

8. Family KEROPLATIDAE

By Loïc Matile

The world fauna of Keroplatidae presently contains approximately 90 genera and 700 described species. The family is distributed worldwide from Greenland in the north to the Crozet Is in the south. The first fossil to be placed in this family with certainty belongs to the mid-Cretaceous fauna of France, and many species are known from the Cenozoic, especially from Baltic amber.

Twenty-eight genera and 103 named valid species are cited in this catalog, a number that is probably much lower than the actual number of species in the Australasian fauna, especially since Australia is still poorly studied and New Guinea is practically unknown faunistically. Both areas undoubtedly harbor many undescribed species. Colless (1970*b*), in a preliminary study, estimated that only 30% of the Australian fauna of mycetophiloids had been described and that there were "a number of new or unrecorded genera."

It now appears that the keroplatid fauna is represented primarily by an old Transantarctic element, and the rest is pantropical or of Indo-Malayan affinity.

Most keroplatids are sylvan in habit. Larvae inhabit damp, dark places, sometimes caves, most often under Polyporaceae (bracket fungi) where they spin hygroscopic webs used for collecting spores or ensnaring small living invertebrate prey. Of the genera known from the Australasian Region, larvae of *Arachnocampa*, *Macrocera*, and *Xenoplasyura* are predaceous, and those of *Cerotelion* and *Heteropterna* are mycophagous. Predaceous species kill their prey with an acid fluid (mostly oxalic acid) secreted by labial glands and deposited in the droplets of their web; mycophagous larvae also have acid webs and occasionally feed on pupae of their own species or on dead insects.

Some keroplatids have luminescent larvae (and adults), the most celebrated being the New Zealand glow worm, *Arachnocampa luminosa* [see Pugsley (1983) for an exhaustive review of literature on this species and Pugsley (1984) on its ecology in the Waitomo Caves]. The Australian

Mallochinus mastersi is also said to have luminous larvae.

The larva of *Planarivora insignis*, a Tasmanian species, is very peculiar in that it lives endoparasitically in land planarians (Hickman 1965). The biology of the larvae of most other genera is still unknown.

Adults are also mostly found in dark, damp places, sometimes in caves, where they may gather by the thousands (e.g., *Neoplasyura monticola*). Their flight is slow and their habits are mostly crepuscular or nocturnal. They can be swept in low vegetation, under overhanging rocks and trunks, and along banks of streams. Excellent collections may also be made with Malaise traps. Members of the genera *Proceroplatus* and *Xenoplasyura* have been caught at UV traps and occasional specimens are collected in yellow-tray traps. Gnats of the genus *Heteropterna* (and some other exotic genera as well as other families of nematocerous Diptera) have been found hanging in spider webs, where they seem safe from attack by the spiders. Some brightly colored members of the tribe Orfeliini (*Nicholsonomyia*, *Tamborinea*) are wasps mimics.

The classification adopted here follows that of Matile (1981*a*, 1986*b*). The most important changes from other papers on the Australasian fauna are the raising of *Arachnocampa* [as already suggested by Colless (1970*b*)] and *Macrocera* group of genera to subfamily rank, the raising of the subgenera recognized by Edwards (1929*b*) in "*Plasyura*" Meigen (= *Orfelia*) and *Keroplatus* to generic rank, and the separation of Keroplatinae into 2 tribes, Keroplatini and Orfeliini.

Few papers have been published on the Australasian keroplatid fauna aside from the New Zealand glow worm. Matile (1986*b*) recently revised the Arachnocampinae, Macrocerinae and Keroplatini, reviewed what little was known of their biology, and gave keys to the world genera.

Refs.: Skuse (1888*c*, 1890*d*), Tonnoir (1929*b*, Australian gen.), Tonnoir & Edwards (1927, NZ spp.), Hardy (1960, Hawaiian spp.), Colless (1966, Micronesian spp.), Matile (1988*c*, New Caledonian spp.).

Subfamily ARACHNOCAMPINAE

Genus ARACHNOCAMPA Edwards

ARACHNOCAMPA Edwards, 1924e: 177. Type species: *Bolitophila luminosa* Skuse, 1891, orig. des.

