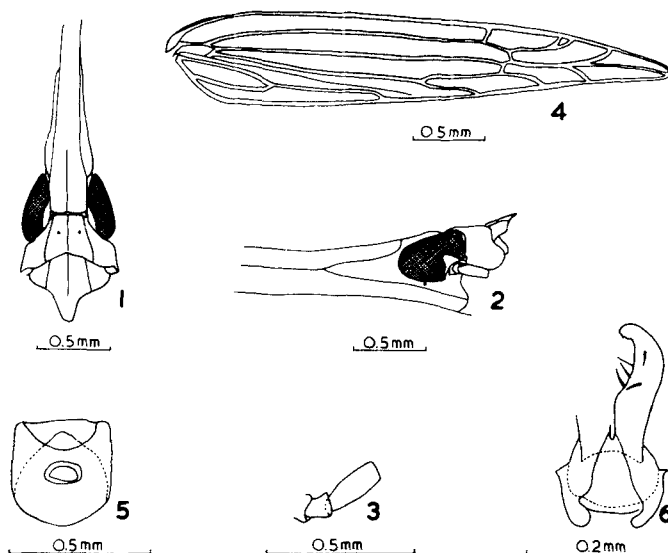
*Ectopiopterygodelphax* Kirkaldy, 1906: 412; 1907: 141 (Synonymy). Type species *Ectopiopterygodelphax eximius* Kirkaldy, 1906.

The Australian *Tropidocephala* are characterised as follows:

Head width across eyes narrower than pronotum. Vertex triangular, longer in midline than width at base and longer than pronotum, apex rounded; lateral margins strongly carinate and meeting at apex, median carina present, no other carinae present, posterior margin concave in middle. Frons longer in midline than greatest width; median carina strong, simple except at extreme base. Eyes longer than wide. Antennae very short, segment 1 about as long as wide, segment 2 longer than segment 1 (1.5-2.8). Ocelli distinct, genal carinae present below antennae. Clypeus tricarinate. Rostrum not reaching hind coxae.

Pronotum with strong median and lateral carinae reaching posterior margin, lateral carinae curved and diverging posteriorly; anterior margin convex, posterior margin concave between lateral carinae. Mesonotum strongly tricarinate, carinae reaching posterior margin, lateral carinae diverging from anterior margin and subparallel posteriorly. Hind tibia with a single lateral spine, 1 basal spine and 5 apical spines. Post-tibial spur short, robust, solid, with an apical tooth. Tegmen long, surpassing anal segment; veins R, M and Cu dorsally with raised convex areas at various heights basal to cross veins and with granules on each side bearing long setae.

Anal segment of male collar-like, wider than long.



Figs 1-6—*Pseudembolophora macleayi*: (1-2) head, pronotum and mesonotum: (1) dorsal; (2) lateral; (3) antenna; (4) tegmen; (5-6) ♂ genitalia: (5) pygofer; (6) right style.

### *Tropidocephala dryas* Kirkaldy (Figs 7-17)

*Tropidocephala dryas* Kirkaldy, 1907: 143.

*Tropidocephala hamadryas* Kirkaldy, 1907: 143, Syn.n.

*Type*—QUEENSLAND: lectotype ♂ (here designated), labelled "Cairns, Q. Austr. 8-1904" (BPBM). Type examined.

