

39. Family THEREVIDAE

By Michael E. Irwin & Leif Lyneborg

Flies of the family Therevidae are nearly worldwide in distribution, occurring in all geographical regions except Antarctica. The Australasian/Oceanian Therevidae are poorly known. A total of 134 species and 16 genera are herein recognized as valid; many additional undescribed genera and species occur in these regions. Some species from these regions have heretofore been assigned to *Thereva*, *Psilocephala* Zetterstedt, and *Dialineura* Rondani. These genera, as defined by Irwin & Lyneborg (1981), are solely Holarctic in distribution and are not found in the Australasian/Oceanian Regions. A single species of *Thereva* was introduced into Hawaii from California as a potential biological control agent but did not become established (Evenhuis 1982a); it is included in the catalog. Genera listed in this catalog are highly conservative and many species have temporarily been assigned to the category of "unplaced species." Over 40% of the 135 valid species listed here are placed in the paraphyletic genus *Anabarhynchus*. The genus *Clesthenia* is considered not to belong to the family Therevidae. It is listed at the end of this chapter as unplaced to family.

Therevid bioecology is poorly understood. Therevids inhabit a wide variety of environments with a dominant proportion occupying arid and semiarid zones. Adults are not considered to be predaceous; most imbibe water and some take nourishment from insect excretions/secretions or plant nectar/exudates. Adults are diurnal and often alight in sunny patches on paths, males usually awaiting passing females. Some adults, especially of the genus *Agapophytus*, perch on tree trunks while others (e.g., *Ectinorhynchus*) can be observed hovering in abbreviated swarms above and

among vegetation. Some (e.g., *Platycarenum* and some species of *Anabarhynchus*) frequent coastal dunes. In arid environments, adults often concentrate around water sources. A few species of therevids have been regarded as mimics of various wasp models (Nicholson 1927).

Ovipositional and egg-hatching sequences have been recorded by Irwin (1976, 1977). Females lay between 25 and 90 eggs (M.E. Irwin, unpubl.). Five instars are known, the last of which can pupate or diapause. Therevids are usually univoltine, but cases where 2 or more years are needed to complete a life cycle are known (K. Spitzer, pers. comm.). The active snakelike larvae usually burrow into and through sandy and sandy-loam soils and litter, moving rapidly underground. They are voracious predators, even cannibals, feeding on a large variety of fossorial arthropods and earthworms, preferring larvae of Coleoptera, Lepidoptera, and Diptera. The pupal stadium lasts for about 10 days, depending on species and environmental conditions.

Members of the family Therevidae play an important, although as yet unascertained, role in the suppression of actual and potential fossorial target-pest larvae in agroecosystems and should be considered as existing or latent biological control agents.

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Refs.: Kröber (1912a-d,f,g, 1932, rev.), White (1915, rev.), Mann (1928, 1929, 1933, rev.), Bhatia (1934, biol.), English (1950, larval & pupal keys, biol.), Miller (1950, cat. NZ spp.), Irwin & Lyneborg (1981, keys, rev.).

Genus ACATOPYGIA Kröber

ACATOPYGIA Kröber, 1912a: 117 (key) [1912b: 149]. Type species: *Acatopygia pulchella* Kröber, 1912, subs. mon. Kröber, 1912b: 149.

SPATULIPALPA Kröber, 1912a: 118 (key) [1912d: 221]. Type species: *Spatulipalpa paradoxa* Kröber, 1912, pres. des., n. syn.

paradoxa Kröber, 1912d: 221 (*Spatulipalpa*). Australia (NSW). **N. comb.**
pulchella Kröber, 1912b: 149. Australia (NSW); Australia (Qld).

