

# The Atelestidae and Microphoridae (Diptera, Empidoidea) of Switzerland

Autor(en): **Merz, Bernhard**

Objektyp: **Article**

Zeitschrift: **Mitteilungen der Schweizerischen Entomologischen Gesellschaft = Bulletin de la Société Entomologique Suisse = Journal of the Swiss Entomological Society**

Band (Jahr): **71 (1998)**

Heft 1-2

PDF erstellt am: **21.09.2024**

Persistenter Link: <https://doi.org/10.5169/seals-402695>

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## The Atelestidae and Microphoridae (Diptera, Empidoidea) of Switzerland

BERNHARD MERZ

Entomological Collection, ETH Zentrum, CH-8092 Zürich, Switzerland

The inconspicuous flies of the families Atelestidae and Microphoridae are only rarely collected. It is therefore not surprising that in the most important Swiss collections only 21 specimens (2 species) of Atelestidae and 379 specimens (7 species) of Microphoridae from Switzerland are stored. All species other than *Microphor anomalus* (MEIGEN) and *M. holosericeus* (MEIGEN) are here mentioned for the first time.

Keywords: Atelestidae, Microphoridae, faunistics, Switzerland

### INTRODUCTION

It is not surprising that members of the families Atelestidae and Microphoridae are only rarely found in collections. The flies involved are rather small, blackish or greyish and usually do not exhibit a conspicuous behaviour, although in the course of this study *Microphor holosericeus* (MEIGEN) was observed occasionally hovering in numbers 1–2 m above the ground along forest tracks. Other species like *Microphorella praecox* (LOEW) and *Schistostoma truncatum* (LOEW) may be extremely abundant on bare sandy ground and stones, but the flies are minute and of a grey colour making them hard to spot.

When revising the Swiss specimens of the two families in collections as part of the planned “Checklist of the Diptera of Switzerland”, it became evident that they are very poorly represented and that some species probably are missing. Therefore, collecting trips were undertaken for a more complete faunistic survey.

To date only two species have ever been mentioned in the literature: KEISER (1947) cites the finding of *M. holosericeus* (as *M. velutinus*) in the Upper Engadine Valley and CHVÁLA (1986) studied some specimens of *M. holosericeus* and *M. anomalus* (MEIGEN) from Switzerland, but failed to give exact localities. So far, no members of Atelestidae have ever been recorded for Switzerland.

The present paper summarizes our knowledge on the Atelestidae and Microphoridae in Switzerland. Probably more than 90 % of the specimens deposited in Swiss collections have been examined. In the unsorted material there surely are some additional specimens, but due to their inconspicuousness they were overlooked.

### MATERIAL AND METHODS

The 400 specimens, which were examined in the course of the present study, belong to the following institutions:

ETHZ Eidgenössische Technische Hochschule, Zürich  
MZL Musée Zoologique, Lausanne

CBM Collection B. MERZ  
CGB Collection G. BÄCHLI, Dietikon  
CMC Collection M. CHVÁLA, Prague

No specimens were found in the other Swiss collections visited (Muséum d'Histoire Naturelle Genève, Musée d'Histoire Naturelle Neuchâtel, Naturhistorisches Museum Basel, Naturhistorisches Museum Bern, Natur-Museum Luzern).

The records are arranged alphabetically for the cantons and localities. The cantons are abbreviated as follows: AG = Aargau; FR = Fribourg; GR = Graubünden (=Grisons); LU = Luzern; SH = Schaffhausen; TI = Ticino; VD = Vaud; VS = Valais; ZG = Zug; ZH = Zürich.

For each record, collecting date, number of specimen(s), collector and depository are indicated.

The nomenclature follows CHVÁLA (1983, 1986, 1987, 1988). The species are listed alphabetically. An \* after the record indicates that the flies were identified by M. CHVÁLA.

#### FAUNISTIC PART

#### Family Atelestidae

#### *Atelestus dissonans* COLLIN, 1961 [new for Switzerland]

Material examined: **ZH**: Dietikon, 10.–14.VIII.1982, 5 ♂♂, 1 ♀ (BÄCHLI)\*; 15.–19.VII.1989, 2 ♂♂ (BÄCHLI) (CBM, CGB). Total: 7 ♂♂, 1 ♀.

Distribution: So far only recorded from Great Britain, Belgium and the Czech Republic. This very small, inconspicuous species is probably often overlooked in the field.

Remarks: The only known specimens were collected on banana-yeast trap for drosophilids in a moist forest at 390 m altitude. The traps were exposed close to a small brook in the dense undergrowth of deciduous trees (beech, maple, ash).