*Other material examined*—QUEENSLAND: 2 ♂♂, Iron Range, 13-20.v.1975, K. J. Houston (QDPI); 1 ♂, Iron Range, 1-9.vi.197(?) , G. B. Monteith (UQIC); 3 ♂♂, 14 km NNW of Hope Vale Mission, 8-10.x.1980, J. C. Cardale (ANIC); 1 ♀, Cow Bay, N of Daintree R., 22.ii-29.iii.1983, Storey & Cunningham (QDPI); 1 ♂, Cassowary Ck, base of Rex Range, 6.xi.1974, I. D. Galloway (QDPI); 1 ♂, 1 ♀, 'Kootharinga', Julatten, 6.xi.1975, I. D. Galloway (QDPI); 1 ♂, Mt Lewis via Julatten, 28.iii.1976, I. D. Galloway (QDPI); 1 ♂, Mt Lewis, 30.x-13.xi.1980, R. I. Storey (QDPI); 1 ♂, 5 ♀♀, Rex Range Lookout via Julatten, 9.xi-2.xii.1981 (QDPI); 1 ♀, Rifle Ck, Mt Molloy, 6.xi.1974, I. D. Galloway (QDPI); 1 ♀, Cairns, viii.1904 (BPBM) (Type of *T. hamadryas*); 1 ♀, 16 km up Davies Ck Rd, Mareeba, 6.xi-2.xii.1984, Storey & Halfpapp (QDPI); 2 ♂♂, Dunk I., vii.1927, H. Hacker (QM); 1 ♂, 1 ♀, Tolga, 6.xi.1975, I. D. Galloway (QDPI); 1 ♂, Tolga scrub, 18.ii.1984, I. D. Galloway (QDPI); 2 ♂♂, Atherton, 6.xi.1974, I. D. Galloway (QDPI); 1 ♂, 1 ♀, Brampton I., nr Mackay, 17.ix.1963, D. Havenstein (ANIC); 1 ♀, Mitchell, 9.x.1974, I. D. Galloway (QDPI); 1 ♂, Bulburin State Forest, 27-29.v.1960, F. A. Perkins (UQIC); 2 ♂♂, 1 ♀, same data except P. R. Webb (UQIC); 2 ♂♂, same data except E. A. Bernays (UQIC); 2 ♂♂, 1 ♀, Mt Mee, 11.iv.1974, J. F. Donaldson (QDPI); 1 ♂, 9 miles (ca 14.5 km) N of Dayboro, 23.v.1966, Z. Liepa (ANIC); 1 ♂, Mt Nebo, 2.vi.1954, A. Jenkins (UQIC); 3 ♂♂, Mt Nebo, 1.iv.1974, J. F. Donaldson (QDPI); 1 ♂, 6.5 miles (ca 10.5 km) SE of Mt Nebo, 24.v.1966, Z. Liepa (ANIC); 1 ♂, 1 ♀, N. Pine R., 2.vi.1929, H. Hacker (USNM); 1 ♂, Samsonvale, 19.viii.1928, H. Hacker (USNM); 1 ♂, 7.x.1928, H. Hacker (USNM); 1 ♂, Highvale, 12.iv.1977, M. A. Schneider (AM); 1 ♂, Camp Mountain, 27.xi.1979, J. F. Donaldson (QDPI); 1 ♂, Brisbane, 23.iv.1916, H. Hacker (USNM); 1 ♀, 30.vi.1957, Haseler (UQIC); 4 ♂♂, v.1977, K. J. Houston (QDPI); 1 ♀, viii.1977, J. Grimshaw (QDPI); 1 ♀, H. Jarvis (QDPI); 1 ♂, Moggill, 1.xi.1962, I. C. Yeo (UQIC); 1 ♀, Indooroopilly, 14.iv.1983, J. F. Donaldson (QDPI); 1 ♂, Thornlands, 30.ix.1973, J. F. Donaldson (QDPI); 2 ♂♂, Dunwich area, Stradbroke I., 24-26.ix.1985 (QDPI); 1 ♀, Greenbank, 13.xii.1962, G. Monteith (UQIC); 1 ♂, Tamborine Mt, 16.ii.1960, F. A. Perkins (UQIC); 1 ♀, Mt Tamborine, x.1977 (QDPI); 1 ♂, 27.ii-6.iii.1981 (QDPI); 2 ♂♂, 2 ♀♀, 6.iii.1981, I. D. Galloway (QDPI); 1 ♂, 2 ♀♀, 6-17.iii.1981 (QDPI); 1 ♂, Mitchell Gully, 2 miles (ca 3 km) E of Cunningham's Gap, 2.vi.1966, Z. Liepa (ANIC); 2 ♂♂, 1 ♀, 10 km E of Q. Mary's Falls nr Killarney, 23.iii.1975, I. D. Galloway (QDPI); 1 ♀, Springbrook, 24.ii.1974, I. D. Galloway (QDPI); 1 ♂, Binna Burra, Lamington Nat. Park, 29.v.1966, Z. Liepa (ANIC); 1 ♂, Bell Bird L'out, Lamington Nat. Park, 30.v.1966, Z. Liepa (ANIC). NEW SOUTH WALES: 4 ♂♂, 1 ♀, 3 km S of Border Gate, Mt Lindsay Hwy, 22.iii.1975, B. K. Cantrell (QDPI); 1 ♀, Tooloom, i.1926, H. Hacker (USNM); 1 ♀, Tooloom Scrub via Urbenville, 22-23.iii.1975, K. J. Houston (QDPI); 3 ♂♂, Scott's Head, 13.ii.1968, D. H. Colless (ANIC); 1 ♂, Timor Rock, Warrumbungle Range, 27.iii.1971, D. K. McAlpine (AM); 1 ♂, Towlers Bay, W of Pittwater, 6-7.iii.1971, M. J. Fletcher (BCRI); 1 ♀, Royal National Park, nr Sydney, 13.vii.1971, D. K. McAlpine (AM); 1 ♂, 9 km SE of Batemans Bay, 17.v.1975, Z. Liepa (ANIC); 3 ♂♂, Wallaga Lake, Bermagui, 21.vii.1973, Z. Liepa (ANIC); 1 ♂, 3 miles (ca 4.8 km) NW of Martinsville nr Coorombong, 29.ix.1973, M. J. Fletcher (BCRI).