Genus ACRASPISA Kröber

- ACRASPISA** Kröber, 1912g: 238, 286. Type species: *Acraspisa trifasciata* Kröber, 1912, mon.
PSEUDOLOXOCERA Kröber, 1912g: 286. Type species: *Pseudoloxocera pallipes* Kröber, 1912, mon. N. syn.
STRATIOBELONALYS Frey, 1934: 309. Type species: *Stratiobelonalys handschini* Frey, 1934, orig. des. N. syn.
ACRASPIZA, error for *Acraspisa*.
handschini Frey, 1934: 309 (*Stratiobelonalys*). Indonesia (Timor); Indonesia (Java). N. comb.
nigrinota Mann, 1929: 20. Australia (Qld).
obscuripes Mann, 1929: 21. Australia (Qld).
pallipes Kröber, 1912g: 287 (*Pseudoloxocera*). Australia (Qld). N. comb.
parva Mann, 1933: 342 (*Parapsilocephala*). Australia (Vic); Australia (Qld). N. comb.
similis Hardy, 1939a: 48. Australia (Qld).
trifasciata Kröber, 1912g: 286. Australia (Qld); Australia (NSW).

Genus ACUPALPA Kröber

- ACUPALPA** Kröber, 1912a: 118 (key) [1912b: 152]. Type species: *Acupalpa rostrata* Kröber, 1912, subs. mon. Kröber, 1912b: 152.
ACUTIPALPA, error for *Acupalpa*.
albitarsa Mann, 1929: 24. Australia (Qld); Australia (NSW).
divisa Walker, 1850b: 3 (*Dimassus*). Not given [?Australia]; Australia (Qld). N. comb.
semiflava Mann, 1929: 28. Australia (Qld). N. syn.
pollinosa Mann, 1929: 25. Australia (Qld).
polinosa, error for *pollinosa*.
rostrata Kröber, 1912b: 152. Australia (NSW).
semirufa Mann, 1929: 27. Australia (NSW); Australia (Qld).

Genus AGAPOPHYTUS Guérin-Méneville

- AGAPOPHYTUS** Guérin-Méneville, 1838: 289. Type species: *Agapophytus australasiae* Guérin-Méneville, 1838, mon.
albobasalis Mann, 1929: 37. Australia (Qld); Australia (NSW, SA).
albibasis, error for *albobasalis*.
albopunctatus Röder, 1885: 139. "Nova-Hollandia"; Australia (SA, Vic).
aterrimus Mann, 1929: 36. Australia (Qld); Australia (NSW, Vic).
australasiae Guérin-Méneville, 1838: 290. Australia (Qld).
dioctriaeformis Schiner, 1868: 151 (*Phycus*). Australia (NSW). N. comb.
flavicornis Mann, 1929: 32. Australia (Qld).
imitans White, 1915: 28 (*Phycus*). Australia (Tas); Australia (Qld).
pallidicornis Kröber, 1912a: 124 (*Phycus*). Australia (NSW). N. comb.
quatiens White, 1915: 27 (*Phycus*). Australia (Tas).
queenslandi Kröber, 1929a: 417. Australia (Qld).
ruficaudus Mann, 1929: 36. Australia (Qld).
ruficaudatus, error for *ruficaudus*.
squamosus Mann, 1929: 39. Australia (Qld).
varipennis Mann, 1929: 39. Australia (NSW).

Genus ANABARHYNCHUS Macquart

- ANABARHYNCHUS** Macquart, 1848: 231, 234(71, 74); pl. 3, fig. 7. Type species: *Anabarhynchus fasciatus* Macquart, 1848, mon.
ANABARYNCHUS. Incorr. orig. spell. of *Anabarhynchus* (Macquart, 1848: 191 (31).]

ANABARHINCHUS. Incorr. orig. spell. of *Anabarhynchus* [Macquart, 1848: 192(32)].