#### *Atelestus pulicarius* (FALLÉN, 1816) [new for Switzerland]

Material examined: **GR**: Andeer/Clugin, 980 m, 17.VI.1994, 1 ♂ (MERZ) (CBM); Lenz/S. Cassian, 1300 m, 11.VII.1996, 2 ♂♂ (MERZ) (CBM); Rothenbrunnen, 630 m, 9.VI.1993, 1 ♂ (MERZ) (CBM). **NE**: Rochefort, 5.–8.VII.1982, 1 ♂, 1 ♀ (BÄCHLI) (CGB). **SH**: Merishausen/Gräte, 550–700 m, 1.VI.1996, 1 ♂ (MERZ) (CBM). **TI**: Mte. S. Giorgio, 600–1100 m, 18.VI.1995, 1 ♂ (MERZ) (CBM). **ZH**: Zürich, VI.1975, 1 ♂ (BÄCHLI) (CGB); Zürich-Katzensee, 25.V.1996, 1 ♂, 2 ♀♀ (MERZ) (CBM, ETHZ); Zürich-Rütihof, 1.VII.1993, 1 ♂ (MERZ) (CBM). Total: 10 ♂♂, 3 ♀♀.

Distribution: Widely distributed from southern Scandinavia through Central Europe, south to former Yugoslavia, east to central European Russia.

Remarks: This species is much more widespread and more common than *A. dissonans*. It was found from 400 to 1300 m altitude in various types of forests (beech, spruce, pine). The specimen of Lenz/S. Cassian was even found in a very open and rather dry pine forest where the sun reached the undergrowing vegetation; conversely, the specimens from Zürich-Katzensee were swept in a rather wet deciduous forest.

## Family Microphoridae

## Microphorinae

*Microphor anomalus* (MEIGEN, 1824)

Literature: CHVÁLA (1986) without exact locality.

Material examined: **AG**: Aristau, VIII.1975 (ex pitfall trap), 1 ♂ (WUNDERLICH) (CGB). **FR**: Broc, 27.VII.1956, 1 ♀ (AUBERT) (MZL). **GR**: S-Charl, 23.VII.1949, 1 ♀ (DE BEAUMONT) (MZL); Valtella/See, 1350 m, 10.VII.1996, 1 ♀ (MERZ) (CBM). **JU**: Delémont, 2.–6.VIII.1974, 2 ♀♀ (BÄCHLI) (CGB). **LU**: St. Urban, 24.VI.1994, 1 ♀ (MERZ) (CBM). **SH**: Rüdlingen, 2.–3.VII.1994, 1 ♀ (MERZ) (CBM). **TI**: Biasca-Loderio, 16.VI.1995, 1 ♀ (MERZ) (CBM); Biasca, 17.VI.1995, 1 ♀ (BÄCHLI) (CGB); Gordola, 17.–20.VI.1995, 2 ♂♂ (BÄCHLI) (CGB). **VD**: Boussens, 22.VII.1954, 1 ♀ (AUBERT) (MZL); Lutry, 18.VI.1954, 1 ♀; 1.–4.VII.1956, 2 ♀♀ (AUBERT) (MZL); St-Sulpice, 20.VI.1945, 1 ♀ (SCHMID) (MZL); 22.VI.1954, 1 ♀ (AUBERT) (MZL). **VS**: Guttet, 29.VII.–6.VIII.1993, 2 ♀♀ (BÄCHLI) (CGB); Noës, 14.V.1887, 1 ♂ (HUGUENIN) (ETHZ). **ZG**: Rüss-Spitz b. Maschwanden, 20.VI.1995, 1 ♂ (BÄCHLI) (CGB). **ZH**: Dietikon, 4.VII.–5.VIII.1991 (ex beer traps), 1 ♂, 6 ♀♀ (BÄCHLI) (CGB). Embrach, 29.V.1996, 1 ♀; 3.VII.1996, 7 ♀♀; 11.VI.1997, 1 ♀ (MERZ) (CBM, ETHZ); Robenhausen-Ried, 9.VI.1993, 1 ♂ (MERZ) (CBM); Volketswil, 29.VI.1996, 1 ♀ (MERZ) (ETHZ); Zürich-Hönggerberg, 29.VI.1995, 1 ♀; 25.VI.1996, 1 ♂, 3 ♀♀; 10.VI.1997, 1 ♂, 1 ♀; 17.VI.1997, 3 ♂♂, 4 ♀♀ (MERZ) (CBM, ETHZ)\*; Zürich-Hönggerberg, 18.–22.VII.1992, 1 ♂; 16.–20.VII.1992, 1 ♂ (BÄCHLI) (CGB)\*; Zürich-Katzensee, 15.VI.1995, 1 ♂, 1 ♀ (MERZ) (CBM). Total: 17 ♂♂, 41 ♀♀.

