

Psilidae

Anatole I. Shatalkin (1998 Checklist: Bernhard Merz)

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Diagnosis: Small- to medium-sized acalyptrate flies, body length 2.5-13 mm, black or yellow in body colour, wings clear or infuscated in some parts, rarely spotted along the longitudinal veins (Chinese species), frequently with slender and elongate body; head in lateral view triangular with receding face in Psilinae. Vibrissae absent, 0-1 notopleural setae; humeral, posthumeral and usually acrostichal setae absent, pleura without differentiated setae, only with setulae; tibiae without dorsal preapical seta. For more information on the morphology of flies, see Iwasa (1998), Merz & Haenni (2000), Buck (2010), Shatalkin & Merz (2010), Shatalkin (2021a). Well diagnosed externally on wing venation (vein C with a break at the distal end of the subcosta which is incomplete, and vein *CuA*, closing distal margin of cell *cua*, straight) and narrow wavy flexion line extending from subcostal break to posterior end of basal medial cell in base of wing. For egg morphology see Iwasa (1998) and Buck (2010).

Biology: The larvae are phytophagous, maggot-like, slender and smooth (Iwasa 1998). They are burrowing in stems, rootstocks and tubers, or live under the bark of trees. The carrot (rust) fly, *Chamaepsila rosae* (Fabricius) is a well-known pest of various umbelliferous and cruciferous plants including carrot, celery, parsnips, parsley, turnips and cabbage.

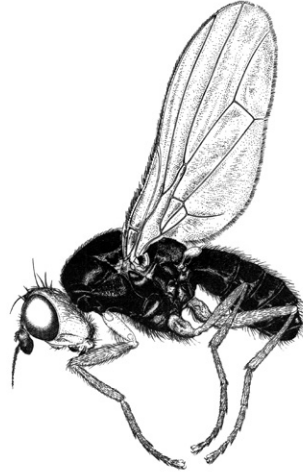
Nomenclature and classification: The family is usually included in the superfamily Diopsoidea (Nothyboidea), but its relationship with other families, as well as the composition of the superfamily, are debated. Traditionally, Psilidae were divided into two subfamilies: the plesiomorphic Chylizinae, with the only genus *Chyliza* and the derived Psilinae with species that are easily recognisable externally and which are difficult to confuse with representatives of other families. Shatalkin (2002) recently described a new relict genus *Belobackenbardia* with three species from South Africa. A fourth species of this genus was later described (Shatalkin 2021b). The genus was included in Psilidae as the third subfamily Belobackenbardiinae.

Number of species: CH: 36 (1998 Checklist: 31),

BE: 22, CZ: 38, DE: 22, FI: 27, FR: 38, IT: 20, NL: 25, UK: 27, Europe: 58, World: 340.

(BE: Claude & Beuk 2023, CZ: Barták & Carles-Tolrá 2009, DE: Roháček et al. 2016, FI: Kahanpää & Stuke 2014, FR: Whithers & Claude 2021, 2022, IT: Checklist Italiana Diptera 2005, NL: Van der Goot 1996, Beuk & van der Goot 2002, UK: Chandler 1998, 2019, World: Shatalkin 2021a).

Level of faunistic knowledge in Switzerland: Good. The Swiss list of expected species comprises *Chamaepsila andreji* (Shatalkin, 1996) and *Ch. rozkosnyi* Carles-Tolrá, 1993. These species were recently discovered in Northern Italy less than 50 km from the Swiss border (Shatalkin & Merz, 2010). Three more species recorded in neighbouring countries could be found in the fauna of Switzerland.



Chamaepsila nigricornis,
male (CMPD3, p.178).

General references: Iwasa (1998) [survey with key to Palaearctic genera], Merz & Haenni (2000) [dipterous morphological terms], Pape (2007) [Fauna Europaea], Buck (2010) [comprehensive survey of Psilidae], Shatalkin & Merz (2010) [survey of Swiss Psilidae].

References to the Swiss fauna: Merz (1998), Merz et al. (2002, 2006), Shatalkin & Merz (2010), Bächli et al. (2014).

