

# Fungus gnats from the tribe Schiophilini (Diptera, Mycetophilidae) in the collection of the Swedish Museum of Natural History in Stockholm.

OLAVI KURINA

Kurina, O.: Fungus gnats from the tribe Schiophilini (Diptera, Mycetophilidae) in the collection of the Swedish Museum of Natural History in Stockholm. [**Svampmyggor av gruppen Schiophilini (Diptera, Mycetophilidae) i Natuhistoriska riksmuséet i Stockholms samlingar**]. – Entomologisk Tidskrift 124 (1-2): 59-63. Uppsala, Sweden 2003. ISSN 0013-886x.

Fungus gnats from the tribe Sciophilini deposited in the dry collection of the Swedish Museum of Natural History in Stockholm were studied. The material was mainly collected in Sweden and Germany mostly in the 19<sup>th</sup> and in the first half of the 20<sup>th</sup> century. 18 species were determined including 15 species from Sweden and 8 species from Germany. Three species – *Allocotocera pulchella* (Curtis, 1837), *Sciophila nigronitida* Landrock, 1925 and *Sciophila nonnisilva* Hutson, 1979 – are reported from Sweden for the first time.

*Olavi Kurina, Institute of Zoology and Botany, Estonian Agricultural University, Riia st. 181, Tartu 51014, Estonia, e-mail: olavi@zbi.ee*

## Introduction

Fungus gnats are small to medium size gnats with highly characteristic morphology. According to Edwards (1925), characteristic morphological features distinguishing fungus gnats from other Nematocera are: absence of vein  $R_{2+3}$ ; presence of ocelli; well developed tibial spurs; absence of the suture dividing the mesonotum into praescutum and scutum, and incomplete axillary vein.

The family Mycetophilidae is divided into two subfamilies: Sciophilinae and Mycetophilinae. Sciophilini is one of the five tribes in the subfamily Sciophilinae characterised by the presence of macrotrichia on wing membrane. The tribe is treated in accordance with Matile (1988). 117 species belonging to 15 genera are reported in the Palaearctic region (Matile 1988, Zaitzev 1994). The largest genus *Sciophila* Meigen comprises more than one third of the species.

There were 35 species of Sciophilini previously reported in Sweden (Matile 1988, Hed-

mark 1998, 2000, Plassmann 1978a, 1978b, 1979, 1980, 1984, 1990, 1999) and 46 species in Germany (Kallweit & Plassmann 1999, Plassmann & Schacht 2001).

The primary aim of this work was to revise the knowledge of the fauna of fungus gnats in Sweden and to systematize the collections in the Swedish Museum of Natural History in Stockholm. The studied material was mostly collected in the Sweden and Germany.

## Material

The dry collection of fungus gnats (Diptera, Mycetophilidae) in the Swedish Museum of Natural History in Stockholm (NHRS) can be conditionally divided into four parts: material collected by C. H. Boheman and F. E. Ridderbierke in Sweden and Norway, probably in the first half of the 19<sup>th</sup> century (often referred to as “The Boheman collection”), material collected by C. W. Hedgren in Sweden in the twenties and thirties of

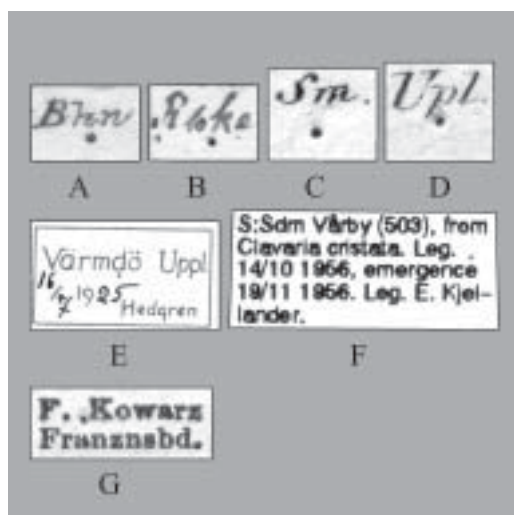


Figure 1. Types of labels used in the NHRS Mycetophilids collection. A, B, C, D – the Boheman collection; E – material collected by Hedgren; F – material collected by Kjellander; G – material collected by Kowarz.

Exempel på etiketter i Naturhistoriska Riksmuseet i Stockholms svampmyggesamling. A, B, C, D – Bohemans samling; E – material samlat av Hedgren; F – material samlat av Kjellander; G – Material samlat av Kowarz.

the 20<sup>th</sup> century; material reared from macrofungi by E. Kjellander in Sweden in the 1950s; material collected in Franzenbaden (near Berlin, Germany) by F. Kowarz in the beginning of the 20<sup>th</sup> century. In total, the material investigated by the author comprised 71 specimens. The data on studied material have not been previously

published.

The material collected by Boheman and Ridderbielke, has been provided with small quadratic labels (Fig. 1, A–D) with handwritten abbreviations on them: “Bhn” = C. H. Boheman; “Rbke” = F. E. Ridderbielke and collecting localities as shown in Table 1. The material is undated and only approximate decision can be made about the collecting time.

The material collected by C. W. Hedgren and E. Kjellander has been correctly dated and provided with printed labels (Fig. 1, E, F). The F. Kowarz material has printed labels with two items, “Franznsbd.” = Franzenbaden and “F. Kowarz” (Fig. 1, G), on them. Sometimes one more locality and exact time of collecting has been added in handwriting. In the following species list original label data are referred to.