*Colour*—Males generally pale brown often with an orange tinge, sometimes greenish. Vertex with dark stripe on each side of median carina extending from apex to about midpoint. Frons with apex dark

extending basad in triangular shape on each side, base with dark area on each side, forked median carina at base dark; lateral area of head with triangular dark area anterior to eye and dark area ventral and posterior to eye and ocellus; antennal segment 1 with dark incomplete band on anterior part of apex, segment 2 with oblique dark stripe near base on anterior part and another lighter stripe near apex. Pronotum with area posterior to eye dark. Fore and mid coxae dark in apical 0.5 to 0.67. Tegmen dark brown hyaline with clear band across middle interrupted by dark raised area on vein M, a clear area in basal 0.25 along costal margin and clear areas between apical veins. Area anterior to mid coxae dark. Ventral surface of abdomen dark in anterior 0.5 to 0.67 of each segment. Pygofer dark with posterior edge pale ventrally, median ventral process dark, lateral processes dark tipped, styles pale with apices dark.

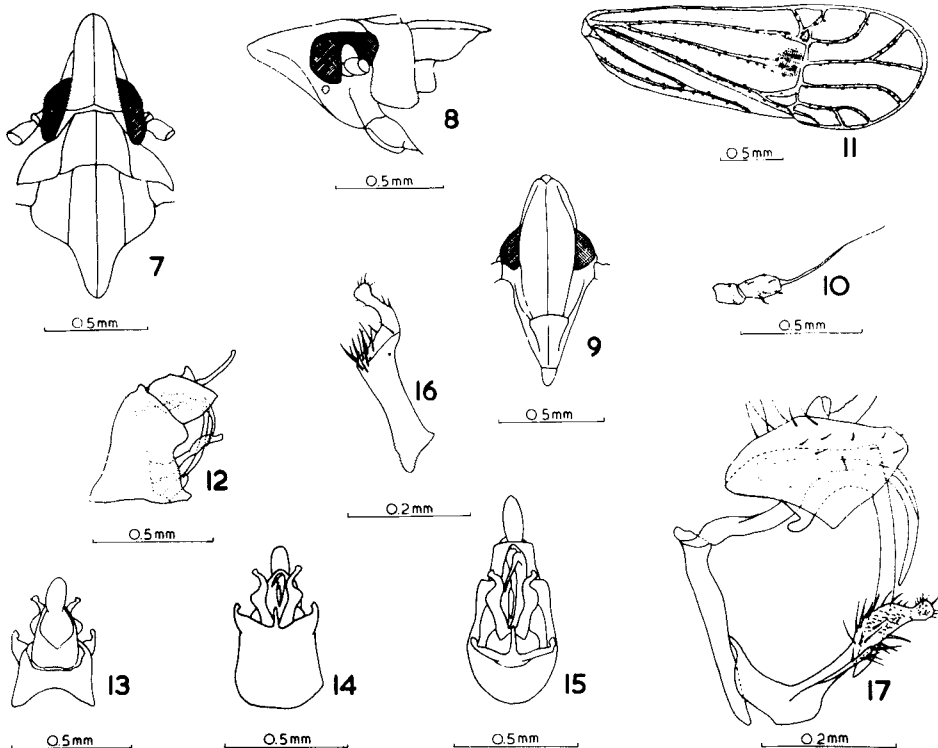
Females lack most of the dark colouring of males; vertex with dark stripe on each side of median carina at apex; base of frons and lateral portion of head near apex and around ocelli sometimes dark; antennae as in males.

**Head**—Vertex (Fig. 7) strongly produced anterior to eyes; length in midline 1.7-2.3 times width at base and 1.7-2.3 times length of pronotum, widest at base; posterior margin concave in middle and carinate; lateral margins strongly raised above vertex. Frons (Fig. 9) with length in midline 2.2-2.8 times greatest width, widest between eyes; median carina in lateral view straight or slightly convex at base, slightly to moderately concave about 0.33 from base; lateral margins carinate, straight in apical 0.5, convex about middle and nearly straight in basal 0.33, commencing below level of lateral margin of vertex and meeting basal margin of clypeus near lateral ends, in lateral view convex at apex and distinctly concave basal to eyes. Second antennal segment 1.5-2.8 times length of segment 1. Face of clypeus more or less flat; base of lateral carinae close to apical margin of frons.

**Thorax**—Pronotum (Fig. 7) with posterior 0.5 of lateral carinae often straight; distance between posterior ends of lateral carinae 1.1-1.5 times length in midline.

**Tegmen**—Apical angle rounded; raised area on vein M strongly developed into dome shaped structure, area on vein R small but distinct, that on vein Cu undeveloped (Fig. 11). These areas less developed in females.

**Abdomen**—Pygofer (Fig. 14) with ventral posterior margin concave, flattened and extended laterally, with very strong narrow, acute median spine directed posterodorsally; lateral processes short and broad. Genital styles (Fig. 16) in posteroventral view robust, slightly diverging from midline; width even in basal 0.67 but outer margin strongly constricted to form narrow apical 0.33, basal 0.5 straight then part leading to constriction slightly curved inwards; narrow apical 0.33 strongly bent in middle with apical part directed dorsolaterally, apex somewhat swollen; in lateral view apical 0.33 directed posteriorly.



FIGS 7-17—*Tropidocephala dryas*: (7-8) head, pronotum and mesonotum: (7) dorsal; (8) lateral; (9) frons and clypeus; (10) antenna; (11) tegmen; (12-17) ♂ genitalia: (12) lateral; (13) dorsal; (14) ventral; (15) postero-ventral; (16) left style; (17) genitalia removed from pygofer, lateral.

*Dimensions*—♂: body length 2.1–2.7 mm, length of tegmen 2.5–3.1 mm; ♀: body length 2.5–3.4 mm, length of tegmen 2.7–3.3 mm.

