

Superfamily BLEPHARICEROIDEA

4. Family BLEPHARICERIDAE

By Peter Zwick

Blepharicerids, or net winged midges, are slender, long-legged midges with elongate, multisegmented antennae lacking conspicuous pilosity. They can be easily recognized by the numerous delicate cracks and folds that form a network in the wing membrane. Size varies from small to moderate (wing lengths of the Australasian species vary from ca. 4.0 to 12.5 mm; fully grown larvae are ca. 3.5 to 13.0 mm long). Adults are usually found close to clean, swift streams where they rest hanging under foliage, bridges, etc.

Larvae and pupae live in strong currents on smooth hard substrata in streams. Larvae have a striking appearance; their bodies appear to consist of only 6 or 7 segments, separated by deep constrictions, each segment bearing a midventral sucker. Pupae are oval, with the flat, soft, ventral face cemented to rocks.

Larvae are scrapers, grazing on microscopic growths. Male adults generally do not feed and have reduced mouthparts (except in some groups consuming flower secretions, e.g., Apistomyiini). Females often have well-developed mouthparts and many have been observed feeding on smaller insects, which are caught with specialized hind tarsi. Life cycles vary from semivoltine to plurivoltine, but most net winged midges are univoltine.

Blepharicerids are known from all continents and many continental islands but are generally absent from oceanic islands. The Australasian

Region, with both subfamilies (Edwardsininae and Blepharicerinae), 2 of 4 tribes, 9 genera, and 26 species, harbors a fair proportion of the almost 300 species and ca. 30 genera recognized worldwide. At present within the Australasian/Oceanian Regions the family is known only from New Guinea, New Zealand, New Caledonia, and eastern Australia, including Tasmania.

Species of the Australian *Edwardsina* are monophyletic, with their closest relatives in South America. The sister group of Apistomyiini is the Neo-Afrotropical Paltostomatini. The Apistomyiini in New Zealand and New Caledonia seem to be relictual resulting from a former migratory route from South America Antarctica to New Zealand, and via the inner Melanesian Archipelago to the Oriental Region where the group developed highly derived modern forms.

Some of the Apistomyiini have secondarily invaded Australia from the tropical north but have not reached Tasmania. An incompletely known enigmatic species from Mossman Gorge, north Queensland, may be an exception. Another incompletely known, unnamed member of the family from New Caledonia has tentatively been assigned (Stuckenberg 1970) to the tribe Paltostomatini (the only record for this tribe in the region). This species, however, may prove to belong to the Apistomyiini.

Refs.: Alexander (1958, cat.), Zwick (1977, rev., keys, biol.).

Subfamily EDWARDSININAE

Tribe EDWARDSININI

Genus EDWARDSINA Alexander

EDWARDSINA Alexander, 1920c: 2. Type species: *Edwardsina chilensis* Alexander, 1920, orig. des.

Subgenus TONNOIRINA Edwards

- TONNOIRINA** Edwards, 1929d: 56. Type species: *Edwardsina tasmaniensis* Tonnoir, 1924, orig. des.
ALEXINA Edwards, 1929d: 45. Type species: *Edwardsina australiensis* Tillyard, 1922 [misid., = *Edwardsina torrentium* Zwick, 1977], orig. des.
affinis Zwick, 1977: 78. Australia (Vic).
alticola Zwick, 1977: 92. Australia (NSW).
australiensis Tillyard, 1922a: 164. Australia (NSW); Australia (ACT, Vic).
 ssp. **aberrans** Zwick, 1977: 67. Australia (Vic).
 ssp. **australiensis** s. str. Australia (NSW); Australia (ACT, Vic).
 tillyardi Tonnoir, 1923a: 138. Australia (NSW).
bubalus Zwick, 1977: 63. Australia (Vic).
confinis Tonnoir, 1924c: 47. Australia (Tas).
 fluviatilis Tonnoir, 1924c: 58. Australia (Tas).
confusa Zwick, 1981: 75. Australia (NSW).
ferruginea Tonnoir, 1924c: 50. Australia (Tas).
gigantea Zwick, 1977: 61. Australia (NSW); Australia (ACT).
montana Tonnoir, 1924c: 64. Australia (Tas).
pilosa Zwick, 1977: 87. Australia (Vic).
plicata Zwick, 1977: 68. Australia (Tas).
polymorpha Zwick, 1977: 74. Australia (Vic); Australia (NSW).
reticulata Zwick, 1977: 60. Australia (Tas).
similis Tonnoir, 1924c: 40. Australia (Tas).
soror Zwick, 1977: 82. Australia (NSW).
spinosa Zwick, 1977: 84. Australia (Vic); Australia (NSW).
tasmaniensis Tonnoir, 1924c: 31. Australia (Tas).
torrentium Zwick, 1977: 89. Australia (Vic); Australia (ACT, NSW).
 australiensis, authors, not Tillyard, 1922, misid.
 ssp. **aspera** Zwick, 1977: 89. Australia (Vic).
 ssp. **torrentium** s.str. Australia (Vic); Australia (ACT, NSW).
williamsi Zwick, 1977: 80. Australia (Vic); Australia (NSW).