Subgenus ARACHNOCAMPA Edwards

ARACHNOCAMPA Edwards, 1924e: 177 (as gen.). Type species: *Bolitophila luminosa* Skuse, 1891, orig. des.

luminosa Skuse, 1891: 678 (*Bolitophila*). NZ (NZ).
tasmaniensis Ferguson, 1925: 487. Australia (Tas).

Subgenus CAMPARA Harrison

CAMPARA Harrison, 1966: 880. Type species: *Arachnocampa richardsae* Harrison, 1966, orig. des.
flava Harrison, 1966: 880. Australia (Qld).
richardsae Harrison, 1966: 881. Australia (NSW).

Subfamily MACROCERINAE

Genus CHIASMONEURA de Meijere

CHIASMONEURA de Meijere, 1913d: 324. Type species: *Chiasmoneura anthracina* de Meijere, 1913, mon.

Subgenus CHIASMONEURA de Meijere

CHIASMONEURA de Meijere, 1913d: 324 (as gen.). Type species: *Chiasmoneura anthracina* de Meijere, 1913, mon.
cyclophora Edwards, 1929a: 96. Vanuatu.

Subgenus PROCHIASMONEURA Matile

PROCHIASMONEURA Matile, 1988b: 60. Type species: *Chiasmoneura bipunctata* Matile, 1973, orig. des.
fenestrata Edwards in Tonnoir & Edwards, 1927: 774 (*Macrocera*). NZ (NZ).
milligani Tonnoir in Tonnoir & Edwards, 1927: 773 (*Macrocera*). NZ (NZ).

Genus MACROCERA Meigen

MACROCERA Meigen, 1803: 261. Type species: *Macrocera lutea* Meigen, 1804, des. Curtis, 1837a: 637.
annulata Tonnoir in Tonnoir & Edwards, 1927: 777. NZ (NZ).
antennalis Marshall, 1896b: 271. NZ (NZ).
campbelli Edwards in Tonnoir & Edwards, 1927: 775. NZ (NZ); NZ (Auckland Is).
decorosa Skuse, 1888c: 1159. Australia (NSW).
delicata Skuse, 1888c: 1158. Australia (NSW).
fusca Tonnoir in Tonnoir & Edwards, 1927: 777. NZ (NZ).
glabrata Tonnoir in Tonnoir & Edwards, 1927: 778. NZ (NZ).
gourlayi Tonnoir in Tonnoir & Edwards, 1927: 777. NZ (NZ).
howletti Marshall, 1896b: 270. NZ (NZ).
montana Marshall, 1896b: 270. NZ (NZ).
hudsoni Tonnoir in Tonnoir & Edwards, 1927: 776. NZ (NZ).
mastersi Skuse, 1888c: 1161. Australia (NSW).
ngaireae Edwards in Tonnoir & Edwards, 1927: 776. NZ (NZ).
nitens Edwards, 1928c: 28. American Samoa.

- obsoleta** Edwards *in* Tonnoir & Edwards, 1927: 775. NZ (NZ).
pulchra Tonnoir *in* Tonnoir & Edwards, 1927: 776. NZ (NZ).
ruficollis Edwards *in* Tonnoir & Edwards, 1927: 777. NZ (NZ).
scoparia Marshall, 1896b: 272. NZ (NZ).
tonnoiri Matile, n. n. NZ (NZ).
inconspicua Tonnoir *in* Tonnoir & Edwards, 1927: 778. NZ (NZ). [Preocc. Brunetti, 1912.]
unipunctata Tonnoir *in* Tonnoir & Edwards, 1927: 774. NZ (NZ).

Genus PARAMACROCERA Edwards

- PARAMACROCERA** Edwards *in* Tonnoir & Edwards, 1927: 779. Type species: *Paramacrocera brevicornis* Edwards, 1927, orig. des.
brevicornis Edwards *in* Tonnoir & Edwards, 1927: 779. NZ (NZ).