Distribution: Widespread and common from Southern Scandinavia through almost all of Europe, except the very south.

Remarks: Together with *M. holosericeus* the most common and eurytop species of the family. Specimens were collected in various wet biotops: in the undergrowth of wet forests, along rivers, under individual trees in swampy meadows and at similar places.

*Microphor crassipes* MACQUART, 1827 [new for Switzerland]

Material examined: **GR**: Rothenbrunnen, 8.VIII.1996, 1 ♀ (MERZ) (CBM). **ZG**: Rüss-Spitz bei Maschwanden, 20.VI.1995, 1 ♂ (MERZ & BÄCHLI) (CBM)\*. **ZH**: Zürich-Hönggerberg, 10.VI.1997, 4 ♂♂, 2 ♀♀ (MERZ) (CBM). Total: 5 ♂♂, 3 ♀♀.

Distribution: Rather common along the Atlantic coast and in Great Britain, much rarer in Central and Southern Europe.

Remarks: Females are very similar to *M. anomalus*, thus, the identification of the above specimens is somewhat tentative. This species is apparently rare in Switzerland. The male from Rüss-Spitz was collected in a dense, wet forest at 388 m altitude, whereas the specimens from Zürich-Hönggerberg were found in a dense, mixed forest at 530 m altitude.

*Microphor holosericeus* (MEIGEN, 1824)

Literatur: KEISER (1947) from the Upper Engadine Valley (Madulein) as *Microphorus velutinus* (MACQUART); CHVÁLA (1986) without exact locality.

Material examined: **GR**: Ausserferrera, 18.VI.1994, 1 ♀ (MERZ) (CBM); Lenz/S. Cassian, 11.VII.1996, 3 ♀♀ (MERZ) (ETHZ); Lenzerheide/Alp Lavoz, 1900 m, 6.VIII.1992, 1 ♀ (MERZ) (CBM). **SH**: Merishausen/Gräte, 1.VI.1996, 1 ♂, 1 ♀ (MERZ) (CBM). **VD**: Aigle, 23.V.1955, 1 ♀ (PASSELLO) (MZL); Flon, 1.V.1946, 1 ♀ (SCHMID) (MZL). **VS**: Bretolet, 7.–9.VIII.1961, 1 ♀ (AUBERT) (MZL); Leuk, 23.VIII.–2.IX.1977, 1 ♀ (BÄCHLI) (CGB); Leuk-Brentjong, 17.–18.V.1996, 5 ♂♂, 7 ♀♀ (MERZ) (CBM, ETHZ); 16.V.1996, 1 ♂ (BÄCHLI) (CGB); Leuk-Pfynwald, 24.IV.1888, 1 ♂

(HUGUENIN); 2.V.1993, 3 ♂♂; 15.–19.V.1996, 12 ♂♂, 14 ♀♀ (BÄCHLI, MERZ) (CBM, CGB, ETHZ); Leuk-Platten, 19.V.1996, 27 ♂♂ (BÄCHLI) (CGB); Noës, 14.V.1887, 1 ♀ (HUGUENIN) (ETHZ); Sierre, 3.VI.1890, 1 ♂ (HUGUENIN) (ETHZ); Sierre-Finges, 18.V.1996, 1 ♂ (BÄCHLI) (CGB). **ZH**: Zürich-Katzensee, 23.V.1995, 1 ♀; 19.IV.1997, 4 ♂♂, 1 ♀ (MERZ) (CBM). Total: 56 ♂♂, 34 ♀♀.

Distribution: Very common und widespread throughout Europe, east to Mongolia.

Remarks: This species is in Switzerland extremely common in Alpine valleys, esp. the Valais. In May, several dozens of specimens were observed in a pine forest (Pfywald) and adjacent areas. The males were hovering 1–2 m above the ground along the roadside and along forest trails. At the highest elevation (Lenzerheide/Alp Lavo) a specimen was netted close to the timberline in an open spruce forest.

***Microphor intermedius* (COLLIN, 1961) [new for Switzerland]**

Material examined: ZH: Embrach/Haumtli, 3.VII.1996, 1 ♀; 11.VI.1997, 1 ♀ (MERZ) (CBM)\*.

Distribution: A rather southern species which is known with certainty only from Czech- and Slovak Republics, Italy and Spain.

