

Heleomyzidae (incl. Trixoscelidinae)

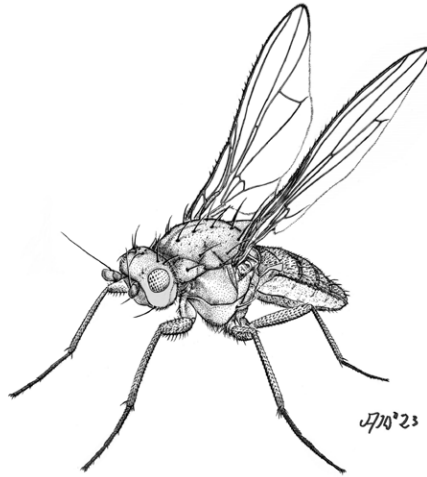
Andrzej J. Woźnica (1998 Checklist: Andrzej J. Woźnica [Heleomyzidae], Andrzej J. Woźnica [Trixoscelididae])

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Diagnosis: Small to large (1.5-13 mm; usually ca 5 mm) acalyptrate flies with a rather uniform body colour (mostly yellowish-orange, brownish to blackish body colouration). Wing membrane hyaline, often maculate with cross-veins infusate and costal break well-developed; costal vein extending to vein M_1 , usually strongly spinulose. Head generally with rather rounded first flagellomere with arista bare to plumose; vibrissae present; orbital plates present, usually pruinose, extending anteriorly from vertical setae; one to two orbital setae (in all European taxa); postocellar setae cruciate. Thorax flattened, without intra-alar setae; usually with 3-5 pairs of dorsocentral setae; post-pronotal seta usually present (absent in *Suillia* Robineau-Desvoidy); 2 notopleural and 3 supra-alar setae present; proepisternal seta present but absent in *Suillia*; katepisternal seta well developed, sometimes more, i.e. two (in *Trixoscelis* Rondani) present; scutellum with 2-3 pairs of scutellar setae. Legs moderately setose; mid tibia with one or more apical ventral setae; fore, mid and hind tibiae usually with preapical dorsal setae (one in the subfamily Heteromyzinae); pulvilli pad-like; empodium seta-like; claws well developed. Abdomen broad basally, tapering distally in female, rather rounded, knob-like in male; moderately setulose; cercus well-developed and long haired, usually at least partially fused.

Biology: Heleomyzid species are rather cold-adapted flies mostly restricted to afforested areas of the Northern Hemisphere, except *Trixoscelis* species, living in open rather grass-like areas (adapted to xeric, hot sandy regions) (Woźnica & Kirk-Spriggs 2021). Larvae are mainly saprophagous (mycetophagous, coprophagous or necrophagous). Few *Suillia* species are phytophagous. The larvae often develop in birds' nests and vertebrates' burrows and bats' guano in caves. Most species are cold-adapted, and adults of some species regularly enter subterranean areas (burrows or caves) during the warmest months. These refuges are also used for hibernation. Therefore, they could also be found on snow on sunny days during winter. Some data concerning winter activity of European Heleomyzidae were summarized and published by Soszyńska-Maj & Woźnica (2016). The biology and ecology of the Heleomyzidae are poorly understood and the data concerning European species were summarised by Smith (1989). Recently some new data were published by Rotheray (2012) and Rotheray et al. (2016). Extralimitory some *Suillia* species have been reared from various mushrooms, but also develop in subterranean truffles of the genus *Tuber* (Rosa-Gruszecka et al. 2023) and representatives of the *S. lurida/univittata* species-group are regarded as pests of onion and garlic (*Allium* spp.).

Nomenclature and classification: The Heleomyzidae are typical representative of the superfamily Sphaeroceroidea (McAlpine 1985). The history of the various rankings and limits of the family have been outlined in many regional Diptera manuals, especially in Papp (1998) concerning European Fauna. Although McAlpine (2007) reduced the Heleomyzidae and Sphaeroceridae to the single family Heteromyzidae, such proposal was not accepted by taxonomists working on sphaerocerid or heleomyzid flies (i.e. McAlpine



Eccoptomera longiseta,
female (Andrzej J. Woźnica).