Subfamily KEROPLATINAE

Tribe KEROPLATINI

Genus CEROTELION Rondani

- CEROTELION** Rondani, 1856: 191. Type species: *Platyura laticornis* Meigen, 1818 [= *Tipula lineata* Fabricius, 1775], orig. des.
bimaculatum Tonnoir *in* Tonnoir & Edwards, 1927: 781. NZ (NZ).
dendyi Marshall, 1896b: 275 (*Keroplatus*). NZ (NZ).
hudsoni Marshall, 1896b: 276 (*Keroplatus*). NZ (NZ).
leucoceras Marshall, 1896b: 276 (*Keroplatus*). NZ (NZ).
nigrum Tonnoir *in* Tonnoir & Edwards, 1927: 781. NZ (NZ).
tapleyi Edwards *in* Tonnoir & Edwards, 1927: 781. NZ (NZ).
vitripenne Tonnoir *in* Tonnoir & Edwards, 1927: 780. NZ (NZ).

Genus EUCEROPLATUS Edwards

- EUCEROPLATUS** Edwards, 1929e: 174 (*Keroplatus* subg.). Type species: *Keroplatus notaticoxa* Senior-White, 1922, orig. des.
 Undescribed spp. — Australia (Qld), PNG (PNG), Solomon Is.

Genus HETEROPTERNA Skuse

- HETEROPTERNA** Skuse, 1888c: 1166. Type species: *Heteropterna macleayi* Skuse, 1888, orig. des.
affinis Skuse, 1890d: 601. Australia (NSW).
annulipes Colless, 1966: 642 (*Keroplatus*). Belau. N. comb.
macleayi Skuse, 1888c: 1167. Australia (NSW).

Genus MALLOCHINUS Edwards, n. stat.

- MALLOCHINUS** Edwards, 1929e: 174 (*Keroplatus* subg.). Type species: *Keroplatus mastersi* Skuse, 1888, orig. des.
mangalorensis Edwards, 1929e: 174 (*Keroplatus*). Australia (Tas). N. comb.
mastersi Skuse, 1888c: 1164 (*Keroplatus*). Australia (Tas). N. comb.

Genus PLATYROPTILON Westwood

- PLATYROPTILON** Westwood, 1850: 231 (*Platyura* subg.). Type species: *Platyura miersii* Westwood, 1850, mon.

collessi Matile, 1982: 287. Australia (Qld).

Tribe ORFELIINI

Genus ANTRIADOPHILA Skuse

ANTRIADOPHILA Skuse, 1888c: 1183. Type species: *Antriadophila nubipennis* Skuse, 1888, des.

Johannsen, 1909: 16.

electilis Skuse, 1888c: 1187. Australia (NSW).

nigra Skuse, 1888c: 1188. Australia (?NSW); Australia (Qld).

nubipennis Skuse, 1888c: 1184. Australia (?NSW).

petulans Skuse, 1888c: 1186. Australia (NSW).

Genus ISONEUROMYIA Brunetti

ISONEUROMYIA Brunetti, 1912b: 66. Type species: *Isoneuromyia annandalei* Brunetti, 1912, mon.

harrisi Tonnoir in Tonnoir & Edwards, 1927: 786 (*Platyura*). NZ (NZ). **N. comb.**

magna Walker, 1848: 89 (*Platyura*). "New Holland." **N. comb.**

novaezelandiae Tonnoir in Tonnoir & Edwards, 1927: 786 (*Platyura*; n. n. for *magna* Marshall). NZ

(NZ). **N. comb.**

magna Marshall, 1896b: 278 (*Platyura*). NZ (NZ). [Preocc. Walker, 1848.]

Genus LAURYPTA Edwards

LAURYPTA Edwards, 1929e: 171 (*Platyura* subg.). Type species: *Platyura leptura* Edwards, 1929, orig. des.

apicalis Colless, 1966: 650 (*Orfelia*). Belau. **N. comb.**

Genus LUTARPYA Edwards

LUTARPYA Edwards, 1929e: 172 (*Platyura* subg.). Type species: *Platyura fulva* Skuse, 1888, orig. des.

fulva Skuse, 1888c: 1176 (*Platyura*). Australia (NSW); Australia (Qld).

Genus NEOANTLEMON Tonnoir

NEOANTLEMON Tonnoir, 1929b: 595. Type species: *Neoantlemon apicalis* Tonnoir, 1929, orig. des.

apicale Tonnoir, 1929b: 595. Australia (Tas).