### Notes

Kirkaldy separated *T. dryas*, (a male) and *T. hamadryas* (a female) on differences in colour and the development of the dome shaped structure on vein M in the tegmen. The additional material examined showed these differences to be secondary sexual characters and *T. hamadryas* is synonymised with *T. dryas*.

In his description of this species, Kirkaldy listed 3 localities indicating that there were at least 3 specimens in the type series. Only 1 of these has been located. This specimen bears a red type label which has been attributed to Muir (Medler 1987) and is therefore designated as lectotype.

### *Tropidocephala eximia* (Kirkaldy) (Figs 18–28)

*Ectopiopterygodelphax eximius* Kirkaldy, 1906: 412–413.

*Tropidocephala eximius*: Kirkaldy, 1907: 142.

*Type*—QUEENSLAND: lectotype ♂ (here designated), labelled “Cairns, Q. Austr. 7.1904” (BPBM); paralectotypes, 5 ♂♂, 3 ♀♀ (here designated), same data as lectotype (BPBM). Types examined.

*Other material examined*—QUEENSLAND: 2 ♂♂, Saibai I., 29.iii.1984, J. W. Turner (QDPI), 1 ♂, 26.iii.1985, J. W. Turner (QDPI); 2 ♂♂, Darnley I., 22.iii.1984, J. W. Turner (QDPI); 6 ♂♂, 1 ♀, Yorke I., 22.iii.1984, J. W. Turner (QDPI); 1 ♀, Yam I., 30.iii.1984, J. W. Turner (QDPI); 1 ♂, Murray I., 30.v.1985, Donaldson & Hamacek (QDPI), 1 ♂, 2 ♀♀, 1.vi.1985, Donaldson & Hamacek (QDPI); 1 ♂, Horne I., 20.iii.1984, J. W. Turner (QDPI); 3 ♂♂, 1 ♀, Iron Range, Cape York Pen., 13–20.v.1975, K. J. Houston (QDPI); 2 ♂♂, 5 km WSW of Rounded Hill nr Hope Vale Mission, 7.x.1980, J. C. Cardale (ANIC); 1 ♀, Rifle Ck, Mt Molloy, 6.xi.1974, I. D. Galloway (QDPI); 1 ♀, Gordonvale, 26.vii.1923, W. C. Dormer (QM); 1 ♀, Tolga, 6.xi.1975, I. D. Galloway (QDPI); 1 ♂, 2 ♀♀, Atherton, 6.xi.1974, I. D. Galloway (QDPI); 2 ♂♂, 5 ♀♀, Cairns, viii.1904 (BPBM); 1 ♀, Ravenshoe, 28.ix.1930, A. J. Turner (USNM); 1 ♂, Upper Mulgrave R., 8 miles (ca 13 km) up Goldsborough Rd, 9.v.1967, D. H. Colless (ANIC); 1 ♀, Dunk I., viii.1927, H. Hacker (QM); 1 ♀, Herbert R., Ingham, 7.xi.1975, I. D. Galloway (QDPI); 1 ♀, Koumala, 5.v.1927 (QDPI), 1 ♂, 18.v.1927 (QDPI); 3 ♀♀, 10 km S of Miriam Vale, 13.iv.1974, J. F. Donaldson (QDPI); 1 ♂, 3 km E of Palmwoods, 22.ii.1978, J. F. Donaldson (QDPI); 1 ♀, Mountain Ck, Buderim, 2–8.xii.1982, G. K. Waite (QDPI); 1 ♀, 9 miles (ca 14.5 km) N of Dayboro, 23.v.1966, Z. Liepa (ANIC); 1 ♂, 1 ♀, Bulburin State Forest, 27–29.v.1960, P. R. Webb (UQIC); 1 ♂, N. Pine R., 17.iii.1930, H. Hacker (USNM); 1 ♀, Mt Nebo, 1.iv.1974, J. F. Donaldson (QDPI), 1 ♂, Brisbane, 30.vi.1957, Haseler (UQIC); 1 ♂, Brisbane, 1.x.1962, E. A. Bernays (UQIC); 1 ♂, Moggill, 1.xi.1962, I. C. Yeo (UQIC); 1 ♀, Rosevale area, 16.iii.1975, B. K. Cantrell (QDPI).