ANABARRHYNCHUS, error for *Anabarhynchus*.

abdominalis Kröber, 1912d: 219. "Australien"; Australia (NSW).

apertus Macquart, 1846: 231(103) (*Thereva*). "île de Sydney, dans l'Océanie" [= Australia (NSW)]. **N. comb.**

apicalis Walker, 1852: 162 (*Thereva*). Not given [?Australia].

argenteus Mann, 1928: 176. Australia (Qld).

aureosericeus Kröber, 1932: 136. NZ (NZ).

aureovillosus Kröber, 1912d: 216. "Australien"; Australia (NSW, Qld).

bilineatus Fabricius, 1775: 757 (*Bibio*). "Zelandia."

viduus Hudson, 1892, not Walker, 1849, misid.

bohemani Thomson, 1869: 479. Australia (NSW).

brunninervis Kröber, 1932: 128. NZ (NZ).

caesius Kröber, 1912d: 219. "Neuseeland."

calceatus Schiner, 1868: 149. Australia (NSW); Australia (Qld, Tas, Vic); NZ (Auckland Is).

cinereus Kröber, 1912d: 215. Australia (NSW).

concolor Walker, 1848: 226 (*Thereva*). "New Holland." **N. comb.**

conformis Walker, 1848: 225 (*Thereva*). "New Holland." **N. comb.**

dimidiatus Macquart, 1847a: 50 [1847b: 66] (*Thereva*). "Nouvelle-Hollande." **N. comb.**

dysmachiiiformis Kröber, 1932: 129. NZ (NZ).

exiguus Hutton, 1901: 26. NZ (NZ).

novazealandiae Kröber, 1932: 140 (*Neothereva*). NZ (NZ). **N. syn.**

fasciatus Macquart, 1848: 192(32). "Nouvelle-Hollande"; Australia (NSW, Qld, Tas, Vic).

femoralis Kröber, 1932: 135. "Neuseeland."

flavus Mann, 1928: 181. Australia (Qld).

fulvipes Macquart, 1850: 404(100). "Nouvelle-Hollande."

helvenacus White, 1915: 44. Australia (Tas).

hyalipennis Macquart, 1846: 232(104) (*Thereva*). Australia (Tas); Australia (NSW, Qld).

maritimus Hardy, 1916: 271. Australia (Tas). **N. syn.**

inconspicuus Walker, 1852: 160 (*Thereva*). Australia (NSW). **N. comb.**

innotatus Walker, 1856d: 455 (*Thereva*). "New Zealand"; NZ (NZ).

kampmeierae Irwin & Lyneborg, **n. n.** Australia (WA).

griseus Mann, 1933: 337. Australia (WA). [Preocc. Kröber, 1911.]

kosciuskoensis Mann, 1933: 338. Australia (NSW).

latifrons Macquart, 1850: 469, 473, pl. 9, fig. 14. [1851: 314, 324]. Australia (Tas); Australia (NSW, Qld).

lathyfrons. Incorr. orig. spell. of *latifrons* [Macquart 1850: 405 (101)].

hebes Walker, 1852: 160 (*Thereva*). Australia (Tas). **N. syn.**

liepae Irwin & Lyneborg, **n. n.** ?Australia.

lateralis Walker, 1852: 161 (*Thereva*). Not given [?Australia]. [Preocc. Eschscholtz, 1822.]

limbatinervis Kröber, 1932: 133. NZ (NZ).

longipennis Kröber, 1932: 135. NZ (NZ).

luridus Schiner, 1868: 148. NZ (NZ).

maori Hutton, 1901: 25. NZ (NZ).

frontalis Kröber, 1932: 137. NZ (NZ).

misellus Walker, 1835a: 472 (*Thereva*). "New Holland." **N. comb.**

modestus Kröber, 1932: 132. NZ (NZ).

tristis Kröber, 1932: 123. NZ (NZ). [Preocc. Bigot, 1890.]

montanus White, 1915: 42. Australia (Tas); Australia (NSW).

nebulosus Hutton, 1901: 26. NZ (NZ).

neglectus Kröber, 1932: 132. NZ (NZ).

nigrofemoratus Kröber, 1932: 134. NZ (NZ).

