

Sepsidae

Patrick T. Rohner (1998 Checklist: Jean-Paul Haenni)

Last update: Jul 2024

Diagnosis: Small and slender ant-like appearance (2.5-6.5 mm). Most species are black, some show bright orange colour morphs in large males. Thorax without strong acrostichal setae, pleura often with distinct pattern of silver pruinosity. One or more bristles present at the posteroventral margin of the thoracic posterior spiracle. Wings without costal breaks. All native species of *Sepsis* have a dark spot on the tip of vein R_{2+3} , while wing spots are strongly reduced (*Nemopoda*) or entirely absent (*Saltella*, *Meroplius* and *Themira*). Males of all native species (except the small *Sepsis duplicata*) have modifications of their fore femur and tibia that are used during copulation or courtship. Male hind tibia often with osmeterium consisting of glandular hairs.

Biology: Larvae of Sepsidae are generally coprophagous (*Meroplius*, *Saltella*, *Sepsis*, some *Themira*) or associated to decomposing organic matter (*Nemopoda* from rotting snails, fungi and compost; *Themira* from waterfowl droppings, organic mud and sewage waste). Adults are mainly found in open to semi-enclosed habitats, like meadows, pastures, riparian vegetation, along wood edges and at clearings. Sepsids are likely to hibernate as adults, although there are records of juvenile stages that successfully overwinter (Zeender et al 2019; Pont & Meier 2002). *S. fulgens* is known to occasionally form large aggregations of thousands of individuals that emit a distinct fruity smell (Pont 1987). Most species have elaborate male-limited secondary sexual traits that play a role in courtship or mating. Copulatory behaviour is often complex and strongly differs even between closely related species. Often being associated with livestock and agriculture, sepsids are probably not of direct conservation concern. However, it is known that veterinary medicines can have severe negative effects on natural populations (see e.g. Conforti et al 2018). Some species are of relevance to forensic entomologists.

Nomenclature and classification: According to Pont & Meier (2002).

Number of species: CH: 29 (1998 Checklist: 24),
BE: 27, CZ: 30, DE: 24, IT: 32, NL: 27, UK: 22, Europe: 44, World: 320.

Level of faunistic knowledge in Switzerland: Good.

General references: Pont & Meier (2002) [key].

References to the Swiss fauna: Haenni (1997, 1998), Merz et al. (2002), Merz (2012), Bächli et al. (2014), Rohner (2015), Rohner & Bächli (2016).



Sepsis punctum,
male (MND2, p.945).

Checklist

Meroplius Rondani, 1874

- *fukuharai* (Iwasa, 1984) !
- *minutus* (Wiedemann, 1830) !

Nemopoda Robineau-Desvoidy, 1830

- *nitidula* (Fallén, 1820) !
- *pectinulata* Loew, 1873 !
- *speiseri* (Duda, 1926) !

Saltella Robineau-Desvoidy, 1830

- *nigripes* Robineau-Desvoidy, 1830 !
- *sphondylii* (Schrank, 1803) !

Sepsis Fallén, 1810

- *biflexuosa* Strobl, 1893 !
- *cynipsea* (Linnaeus, 1758) !
- *duplicata* Haliday, 1838 !
- *flavimana* Meigen, 1826 !
- *fulgens* Meigen, 1826 !
- *luteipes* Melander & Spuler, 1917 !
- = *helvetica* Munari, 1985 N1
- *neocynipsea* Melander & Spuler, 1917 !
- *nigripes* Meigen, 1826 !
- *orthocnemis* Frey, 1908 !
- *punctum* (Fabricius, 1794) !
- *setulosa* (Duda, 1926) ! N2
- *thoracica* (Robineau-Desvoidy, 1830) !
- *violacea* Meigen, 1826 !