*Colour*—Vertex, pronotum and mesonotum pale brown, often with an orange tinge. Frons with median and adjacent areas pale brown, lateral areas tending to white, apex with a triangular dark brown area each side of median carinae; lateral area of head below eyes dark brown; clypeus dark brown on face, lateral areas lighter; rostrum pale with apical segment dark; antennae pale, segment 1 with narrow dark apical band, segment 2 with dark oblique band near base, incomplete on ventral surface and a dark diffuse incomplete apical band. Tegmen hyaline, claval margin from base to apex of claval vein concolorous with mesonotum, raised area on vein M almost black, other raised areas often dark, clear transverse band across middle, large clear area near base on claval suture and clear areas between apical veins. Legs pale with distinct darkening on hind femur. Ventral surface variable, usually with area anterior to mid coxae dark brown and abdominal segments dark along anterior margin becoming lighter posteriorly. Pygofer dark with interior face light, styles light with dark apices.

*Head*—Vertex (Fig. 18) with length in midline 1.1–1.4 times width at base and 1.0–1.4 times length of pronotum, not strongly produced in front of eyes, widest at base; posterior margin angulate or concave in middle, somewhat convex near lateral ends, carinate; lateral margins strongly raised above vertex. Frons (Fig. 20) with length in midline 1.7–2.1 times greatest width, widest basal to midpoint and ocelli, adjacent to eyes; median carina in lateral view strongly convex at apex, straight in basal 0.67; lateral margins carinate, evenly convex except at apex, commencing below level of lateral margin of vertex and meeting basal margin of clypeus near lateral ends, in lateral view convex at apex; apex shallowly concave. Second antennal segment 1.6–2.5 times length of segment 1. Face of clypeus more or less flat; base of lateral carinae close to apical margin of frons.

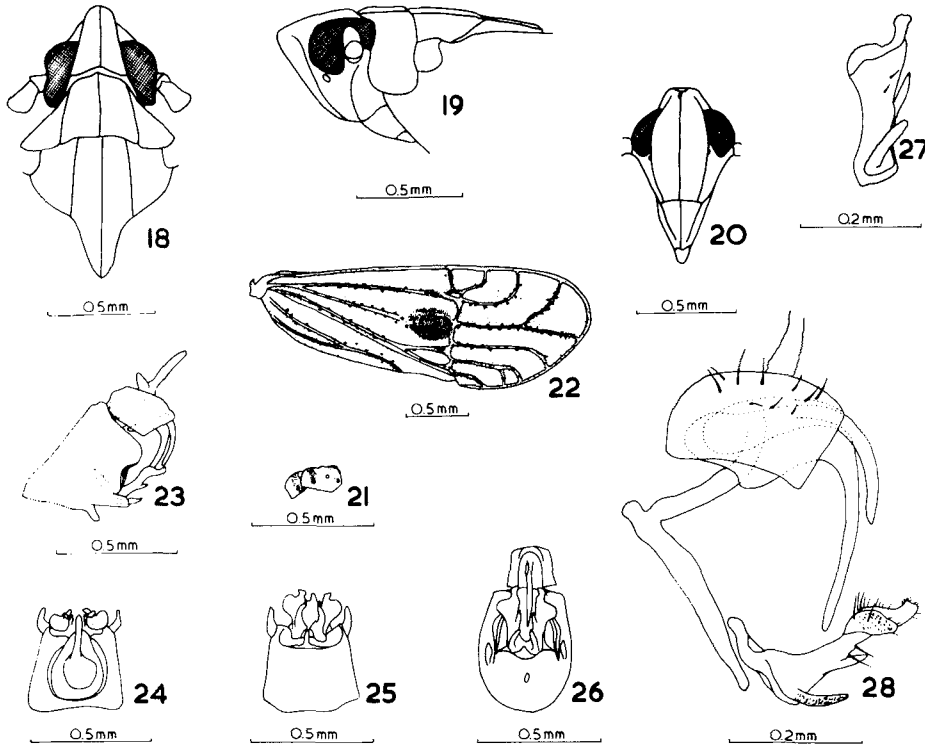
*Thorax*—Pronotum (Fig. 18) with lateral carinae only slightly convex; distance between posterior ends of lateral carinae 1.2–1.4 times length in midline.