nudifemorata Macquart, 1846: 231(103) (*Thereva*). Australia (Tas). **N. comb.**

- ochropus** Thomson, 1869: 477 (*Thereva*). Australia (NSW). **N. comb.**
ornatifrons Kröber, 1914: 59. Australia (Qld).
passus White, 1915: 46. Australia (Tas).
quinquevittatum Macquart, 1847a: 49 [1847b: 65] (*Thereva*). Australia (Tas); Australia (NSW, Qld). **N. comb.**
quinquecellata. Incorr. orig. spell. of *quinquevittata* (Macquart, 1847a: 104 [1847b: 120]).
ruficornis Macquart, 1850: 406(102). Australia, "côte orientale."
rufipes Macquart, 1850: 403(99). Australia, "côte orientale"; Australia (Tas).
terrenus White, 1915: 45. Australia (Tas).
thoracicus Kröber, 1932: 133. NZ (NZ).
tricolor Walker, 1848: 225 (*Thereva*). "New Holland." **N. comb.**
tristis Bigot, 1890a: 325. "Australie"; Australia (NSW).
umbratilis White, 1915: 40. Australia (Tas).
validus Mann, 1928: 190. Australia (Tas).
calceatus, White, 1916, not Schiner, 1868, misid.
varians Walker, 1852: 161 (*Thereva*). Australia (Tas). **N. comb.**
varicincta Bigot, 1860b: 222 (*Thereva*). New Caledonia (Loyalty Is). **N. comb.**
varipes Macquart, 1847a: 49 [1847b: 65] (*Thereva*). Australia (Tas). **N. comb.**

Genus **BELONALYS** Kröber

- BELONALYS** Kröber, 1912a: 117, 124. Type species: *Belonalys obscura* Kröber, 1912, mon.
BELONALIS, error for *Belonalys*.
obscura Kröber, 1912a: 125. Australia (NSW).
gracilentia Kröber, 1912b: 148. Australia (NSW). **N. syn.**
occulta White, 1915: 51 (*Psilocephala*). Australia (Tas).
occulata, error for *occulta*.

Genus **BONJEANIA** Irwin & Lyneborg, n. n.

- LONCHORHYNCHUS** White, 1915: 33. Type species: *Anabarhynchus nitidifrons* Macquart, 1850, des. Mann, 1929: 45. [Preocc. Wiman, 1910.]
BONJEANIA Irwin & Lyneborg, n. n. (for *Lonchorhynchus* White).
actuosa White, 1915: 35. Australia (Tas). **N. comb.**
nitidifrons Macquart, 1850: 405(101) (*Anabarhynchus*). Australia (Tas); Australia (NSW, Qld). **N. comb.**
segnis White, 1915: 37. Australia (Tas); Australia (NSW). **N. comb.**

Genus **ECTINORHYNCHUS** Macquart

- ECTINORHYNCHUS** Macquart, 1850: 407(103). Type species: *Thereva variabilis* Macquart, 1846, orig. des.
DIMASSUS Walker, 1850b: 2. Type species: *Xylophagus latistria* Walker, 1848, **pres. des.**
EVANSOMYIA Mann, 1928: 161. Type species: *Ectinorrhynchus phyciformis* White, 1915, orig. des. **N. syn.**
ECTORRHYNCHUS, error for *Ectinorrhynchus*.
albimanus Kröber, 1914: 31. "Australien"; Australia (NSW, Qld).
brunneus Kröber, 1912b: 158. Australia (NSW).
castaneus Hutton, 1901: 26 (*Anabarhynchus*). NZ (NZ).
cupreus Hutton, 1901: 27 (*Anabarhynchus*). NZ (NZ).
latistria Walker, 1848: 130 (*Xylophagus*). Not given [Australia]; Australia (NSW). **N. comb.**
basipunctatus Walker, 1857: 121 (*Xylophagus*). "Australia." **N. syn.**
levis Mann, 1933: 334. Australia (WA).
micans Hutton, 1901: 27 (*Anabarhynchus*). NZ (NZ).
phyciformis White, 1915: 32 (*Ectinorrhynchus*). Australia (Tas); Australia (NSW, Vic). **N. comb.**

