

Therevidae

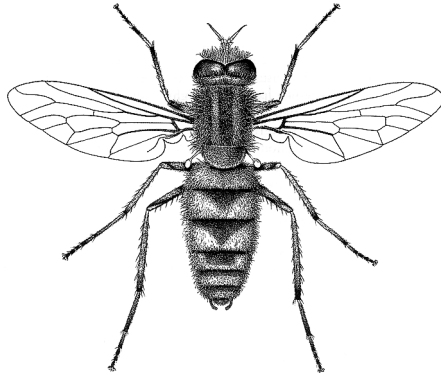
Stephen D. Gaimari (1998 Checklist: Leif Lyneborg)

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Diagnosis: Slender to moderately thick-bodied; body length, excluding antennae, 3-15 mm. Ground colour light yellow to black, wholly or partly covered with pubescence, and often including bare regions displaying ground colour. Macrosetae usually prominent, black to pale. Eyes usually holoptic in males, dichoptic in females. Wing venation constant: R_4 elongate, sinuous, divergent from R_5 , with cell r_4 encompassing the wing apex; cell bm truncate distally and with four corners from which arise four separate veins (M_{1+2} , M_3 , CuA_1 , and CuA_2); discal (d) cell elongate, with three veins extending from apex (M_1 , M_2 , M_3); crossvein $m-cu$ present, so base of cell m_3 truncate; cell br extends beyond apex of cell bm ; $r-m$ attached to basal half of discal cell; cell cup closed near wing margin. Abdomen in male often covered dorsally with fine silvery or bronzy pubescence, in female pubescence often reduced or lacking to display ground colour. Female terminalia with large conspicuous sternite 8; acanthophorite spines on tergite 10 absent or present posterodorsally and anterolaterally. Internally, female with 2 (in Therevinae and Xestomyzinae) or 3 (in Phycusinae and Agapophytinae) thinly sclerotised spermathecae and a central spermathecal sac (lacking in Phycusinae).

Biology: Adults are diurnal. Although rarely collected at flowers, some likely feed on plant nectar or exudates from trees. Apparently, protein needed for egg development and sperm production is all derived from larval feeding, as they are not known to take proteins as adults. In arid habitats, adults can often be encountered in dry washes with small amounts of standing water or damp soil. Water seems to be a major attractant in these habitats, often concentrating individuals in high numbers along the margins of these sources. In more mesic habitats, adults seem to be less concentrated as the water resources are more readily available, although they can often be found flying through open forest trails. Malaise traps are thus the most effective method for collecting them, as their flight behavior and movement is somewhat predictable, either moving through arid environments in search of water, or moving along forest trails. Some species alight in sunny patches along trails and paths, with males usually waiting for passing females. Resting substrates are often specific for a given species or genus, and include patches of sand, rocks, grasses, leaves, stems, and tree trunks. Certain genera have species in which males form mating swarms (e.g. some *Acrosathe*), or loose mating leks along stretches of open sand (e.g. some *Acrosathe*) or in tree foliage. Larvae apparently have five instars, the last of which, the relatively quiescent prepupal stage, either pupates or goes into diapause, which can persist for up to 2 years (Irwin & Lyneborg 1981). The larvae are voracious subterranean predators, feeding on arthropods they encounter, most frequently root or litter feeding insect larvae. In more arid habitats larvae can be found in loose sand dunes, under vegetation or among the roots of plants in loose friable soil, while in more mesic habitats they can also be found under the forest litter layer.

Nomenclature and classification: Nomenclature follows *Systema Dipteroorum* (Evenhuis & Pape 2020), with subfamilial classification according to Webb et al. (2013), with



Thereva nobilitata,
male (CMPD2, p. 520).

family-group name Phycinae emended to Phycusinae by International Commission on Zoological Nomenclature (2015).