Remarks: The two known specimens were swept from grasses and sedges underneath some trees adjacent of a small pond at approx. 400 m altitude.

***Microphor strobli* CHVÁLA, 1986 [new for Switzerland]**

Material examined: **GR**: Lenz, 3 km N, 11.VII.1996, 1 ♂, 1 ♀ (MERZ) (CBM); Lenzerheide, 9.–11.VII.1996, 4 ♂♂, 3 ♀♀ (MERZ) (CBM)\*; Scuol, 9.–12.VIII.1978, 1 ♂ (BÄCHLI) (CGB). **VS**: Baltschieder, 17.V.1996, 2 ♂♂ (BÄCHLI, MERZ) (CBM, CGB). Total: 8 ♂♂, 4 ♀♀.

Distribution: Austria and Slovak Republic. Apparently a species of Central Europe. In Switzerland obviously restricted to the Alps.

Remarks: The species was rather common in a spruce forest along a lake on 1500 m altitude. The flies from Baltschieder, however, were swept along a river on grass underneath some willow trees.

***Schistostoma truncatum* (LOEW, 1864) [new for Switzerland]**

Material examined: **VS**: Leuk-Pfywald, 15. & 19.V.1996, 5 ♂♂, 3 ♀♀; 15.V.1997, 31 ♂♂, 39 ♀♀; 6.VII.1997, 5 ♂♂, 2 ♀♀ (BÄCHLI, MERZ) (CBM, CGB, CMC, ETHZ). Total: 41 ♂♂, 44 ♀♀.

Distribution: The only published records are from Poland (Silesia) and Germany (Bavaria).

Remarks: The specimens were collected on sandy ground in the transition zone between bare sand and vegetation, on sandy pathways in the pine forest or on *Stipa* vegetation. Contrary to *M. praecox* this species was not found near the waterline.

Parathalassiinae

***Microphorella praecox* (LOEW, 1864) [new for Switzerland]**

Material examined: **TI**: Biasca-Loderio, 9.IV.1995, 3 ♂♂; 17.VI.1995, 17 ♂♂, 3 ♀♀; 2.VI.1997, 37 ♂♂, 28 ♀♀ (BÄCHLI, MERZ) (CBM, CGB, CMC, ETHZ). **VS**: Leuk-Pfywald, 15. & 19.V.1996, 11 ♂♂, 20 ♀♀; 25.V.1997, 2 ♂♂, 3 ♀♀ (MERZ) (CBM, ETHZ). Total: 70 ♂♂, 54 ♀♀.

Distribution: Very rare in Northern Europe, more common in Poland, Germany, Slovak Republic and Hungary. The present finding is the westernmost of the species.

Taxonomic remark: The specimens from Biasca-Loderio differ from the description of CHVÁLA (1988) slightly in the proportions of the antennae. The 3rd segment is at the most twice as long as wide, and the arista is about 2–3 times as long as the 3rd antennal segment (in typical *M. praecox*, the 3rd antennal segment is about 3 times as long as wide with the arista only one third of its length). In all other respects however, the specimens fit typical members of the species. Additional taxonomic work is needed to establish the true identity of this population.

Ecological remark: This species is confined to open, sandy habitats with no vegetation at all. All specimens were swept very close to riversides of medium to large rivers where the flies were observed in hundreds of specimens on the sand or on small stones.

#### ACKNOWLEDGEMENTS

My sincerest thanks go to Milan CHVÁLA, Prague, for his help with the identification of specimens. Further I would like to thank G. BÄCHLI (Dietikon) and P. GOELDLIN DE TIEFENAU and C. HOFFMANN (MZL) for allowing me to use the collections in their care. Thanks also to G. BÄCHLI (Dietikon) and M. EGGENBERGER (Männedorf) and K. TSCHUDI-REIN for comments on earlier drafts of the manuscript and the English style.

#### ZUSAMMENFASSUNG

*Die Atelestidae und Microphoridae (Diptera, Empidoidea) der Schweiz.* – Die unscheinbaren Fliegen der Familien Atelestidae und Microphoridae werden nur selten gesammelt. So erstaunt es nicht, dass in den wichtigsten Sammlungen der Schweiz nur 21 Tiere (2 Arten) von Atelestidae und 379 Tiere (7 Arten) von Microphoridae aus der Schweiz vertreten sind. Alle Arten mit Ausnahme von *Microphor anomalus* (MEIGEN) und *M. holosericeus* (MEIGEN) sind Neufunde.

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(received November 11, 1997; accepted December 6, 1997)