& Woodley 2010). The presence of two costal breaks in the wing of Sphaeroceridae is a distinct character and clearly separates the lesser dung flies from the Heleomyzidae *sensu* Cogan (1977) (Woźnica & Kirk-Spriggs 2021). The present classification used in the Checklist is a compromise between Gorodkov (1972, 1984) and McAlpine (1985, 2007) works. The genera *Heteromyza* and *Tephrochlamys* are placed here into the separate subfamily Heteromyzinae, and Chiropteromyzinae is considered as a subfamily, as well as Borboropsinae, Heleomyzinae and Trixoscelidinae.

Number of species: CH: 85 (1998 Checklist: 77 [73+4]),
BE: 62, CZ: 90, DE: 49, IT: 48. NL: 49, UK: 44, PL: 87. Europe: 176, World: 440.
(Numbers according to Fauna Europaea (Woźnica 2019)).

Level of faunistic knowledge in Switzerland: Good, but 3-4 additional species occurring in neighbouring countries are expected to be found.

General references: Gorodkov (1972), Cogan (1977), Withers (1977) [keys], Gorodkov (1984), McAlpine (1985), Smith (1989), Gorodkov (1989) [keys], Papp (1998), McAlpine (2007), McAlpine & Woodley (2010), Woźnica (2011) [keys, incl. genus *Gymnomus*], Rotheray (2012), Rotheray et al. (2016), Soszyńska-Maj & Woźnica (2016), Woźnica (2019), Lo Giudice & Woźnica (2020) [keys].

References to the Swiss fauna: Woźnica (1998a), Woźnica (1998b), Merz et al. (2006), Bächli et al. (2014).

Checklist

Borboropsinae

Borboropsis Czerny, 1902

- *puberula* (Zetterstedt, 1838) !

Chiropteromyzinae

Neossos Malloch, 1927

- *broerse*i (de Meijere, 1946) ! N1
- = *Chiropteromyza wegelii* Frey, 1952

Heleomyzinae

Acantholeria Garrett, 1921

- *cineraria* (Loew, 1862) !

Eccoptomera Loew, 1862

- *emarginata* Loew, 1862 !
- *infusata* Wahlgren, 1918 !
- *longiseta* (Meigen, 1830) !
- *microps* (Meigen, 1830) !
- *obscura* (Meigen, 1830) !
- *ornata* Loew, 1862 !
- *pallescens* (Meigen, 1830) !
- *sanmartini* Czerny, 1924 !

Gymnomus Loew, 1863

- *amplicornis* (Czerny, 1924) !
- *caesia* (Meigen, 1830) !
- *mariei* (Séguy, 1934) !
- *martineki* (Papp & Woźnica, 1993) !
- *spectabilis* (Loew, 1862) !

Heleomyza Fallén, 1810

- *borealis* (Boheman, 1865) !
- (*Anypotacta* Czerny, 1924)
- *setulosa* (Czerny, 1924) !
- (*Heleomyza* s.str.)
- *captiosa* (Gorodkov, 1962) !
- *modesta* (Meigen, 1838) !
- *serrata* (Linnaeus, 1758) !

Morpholeria C.B. Garrett, 1921

- (*Morpholeria* s.str.)
- *dudai* (Czerny, 1924) !
- (*Spanoparea* Czerny, 1924)
- *kerteszi* Czerny, 1924 !
- *ruficornis* (Meigen, 1830) !
- *variabilis* (Loew, 1862) !

Neoleria Malloch, 1919

- *flavicornis* Loew, 1862 !

- *inscripta* (Meigen, 1830) !
- *ruficauda* (Zetterstedt, 1847) !
- *ruficeps* (Zetterstedt, 1838) !

Oecothea A.H. Haliday, 1837

- *fenestralis* (Fallén, 1820) !
- *praecox* Loew, 1862 !

Orbellia Robineau-Desvoidy, 1830

- *myiopiiformis* Robineau-Desvoidy, 1830 !

Scoliocentra Loew, 1862*(Chaetomus* Czerny, 1924)

- *confusa* (Wahlgren, 1918) !
- *flavotestacea* (Zetterstedt, 1838) !