*Tegmen*—Apical angle rounded; raised areas on veins R and Cu only slightly developed, area on vein M very strongly domed (Fig. 22).

*Abdomen*—Pygofer (Fig. 25) with long slender acute median process arising from inner face, lateral margin produced to form long broad process with acute apex. Genital styles (Fig. 27) in posteroventral view, robust, parallel sided in basal 0.5; outer margin then gradually curved to widest point of style about 0.25 from apex, in apical 0.25 outer margin strongly curved inwards to produced long inner apical process with truncated apex having inner and outer angles somewhat produced; inner margin with small acute

spine arising from near midpoint at very acute angle to style and a robust acutely pointed spine arising from near base, in posteroventral view with tip adjacent to inner margin of style, in lateral view curved and parallel to style.

*Dimensions*—♂: body length 1.9-2.5 mm, length of tegmen 2.4-2.8 mm; ♀: body length 2.4-3.0 mm, length of tegmen 2.7-3.2 mm.



FIGS 18-28—*Tropidocephala eximia*: (18-19) head, pronotum and mesonotum: (18) dorsal; (19) lateral; (20) frons and clypeus; (21) antenna; (22) tegmen; (23-28) ♂ genitalia: (23) lateral; (24) dorsal; (25) ventral; (26) postero-ventral; (27) left style; (28) genitalia removed from pygofer, lateral.

### Notes

Kirkaldy listed Cairns as the type locality and July as the month of collection and there are 9 specimens in BPBM with these data. I regard this series as the type series and a male has been designated as lectotype with the remaining 8 as paralectotypes. The specimen in BPBM bearing the red type label was collected in August and therefore cannot be part of the type series.

### *Tropidocephala neoamboinensis* Muir (Figs 29-36)

*Tropidocephala neoamboinensis* Muir, 1913: 246.

*Type*—INDONESIA: *holotype* ♂, labelled "Amboina, F. Muir" (BPBM).

*Other material examined*—AUSTRALIA: QUEENSLAND: 1 ♀, Badu I., 3.iv.1984, J. W. Turner (QDPI); 1 ♀, Broken R., Eungella, W of Mackay, 8.iv.1976, I. D. Galloway (QDPI); 1 ♀, Bolingbroke, 22.v.1927 (QDPI).

*Colour*—Generally light orange brown. Frons and genae somewhat darker and browner; antennal segment 2 with dark oblique band near base, often paler on anterior surface. Vertex, pronotum and mesonotum with carinae pale and darkly edged on each side. Tegmen hyaline, orange brown; raised convex areas on veins M and Cu black; clear band across middle, a clear longitudinal area in clavus between claval suture and vein, and clear areas between apical veins.

*Head*—Vertex (Fig. 29) with length in midline 1.1-1.2 times width at base and 1.2 times length of pronotum, widest at base; posterior margin angulate and carinate; lateral margins strongly raised above vertex. Frons (Fig. 31) with length in midline 2.4-2.6 times greatest width, widest just apical to midpoint; median carina in lateral view straight; lateral margins carinate, convex except at base, commencing below