Checklist

- Chamaepsila* Hendel, 1917 N1
- *atra* (Meigen, 1826) !
 - *bicolor* (Meigen, 1826) !
 - *buccata* (Fallén, 1826) !
= *gracilis* Meigen, 1826
 - *confusa* Shatalkin & Merz, 2010 ! N2
 - *humeralis* (Zetterstedt, 1847) !
 - *limbatella* (Zetterstedt, 1847) !
 - *morio* (Zetterstedt, 1835) !
 - *nigra* (Fallén, 1820) !
 - *nigricornis* (Meigen, 1826) !
 - *pallida* (Fallén, 1820) !
 - *pectoralis* (Meigen, 1826) !
 - *persimilis* (Wakerley, 1959) !
 - *quadrilineata* (Strobl, 1898) !
 - *rosae* (Fabricius, 1794) !

- *sardoa* (Rondani, 1876) !
- *unilineata* (Zetterstedt, 1847) !
- *villosula* (Meigen, 1826) !
- (*Tetrapsila* Frey, 1925)
 - *obscuritarsis* (Loew, 1856) !
- Chyliza* Fallén, 1820
 - *annulipes* Macquart, 1835 !
 - *leptogaster* (Panzer, 1798) !
 - = *scutellata* Fabricius, 1798
 - *nova* Collin, 1944 !
 - *vittata* Meigen, 1826 !
- (*Dasya* Robineau-Desvoidy, 1830)
 - *extenuata* (Rossi, 1790) ! N3
- Imantimyia* R.K. Frey, 1925 N4
 - *albiseta* (Schrank, 1803) !
 - *fulviventris* Meigen, 1826 !
 - *nigrifrons* Macquart, 1835 !
 - *sylvatica* Meigen, 1826 !
- Loxocera* Meigen, 1803 N4
 - *aristata* (Panzer, 1801) !
 - = *elongata* Meigen, 1826
 - = *ichneumonea* sensu Hennig, 1941 nec Linnaeus, 1760
 - *maculata* Rondani, 1876 !
- (*Platystyla* Macquart, 1835)
 - *hoffmannseggi* Meigen, 1826 !
- Psila* Meigen, 1803
 - *fimetaria* (Linnaeus, 1760) !
 - *helvetica* Shatalkin & Merz, 2010 !
 - *merdaria* (Collin, 1944) !
- (*Oxypsila* Frey, 1925)
 - *abdominalis* (Schummel, 1844) !
- Psilosoma* Zetterstedt, 1860
 - *audouini* (Zetterstedt, 1835) !
 - *lefebvrei* (Zetterstedt, 1835) !

Notes

- N1 Based on data on known taxa described inside *Psila* s.l. (see Shatalkin & Merz 2010 Tab. 1, p. 781), the group *Psila* s.str. + *Chamaepsila*, often considered in traditional classifications as a monophyletic taxon, is a polyphyletic association. To exclude polyphyly from the classification, Shatalkin & Merz (2010) proposed, following European tradition, to consider *Chamaepsila* as a taxon of the generic rank.
- N2 Shatalkin & Merz (2010) described *Chamaepsila confusa* based on material from Switzerland and France. Later, Roháček et al. (2016) recorded this species from the Czech Republic (both Bohemia and Moravia), and a little earlier from Slovakia (Muránska planina Mts).
- N3 A second species of the subgenus *Dasya* was recently described from northern Iran: *Chyliza (Dasya) qaradaghi* Khaghaninia & Gharajedaghi, 2014.
- N4 Buck & Marshall (2006) proved that in the traditional classification of *Loxocera* s.l. ((*Loxocera* + *Imantimyia*) + *Platystyla*), the first group has a paraphyletic status. When included in the classification of *Tropeopsila* Shatalkin, 1983, *Loxocera* + *Imantimyia* become a polyphyletic group. To exclude

paraphyly and polyphyly from the classification, Shatalkin & Merz (2010) proposed increasing the rank of *Imantimyia* to the generic level. The new classification of *Loxocera* s.l. is as follows: ((*Loxocera* + *Platystyla*) + *Imantimyia*). Here *Platystyla* is considered a subgenus.

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