Subfamily BLEPHARICERINAE

Tribe APISTOMYIINI

Genus APISTOMYIA Bigot

- APISTOMYIA** Bigot, 1862: 109. Type species: *Apistomyia elegans* Bigot, 1862, mon.
collini Bezzi, 1913c: 68. Australia (Qld).
tonnoiri Tillyard, 1922a: 169. Australia (NSW); Australia (ACT, Qld, Vic).

Genus AUSTROCURUPIRA Dumbleton

- AUSTROCURUPIRA** Dumbleton, 1963: 251 (*Neocurupira* subg.). Type species: *Neocurupira nicholsoni* Tillyard, 1922, mon.
nicholsoni Tillyard, 1922a: 167 (*Neocurupira*). Australia (NSW); Australia (Vic).

Genus CURUPIRINA Stuckenberg

- CURUPIRINA** Stuckenberg, 1970: 228 (*Austrocurupira* subg.). Type species: *Austrocurupira kaltbachii* Stuckenberg, 1970, orig. des.
kaltbachii Stuckenberg, 1970: 230 (*Austrocurupira*). New Caledonia (New Caledonia).
microcephala Stuckenberg, 1970: 234 (*Austrocurupira*). New Caledonia (New Caledonia).

starmuhlneri Stuckenberg, 1970: 240 (*Austrocurupira*). New Caledonia (New Caledonia).

Genus NEOCURUPIRA Lamb

NEOCURUPIRA Lamb, 1913: 72. Type species: *Neocurupira hudsoni* Lamb, 1913, mon.

PARACURUPIRA Tillyard, 1922b: 104. Type species: *Curupira chiltoni* Campbell, 1921, orig. des.

campbelli Dumbleton, 1963: 242. NZ (NZ).

chiltoni Campbell, 1921: 260 (*Curupira*). NZ (NZ).

hudsoni Lamb, 1913: 73. NZ (NZ).

rotalapiscula Craig, 1969: 108. NZ (NZ).

tonnoiri Dumbleton, 1963: 238. NZ (NZ).

Genus NESOCURUPIRA Stuckenberg

NESOCURUPIRA Stuckenberg, 1970: 245. Type species: *Nesocurupira curtirostris* Stuckenberg, 1970, mon.

curtirostris Stuckenberg, 1970: 246. New Caledonia (New Caledonia).

Genus NOTHOHORAIA Craig

NOTHOHORAIA Craig, 1969: 107. Type species: *Nothohoraia micrognathia* Craig, 1969, mon.

micrognathia Craig, 1969: 107. NZ (NZ).

Genus PARAPISTOMYIA Zwick

PARAPISTOMYIA Zwick, 1977: 96. Type species: *Parapistomyia tropica* Zwick, 1977, orig. des.

bulbifera Zwick, 1977: 100. Australia (NSW).

tropica Zwick, 1977: 97. Australia (Qld).

Genus PERITHEATES Lamb

PERITHEATES Lamb, 1913: 74. Type species: *Peritheates turriifer* Lamb, 1913, mon.

harrisi Campbell, 1921: 262 (*Apistomyia*). NZ (NZ).

turriifer Lamb, 1913: 75. NZ (NZ).

intermedius Tillyard, 1922b: 107. NZ (NZ).