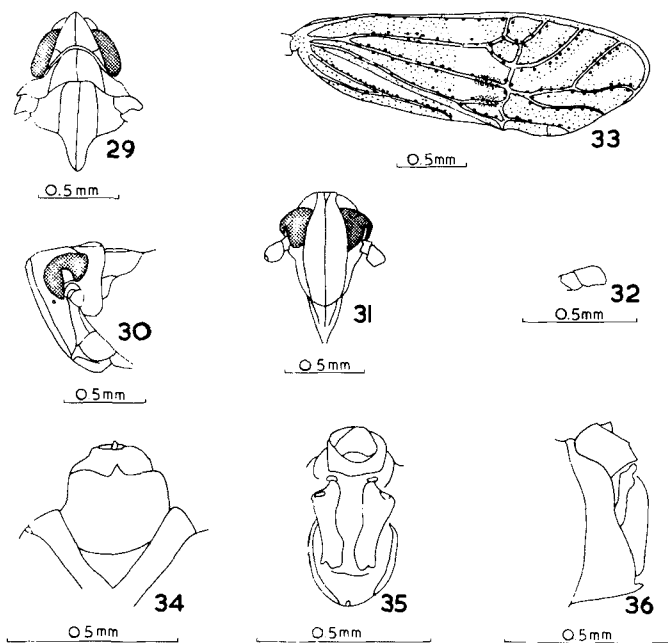
lateral margins of vertex and meeting at apex, in lateral view straight; apex rounded. Second antennal segment 1.5-1.8 times length of segment 1. Face of clypeus not flat, sloping straight from strong median carina to lateral carinae; base of lateral carinae distant from frons.

*Thorax*—Pronotum with lateral carinae distinctly convex; distance between posterior ends of lateral carinae 1.6-1.7 times length in midline.

*Tegmen*—Apical angles somewhat pointed; raised areas on veins R, M and Cu only slightly developed (Fig. 33).

*Abdomen*—Pygofer (Fig. 34) with short slender acute median process, without any lateral angles or processes. Genital styles (Fig. 35) in posteroventral view robust, slightly widening towards apex, slightly diverging from midline; inner edge moderately concave, outer edge only slightly concave; outer angle of apex broadly rounded; inner angle produced with tip curved posteriorly.

*Dimensions*—♂: body length 1.95 mm, length of tegmen 2.4 mm; ♀: body length 2.5-2.6 mm, length of tegmen 3.1-3.2 mm.



FIGS 29-36—*Tropidocephala neoamboinensis*: (29-30) head, pronotum and mesonotum: (29) dorsal; (30) lateral; (31) frons and clypeus; (32) antenna; (33) tegmen; (34-36) ♂ genitalia: (34) dorsal; (35) posteroventral; (36) lateral.

*Note*

Confirmation that the Australian specimens listed belong to this species cannot be made until a male is available.

**Discussion**

Muir (1915) proposed the Tropidocephalini as a tribe of the Delphacinae to include species having a solid post-tibial spur but with a concave inner surface and no teeth along the edge. He included 6 genera in the tribe. The Tropidocephalini has now been expanded to include 21 genera (Asche 1985).

The Tropidocephalini are mostly Oriental with 13 genera restricted to that region and another 2 shared with the Neotropical region. Two genera are restricted to the Neotropical, 2 to the Palaeartic and 1 (*Pseudembolophora*) to the Australian region. The widespread genus *Tropidocephala* is distributed through the Palaeartic, Ethiopian, Oriental, Australian and Pacific regions.

In Australia, *Pseudembolophora* is restricted to the south-western corner of Western Australia and species of *Tropidocephala* to the eastern areas of New South Wales and Queensland. *Tropidocephala dryas* is distributed from southern N.S.W.

to northern Queensland but does not extend into Torres Strait, while *T. eximia* is more tropical extending from southern Queensland to the Torres Strait. The presence of *T. neoamboinensis* in Australia is uncertain, the 3 females from Queensland being only tentatively placed in this species.

### Acknowledgment

I thank the curators of the collections listed for loan of specimens.

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[Manuscript received 8 June 1990. Accepted 1 August 1991.]