Genus NEOPLATYURA Malloch

NEOPLATYURA Malloch, 1928h: 601. Type species: *Platyura setiger* Johannsen, 1910, orig. des.

brookesi Edwards in Tonnoir & Edwards, 1927: 786 (*Platyura*). NZ (NZ). **N. comb.**

digitata Colless, 1966: 646 (*Orfelia*). Bonin Is.

fidelis Edwards, 1929e: 167 (*Platyura*). Australia (Tas).

lamellata Tonnoir in Tonnoir & Edwards, 1927: 785 (*Platyura*). NZ (NZ). **N. comb.**

marshalli Tonnoir in Tonnoir & Edwards, 1927: 785 (*Platyura*; n. n. for *flava* Marshall). NZ (NZ). **N.**

comb.

flava Marshall, 1896b: 281 (*Platyura*). NZ (NZ). [Preocc. Macquart, 1826.]

monticola Skuse, 1888c: 1177 (*Platyura*). Australia (NSW). **N. comb.**

palauensis Colless, 1966: 645 (*Orfelia*). Belau.

petiolata Colless, 1966: 645 (*Orfelia*). Guam.

proxima Tonnoir in Tonnoir & Edwards, 1927: 785 (*Platyura*). NZ (NZ). **N. comb.**

richmondensis Skuse, 1890d: 604 (*Platyura*). Australia (NSW); Australia (Qld).

spinosa Colless, 1966: 644 (*Platyura*). Micronesia.

tasmanica Edwards, 1929e: 168 (*Platyura*). Australia (Tas).

Genus NICHOLSONOMYIA Tonnoir

NICHOLSONOMYIA Tonnoir, 1929b: 596. Type species: *Nicholsonomyia vespiformis* Tonnoir, 1929, orig. des.
vespiformis Tonnoir, 1929b: 596. Australia (NSW).

Genus PLANARIVORA Hickman

PLANARIVORA Hickman, 1965: 1. Type species: *Planarivora insignis* Hickman, 1965, orig. des.
insignis Hickman, 1965: 3. Australia (Tas).

Genus PROCEROPLATUS Edwards

PROCEROPLATUS Edwards, 1925b: 523. Type species: *Platyura pictipennis* Williston, 1896, orig. des.
graphicus Skuse, 1888c: 1179 (*Platyura*). Australia (NSW).

Genus PSEUDOPLATYURA Skuse

PSEUDOPLATYURA Skuse, 1888c: 1180. Type species: *Pseudoplatyura dux* Skuse, 1888, mon.
dux Skuse, 1888c: 1182. Australia (NSW).
truncata Tonnoir in Tonnoir & Edwards, 1927: 781. NZ (NZ).

Genus PYRTAULA Edwards, n. stat.

PYRTAULA Edwards, 1929e: 166 (*Platyura* subg.). Type species: *Platyura agricolae* Marshall, 1896, orig. des.
agricolae Marshall, 1896b: 279 (*Platyura*). NZ (NZ). **N. comb.**
campbelli Tonnoir in Tonnoir & Edwards, 1927: 789 (*Platyura*). NZ (NZ); NZ (Antipodes Is). **N. comb.**
carbonaria Tonnoir in Tonnoir & Edwards, 1927: 788 (*Platyura*). NZ (NZ). **N. comb.**
chiltoni Tonnoir in Tonnoir & Edwards, 1927: 789 (*Platyura*). NZ (NZ). **N. comb.**
curtisi Edwards, in Tonnoir & Edwards, 1927: 790 (*Platyura*). NZ (NZ). **N. comb.**
fenestralis Skuse, 1888c: 1172 (*Platyura*). Australia (NSW); Australia (Tas, Vic). **N. comb.**
flavipennis Edwards, 1929e: 166 (*Platyura*; n. n. for *venusta* Skuse). Australia (NSW); Australia (Qld). **N. comb.**
venusta Skuse, 1888c: 1174 (*Platyura*). Australia (NSW). [Preocc. Walker, 1856.]
maculipennis Tonnoir in Tonnoir & Edwards, 1927: 788 (*Platyura*). NZ (NZ). **N. comb.**
okahunensis Edwards in Tonnoir & Edwards, 1927: 790 (*Platyura*). NZ (NZ). **N. comb.**
philpotti Tonnoir in Tonnoir & Edwards, 1927: 787 (*Platyura*). NZ (NZ). **N. comb.**
punctifusa Edwards in Tonnoir & Edwards, 1927: 788 (*Platyura*). NZ (NZ). **N. comb.**
ruficauda Tonnoir in Tonnoir & Edwards, 1927: 789 (*Platyura*). NZ (NZ). **N. comb.**
rufipectus Tonnoir in Tonnoir & Edwards, 1927: 790 (*Platyura*). NZ (NZ). **N. comb.**
rutila Edwards in Tonnoir & Edwards, 1927: 787 (*Platyura*). NZ (NZ). **N. comb.**
westralis Edwards, 1929e: 166 (*Platyura*). Australia (WA). **N. comb.**