Themira Robineau-Desvoidy, 1830

- *annulipes* (Meigen, 1826) !
- *germanica* Duda, 1926 !
- *gracilis* (Zetterstedt, 1847) !
- *leachi* (Meigen, 1826) !
- *lucida* (Staeger, 1844) !
- *minor* (Haliday, 1833) !
- *nigricornis* (Meigen, 1826) !
- *putris* (Linnaeus, 1758) !
- *superba* (Haliday, 1833) !

Notes

- N1 *Sepsis helvetica* Munari, reported in the 1998 Checklist, is a synonym of *S. luteipes* Melander & Spuler, according to Ozerov (1999).
- N2 There are only two specimens of *Sepsis setulosa* ever recorded: the holotype in Germany and an additional specimen in Geneva (Merz 2012). Pont and Meier (2002) suspect that the holotype (which they studied) represents a dwarf form of *Sepsis flavimana*, a species with high morphological plasticity. Considering the high morphological plasticity in sepsids and without further (e.g. molecular, ecological or behavioral) data, the taxonomic validity of *Sepsis setulosa* remains questionable (Rohner 2015).

References

- Bächli G., Merz B. & Haenni J.-P. 2014. Dritter Nachtrag zur Checkliste der Diptera der Schweiz. Entomo Helvetica 7: 119-140.
- Conforti S., Dietrich J., Kuhn T., van Koppenhagen N., Baur J., Schäfer M.A., Rohner P.T. & Blanckenhorn W.U. 2018. Comparative effects of the common parasiticide ivermectin on adult survival and reproduction of nine sepsid fly species. Ecotoxicology and Environmental Safety 163: 215-222.
- Haenni J.-P. 1997. Sepsidae (Diptera) nouveaux pour la faune de Suisse. Bulletin Romand d'Entomologie 15: 69-78.
- Haenni J.-P. 1998. 64. Sepsidae. In: Merz B., Bächli G., Haenni J.-P. & Gonseth Y. (eds.). Diptera - Checklist. Fauna Helvetica 1: 249-250, CSCF / SEG, Neuchâtel, 369 pp.
- Merz B. 2012. 8.36.28. Superfamilie Sciomyzoidea. In: Merz B. (ed). Liste annotée des insectes (Insecta) du canton de Genève. Instrumenta Biodiversitatis 8: 395-397, Muséum d'histoire naturelle, Genève, 532 pp.
- Merz B., Bächli G. & Haenni J.-P. 2002. Erster Nachtrag zur Checkliste der Diptera der Schweiz. Mitteilungen der Entomologischen Gesellschaft Basel 51 (3-4)(2001): 110-140.
- Ozerov A.L. 1999. 88. Fam. Sepsidae. In: Ler L.P. (ed.) Key to the insects of the Russian Far East. Vol. 6, Diptera and Siphonaptera, part 1: 556-570. Dal'nauka: Vladivostok. [In Russian].
- Pont A.C. 1987. « The mysterious swarms of sepsid flies »: an enigma solved? Journal of Natural History 21: 305-317.
- Pont A.C. & Meier R. 2002. The Sepsidae (Diptera) of Europe. Fauna Entomologica Scandinavica 37: 1-221.
- Rohner P.T. 2015. An updated checklist of the Sepsidae (Diptera) of Switzerland, including the first record of *Themira superba* (Haliday, 1833). Mitteilungen der Schweizerischen Entomologischen Gesellschaft 88: 371-377.
- Rohner P.T. & Bächli G. 2016. Faunistic data of Sepsidae (Diptera) from Switzerland and additional countries including the first Swiss record of *Meroplus fukuharai* (Iwasa, 1984). Mitteilungen der Schweizerischen Entomologischen Gesellschaft 89: 237-260.
- Zeender V., Roy J., Wegmann A., Schäfer M.A., Gourgoulianni N., Blanckenhorn W.U. & Rohner P.T. 2019. Comparative reproductive dormancy differentiation in European black scavenger flies (Diptera: Sepsidae). Oecologia 189: 905-917.