- pyrrhotelus** Walker, 1854: 321 (*Agapophytus*). Australia (Qld). **N. comb.**
extinctus Walker, 1854: 321 (*Agapophytus*). "Patria ignota" [= ?Australasian]. **N. syn.**
superbus Schiner, 1868: 150 (*Ectinorhynchus*). Australia (NSW). **N. syn.**
viduus Schiner, 1868: 150 (*Ectinorhynchus*). Australia (NSW).
kinbergi Thomson, 1869: 478 (*Anabarhynchus*). Australia (NSW).
kinbergia, error for *kinbergi*.
rufipes Kröber, 1912b: 157. Australia (NSW).
scutellus Mann, 1933: 335. Australia (Vic).
terminalis Walker, 1848: 129 (*Xylophagus*). "New Holland."
variabilis Macquart, 1846: 230(102) (*Thereva*). Australia (Tas); Australia (NSW, Qld, Vic, WA).
terminalis Walker, 1850b: 3 (*Dimassus*). Australia (NSW). [Preocc. Walker, 1848.]
venusta Erichson, 1842: 272 (*Thereva*). Australia (Tas). **N. comb.**

Genus EUPSILOCEPHALA Kröber

- EUPSILOCEPHALA** Kröber, 1912a: 119 (key) [1912g: 255]. Type species: *Thereva singula* Walker, 1848, subs. mon. Kröber, 1912f: 255.
kroeberi Paramonov, 1950c: 528. Australia (Qld).
singula Walker, 1848: 227 (*Thereva*). Australia (WA); Australia (Qld).

Genus IRWINIELLA Lyneborg

- IRWINIELLA** Lyneborg, 1976: 251. Type species: *Thereva nuba* Wiedemann, 1828, orig. des.
atripes Kröber, 1912f: 254 (*Psilocephala*). "Neuguinea"; PNG (PNG). **N. comb.**
novaguineensis Kröber, 1929a: 423 (*Psilocephala*). PNG (PNG). **N. syn.**
bakeri, authors, not Kröber, 1929, misid.
congrua Walker, 1858b: 90 (*Thereva*). Indonesia (Maluku); Indonesia (Irian Jaya); Indonesia (Sulawesi). **N. comb.**
lanata Doleschall, 1857: 392 (*Dasygogon*). Indonesia (Maluku). [Preocc. Walker, 1849.] **N. syn.**
conscita Walker, 1861e: 8 (*Thereva*). Indonesia (Maluku). **N. syn.**

Genus JOHNMANNIA Irwin & Lyneborg, n. n.

- MANNIA** Paramonov, 1950c: 525. Type species: *Mannia tasmanica* Paramonov, 1950, orig. des. [Preocc. Dewalque, 1868.]
JOHNMANNIA Irwin & Lyneborg, n. n. (for *Mannia* Paramonov).
tasmanica Paramonov, 1950c: 526 (*Mannia*). Australia (Tas). **N. comb.**
singula, authors, not Walker, 1848, misid.

Genus NEODIALINEURA Mann

- NEODIALINEURA** Mann, 1928: 171. Type species: *Neodialineura striatithorax* Mann, 1928, orig. des.
striatithorax Mann, 1928: 172. Australia (Qld).

Genus PARAPSILOCEPHALA Kröber

- PARAPSILOCEPHALA** Kröber, 1912a: 119 (key) [1912f: 255]. Type species: *Parapsilocephala elegans* Kröber, 1912, subs. mon. Kröber, 1912f: 255.
OLDENBERGIA Kröber, 1912a: 118 (key) [1912d: 220]. Type species: *Oldenbergia frontalis* Kröber, 1912, subs. mon. Kröber, 1912d: 220.
OLDENBERGIA, error for *Oldenbergia*.
aggera Mann, 1933: 327 (*Psilocephala*). Australia (Qld); Australia (NSW). **N. comb.**
bifasciata White, 1915: 56. Australia (Tas); Australia (ACT, Vic).
duocoloris Mann, 1933: 329 (*Psilocephala*). Australia (NSW). **N. comb.**
elegans Kröber, 1912g: 256. Australia (NSW); Australia (SA, Tas, Vic).