(Leriola Gorodkov, 1962)

- *alpina* (Loew, 1862) !
- *brachypterna* (Loew, 1873) !
- *collini* Woźnica, 2004 !
- *nigrinervis* (Wahlgren, 1918) !

(Scoliocentra s.str.)

- *scutellaris* (Zetterstedt, 1838) !
- = *oldenbergii* Czerny, 1924
- *villosa* (Meigen, 1830) !

Heteromyzinae*Heteromyza* Fallén, 1820 N2

- *atricornis* Meigen, 1830 !
- *commixta* Collin, 1901 !
- *oculata* Fallén, 1820 !
- *rotundicornis* (Zetterstedt, 1846) !

Tephrochlamys Loew, 1862

- *flavipes* (Zetterstedt, 1838) !
- *laeta* (Meigen, 1830) !
- *rufiventris* (Meigen, 1830) !
- *tarsalis* (Zetterstedt, 1847) !

Suillinae*Suillia* Robineau-Desvoidy, 1830

- *affinis* (Meigen, 1830) !
- *atricornis* (Meigen, 1830) !
- *bicolor* (Zetterstedt, 1838) !
- *cepelaki* Martinek, 1985 !
- *crinimana* (Czerny, 1904) !
- = *subdola* Czerny, 1927
- *dawnae* Withers, 1987 !
- *dumicola* (Collin, 1943) !
- *flagripes* (Czerny, 1904) !
- *flava* (Meigen, 1830) !

- *flavifrons* (Zetterstedt, 1838) !
- *fuscicornis* (Zetterstedt, 1847) !
- *gigantea* (Meigen, 1830) !
- *humilis* (Meigen, 1830) !
 - = *inornata* (Loew, 1862)
- *imberbis* Czerny, 1924 !
- *laevifrons* (Loew, 1862) !
- *mikii* (Pokorny, 1886) !
- *nemorum* (Meigen, 1830) !
- *notata* (Meigen, 1830) !
- *oxyphora* (Mik, 1900) !
- *pallida* (Fallén, 1820) !
- *parva* (Loew, 1862) !
- *pilimana* (Loew, 1862) !
- *quadrilineata* Czerny, 1924 !
- *similis* (Meigen, 1838) !
- *stroblii* (Czerny, 1904) !
- *tuberiperda* (Rondani, 1867) !
- *umbratica* (Meigen, 1838) !
- *univittata* (von Roser, 1840) !
- *ustulata* (Meigen, 1830) !
- *vaginata* (Loew, 1862) !
- *variegata* (Loew, 1862) !
- *villeneuvei* Czerny, 1924 !

Trixoscelinae

Trixoscelis Rondani, 1856

- *canescens* (Loew, 1865) !
- *frontalis* (Fallén, 1823) !
- *marginella* (Fallén, 1823) !
- *obscurella* (Fallén, 1823) !
- *similis* Hackman, 1970 !

Excluded species

Morpholeria obscuriventris (Zetterstedt, 1847) N3

Notes

- N1 The genus *Chiropteroomyza* Frey, 1952 was synonymised by Rohaček (2018) with the genus *Neossos* Malloch, 1927. Carles-Tolrà (2009) redescribed *Leptometopa broerseii* de Meijere, 1946 (incorrectly placed in Milichiidae) and recognised *Chiropteroomyza wegellii* Frey, 1952 as a junior synonym of *Chiropteroomyza broerseii* (de Meijere, 1946) (new combination). Rohaček (2019) verified the type-specimens of the genus *Chiropteroomyza* Frey, 1952 and *Ornitholeria* Frey, 1930 and synonymised both with *Neossos* Malloch, 1927.
- N2 *Heteromyza* sp. was recorded in the 1998 Checklist as *Scoliocentra* sp.
- N3 *Morpholeria* (*Spanoparea*) *obscuriventris* was erroneously identified. The analysed female specimens (1F, GR, Alp Sampuoir, 1900m, 27.7.1930, leg. Fred Kaiser (BNM); 1F, GR, Val da Stabel chod, 2150m, 18.7.1928, leg. Fred Kaiser (BNM)), belong to *Morpholeria* (*Spanoparea*) *variabilis* (Loew, 1862).

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