Number of species: CH: 24 (1998 Checklist: 19),

AT: 28, BE: 14, CZ: 27, DE: 34, DK: 15, ES: 21, FI: 18, FR: 28, GR: 25, HU: 33, IT: 29, NL: 14, NO: 14, PL: 16, PT: 4, RO: 20, RS: 15, SE: 19, SK: 24, UK: 14, Europe: 89, Palaeartic: 277, World: > 1200.

Level of faunistic knowledge in Switzerland: Good; 1-3 additional species present in vicinuous countries might possibly also occur in Switzerland. There are at least 10 species that occur in more than one neighbouring country. Of these, several would be expected to occur in Switzerland given their presence in three of the surrounding countries, including *Thereva cinifera* Meigen and *Thereva praecox* Egger in Austria, France and Germany, and *Thereva marginula* Meigen in Austria, Germany and Italy.

General references: Gaimari & Webb (2009) [general, key to Neotropical genera], Hauser et al. (2017) [general, key to Afrotropical genera], Holston (2004) [*Thereva* names database, world species], Holston (2016) [checklist, Europe (Fauna Europaea)], Irwin & Lyneborg (1981) [general, key to Nearctic genera], Kröber (1924, 1925) [keys, Palaeartic species], Lyneborg (1983) [review, Palaeartic Phycusinae], Lyneborg (1986a) [*Acrosathe*, revision, Old World], Lyneborg (1986b) [*Pandivirilia*, revision, Palaeartic species], Lyneborg (1989) [catalogue, Palaeartic species], Lyneborg & Spitzer (1974) [revision, key, Central European species], Majer (1997) [general, key to Palaeartic genera], Webb et al. (2013) [catalogue, New World species].

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

Checklist

- Acrosathe* Irwin & Lyneborg, 1981
 - *annulata* (Fabricius, 1805) !
- Clorismia* Enderlein, 1927
 - *ardea* (Fabricius, 1794) !
 - *rustica* (Panzer, 1804) !
- Dialineura* Rondani, 1856
 - *anilis* (Linnaeus, 1760) !
- Pandivirilia* Irwin & Lyneborg, 1981
 - *caesia* (Meigen, 1838) !
 = *fuscipennis* auct. nec Meigen, 1820
 - *eximia* (Meigen, 1820) !
 - *melaleuca* (Loew, 1847) L
- Thereva* Latreille, 1796
 - *albohirta* Kröber, 1912 L
 - *apicalis* Wiedemann, 1821 ? L N1
 - *brevicornis* Loew, 1847 !
 - *callosa* Kröber, 1912 L N2
 - *cincta* Meigen, 1820 !
 - *circumscripta* Loew, 1847 !
 - *fulva* (Meigen, 1804) !
 - *handlirschi* Kröber, 1912 !
 - *inornata* Verrall, 1909 !
 - *microcephala* Loew, 1847 !
 = *rondanii* Jaennicke, 1867
 = *superba* Egger, 1859
 - *nobilitata* (Fabricius, 1775) !
 - *oculata* Egger, 1859 !
 - *plebeja* (Linnaeus, 1758) !
 - *strigata* (Fabricius, 1794) !
 - *unica* (Harris, 1780) !
 - *valida* Loew, 1847 !
 = *ursina* Wahlberg, 1854
 - *ziegleri* Holston, 2008 L

Notes

- N1 *Thereva apicalis* was listed as present in Switzerland and other central European countries by Lyneborg (1989), but removed by Lyneborg (1998) in footnote 3 of the 1998 Checklist: [translated] « was accidentally reported in the CPD [Catalogue of Palaearctic Diptera] from Switzerland. But it is a steppic species from Southeastern Europe ». This species is added back to this list because it is reported from Switzerland and central Europe in the Fauna Europaea (Holston 2016) and in the checklists from the countries around Switzerland. This may or may not be a residual reference to the original Lyneborg (1989) reference.
- N2 Kröber (1912) described *Thereva callosa* from the western Austrian state of Tyrol, but the holotype is actually from St. Moritz, Switzerland, which is not in Tyrol, but close by. Although Holston (2016) records this species as being solely from Austria, and it likely does occur in Austria (given its proximity to the type locality), there is no verified record from that country.

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