Genus PYRTULINA Matile

PYRTULINA Matile, 1977: 33. Type species: *Pyrtulina pumila* Matile, 1977, orig. des.
 Undetermined spp. — New Caledonia (New Caledonia) (Matile, *in litt.*).

Genus RUTYLAPA Edwards

RUTYLAPA Edwards, 1929e: 171 (*Platyura* subg.). Type species: *Platyura ruficornis* Zetterstedt, 1851, orig. des.
gressitti Colless, 1966: 649 (*Orfelia*). Micronesia.

Genus RYPATULA Edwards, n. stat.

- RYPATULA** Edwards, 1929e: 167 (*Platyura* subg.). Type species: *Platyura brevis* Tonnoir in Tonnoir & Edwards, 1927, orig. des.
brevis Tonnoir in Tonnoir & Edwards, 1927: 784 (*Platyura*). NZ (NZ); NZ (Auckland Is, Campbell I). **N. comb.**
gracilis Skuse, 1890d: 603 (*Platyura*). Australia (NSW). **N. comb.**
subbrevis Tonnoir in Tonnoir & Edwards, 1927: 784 (*Platyura*). NZ (NZ). **N. comb.**

Genus TAMBORINEA Matile

- TAMBORINEA** Matile, 1981b: 207. Type species: *Tamborinea commoni* Matile, 1981, orig. des.
commoni Matile, 1981b: 209. Australia (Qld).

Genus TRIGEMMA Hardy, n. stat.

- TRIGEMMA** Hardy, 1960: 201 (*Orfelia* subg.). Type species: *Orfelia infurcata* Hardy, 1960, orig. des.
infurcata Hardy, 1960: 201 (*Orfelia*). Hawaiian Is. **N. comb.**

Genus TYLPARUA Edwards, n. stat.

- TYLPARUA** Edwards, 1929e: 172 (*Platyura* subg.). Type species: *Platyura hawaiiensis* Grimshaw, 1901, orig. des.
cratericola Hardy, 1960: 203 (*Orfelia*). Hawaiian Is. **N. comb.**
fuscocostata Grimshaw, 1901: 2 (*Platyura*). Hawaiian Is. **N. comb.**
hawaiiensis Grimshaw, 1901: 3 (*Platyura*). Hawaiian Is. **N. comb.**
insularis Grimshaw, 1901: 4 (*Platyura*). Hawaiian Is. **N. comb.**

Genus XENOPLATYURA Malloch

- XENOPLATYURA** Malloch, 1928h: 601. Type species: *Platyura conformis* Skuse, 1888, orig. des.
conformis Skuse, 1888c: 1175 (*Platyura*). Australia (NSW); Australia (Qld).
contingens Skuse, 1890d: 602 (*Platyura*). Australia (NSW). **N. comb.**
doddi Edwards, 1929e: 169 (*Platyura*). Australia (Qld). **N. comb.**
hopkinsi Edwards, 1928c: 29 (*Platyura*). Western Samoa. **N. comb.**
pottsi Colless, 1966: 647 (*Orfelia*). Micronesia. **N. comb.**
schineri Skuse, 1888c: 1174 (*Platyura*). Australia (NSW). **N. comb.**

Unplaced species of Orfeliini

- albovittata** Tonnoir in Tonnoir & Edwards, 1927: 784 (*Platyura*). NZ (NZ).
micella Colless, 1966: 651 (*Orfelia*). Belau.'