- fascifrons** Frey, 1934: 311 (*Pseudoloxocera*). "N. Australien: Kadarri & Barrel's Cr." **N. comb.**
frontalis Kröber, 1912d: 220 (*Oldenbergia*). Australia (NSW); Australia (Qld, Vic).
curta Kröber, 1913: 30 (*Psilocephala*). Australia (NSW). **N. syn.**

Genus PLATYCARENUM Kröber

- PLATYCARENUM** Kröber, 1912a: 119 (key) [1912f: 243]. Type species: *Platycarenum porrectifrons* Kröber, 1912 [= *Thereva arida* Walker, 1857], subs. mon. Kröber, 1912f: 244.
aridum Walker, 1857: 133 (*Thereva*). "Australia"; Australia (NSW, Qld).
porrectifrons Kröber, 1912f: 244. Australia (Qld).
pallidum White, 1915: 39 (*Anabarhynchus*). Australia (Tas).

Genus SQUAMOPYGIA Kröber

- SQUAMOPYGIA** Kröber, 1928: 35. Type species: *Squamopygia ornata* Kröber, 1928, pres. des.
ornata Kröber, 1928: 35. Australia (Qld).

Genus TAENOGERA Kröber

- TAENOGERA** Kröber, 1912a: 118 (key) [1912b: 150]. Type species: *Taenogera longa* Kröber, 1912 [= *Anabarhynchus nitidus* Macquart, 1850], subs. mon. Kröber, 1912b: 151.
gracilis Mann, 1928: 167. Australia (Qld).
longa Schiner, 1868: 149 (*Anabarhynchus*). Australia (NSW).
nigrapicalis Mann, 1928: 165. Australia (SA).
nitida Macquart, 1850: 404(100) (*Anabarhynchus*). Australia, "côte orientale"; Australia (NSW).
longa Kröber, 1912b: 151. "Australien." [Preocc. Schiner, 1868.]
notatithorax Mann, 1928: 169. Australia (Qld).

Genus THEREVA Latreille

- THEREVA** Latreille, 1796: 167. Type species: *Musca plebeja* Linnaeus 1758, subs. mon. Latreille, 1802: 441.
nebulosa Kröber, 1912h: 264. Hawaiian Is [introduced; not established].

Unplaced species of Therevidae

- albofasciata** Kröber, 1928: 38 (*Parapsilocephala*). Australia (Qld).
bicolor Kröber, 1928: 37 (*Parapsilocephala*). Australia (Qld).
fascipennis Kröber, 1928: 36 (*Squamopygia*). Australia (Qld).
funebria Walker, 1865b: 111 (*Thereva*). "New Guinea" [= Indonesia (Irian Jaya)].
lutea White, 1915: 49 (*Psilocephala*). Australia (Tas).
manni Hardy, 1955: 178 (*Anabarhynchus*). Australia (NSW).
nitens White, 1915: 50 (*Psilocephala*). Australia (Tas).
ornata Kröber, 1912d: 221 (key) [1912f: 242] (*Spatulipalpa*). Australia (NSW).
rufa Kröber, 1912f: 253 (*Psilocephala*). Australia (NSW).
saxatilis White, 1915: 52 (*Psilocephala*). Australia (Tas).
tristriata Mann, 1933: 331 (*Psilocephala*). Australia (Vic).
wilsoni Mann, 1933: 342 (*Parapsilocephala*). Australia (Vic).

Unplaced genus of Therevidae (?Family)

Genus CLESTHENTIA White

- CLESTHENTIA** White, 1914: 45. Type species: *Clesthentia aberrans* White, 1914, mon.
aberrans White, 1914: 46. Australia (Tas)