## Results

18 species (37 male and 14 female specimens) were determined from the material. In addition, 19 female specimens were determined only to genus level. One male specimen of *Sciophila* was determined to the genus level only and further investigation is necessary. Five species were collected from Sweden and Germany, ten species only from Sweden and three species only from Germany. One female specimen of *Sciophila* sp. was collected by Boheman from Dovre mountains in Norway. No new species for German fauna, in comparison to the checklist published by Kallweit and Plassmann (1999) were found. Three species reported for the first time in Sweden are denoted by an asterisk befo-

Table 1. Abbreviations of collecting localities and their explanations for material in “Boheman collection”.

Förkortningar på lokaletiketter i Bohemans samling och deras förklaring.

Abbreviation/Förkortning	Latin name/Latinsk namn	Explanation/Förklaring
Sm. (Fig. 1,C)	Smolandia	Småland province, Sweden.
Hlm.	Holmia	Special abbreviation for Stockholm and its near surroundings, mainly used in the 19 <sup>th</sup> century.
Upl. (Fig. 1,D)	Uplandia	Uppland province, Sweden
Lp.m.	Lapponia meridionalis	Southern parts of Lapland (the term is quite conditional), Sweden.
O. G.	Ostrogothia	Östergötland province, Sweden.
B. S.	Bothnia septentrionalis	Norrbottn province, Sweden.
Bh.	Bahusia	Bohuslän province, Sweden.
Dv.	Dovre	Mountain massif in the middle of Norway.

re the species names in the following list. The recorded distribution of all the species are discussed and some remarks have been added.

### List of species

#### 1. *Acnemia nitidicollis* (Meigen 1818)

**Material.** Sweden: 3 FF , Uppl. Värmdö, 5. VII. and 16. VII. 1925, Hedgren.

Transpalaeartic species, widely distributed in Europe (Matile 1988, Zaitzev 1994). Recorded from Sweden by Zetterstedt (1852) and Hedmark (1998).

#### *Acnemia* sp.

**Material.** Germany: 1 C , Franznsbd., F. Kowarz.

The specimen belongs to the *nitidicollis*-group. The species in the named group are very close, females of some species have not been described and it is impossible to determine a specimen to the species level.

#### \*2. *Allocotocera pulchella* (Curtis 1837)

**Material.** Sweden: 1 C , Uppl. Grisslehamn, 09. VII. 1935, Hedgren.

Holarctic species, widely distributed in Europe (Matile 1988). First record from Sweden.

#### *Leptomorphus (Leptomorphus) walkeri* Curtis 1831

**Material.** Germany: 1 F , Franznsbd., Wilhberg, F. Kowarz.

Widely distributed in Europe (Matile 1988).

#### 4. *Megalopelma nigroclavatum* (Strobl 1909)

**Material.** Germany: 2 FF 1 C , Franznsbd., Wilhberg, F. Kowarz; 1 C , Franznsbd., Berlin, 26. IV. 1910, F. Kowarz.

Holarctic species (Zaitzev 1994), widely distributed in Europe (Matile 1988).

#### 5. *Monoclona rufilatera* (Walker 1837)

**Material.** Sweden: 1 F 1 C , Uppl. Värmdö, 08. VIII. and 19. VIII. 1925, Hedgren; Germany: 1 F , Franznsbd., Wilhberg, F. Kowarz.

Holarctic species, widely distributed in Europe (Matile 1988, Zaitzev 1994). The species was recently recorded from Sweden (Hedmark 2000).

#### 6. *Neuratelia nemoralis* (Meigen 1818)

**Material.** Sweden: 2 FF , Uppl. Grisslehamn, 20. VI. 1935, Hedgren.; 2 FF , Sm., Bhn. and Hlm., Bhn.; Germany: 1 F , Franznsbd, F. Kowarz.

Holarctic species, widely distributed in Europe (Matile 1988). In Sweden reported from Messaure area (Plassmann 1980).

#### 7. *Phthinia mira* (Ostroverkhova 1977)

**Material.** Sweden: 1 F , Uppl. Grisslehamn, 08. VII. 1935, Hedgren leg.

Described by Siberian material but recently reported in many regions of Europe: Switzerland (Chandler 1998), Germany (Kallweit & Plassmann 1999), Norway (Økland & Zaitzev 1997), Sweden (Hedmark 1998) and European part of Russia (Zaitzev 1994, Polevoi 2000).

#### 8. *Polylepta borealis* Lundström 1912

**Material.** Sweden: 1 C , Uppl. Grisslehamn, 08. VII. 1935, Hedgren.

Holarctic boreo-alpine species (Chandler 1992). Reported from Messaure area in Sweden by Plassmann (1979, 1980).

#### 9. *Polylepta guttiventris* (Zetterstedt 1852)

**Material.** Sweden: 1 F 2CC , Uppl. Värmdö, 05. VII. 1925, Hedgren; 1 F 1 C , Uppl. Grisslehamn, 11. VII. 1935 and 12. VII. 1935, Hedgren.

Holarctic species, widely distributed in Europe (Matile 1988). Described on Swedish material (Zetterstedt 1852), later reported in Sweden, Messaure area, by Plassmann (1979).

#### 10. *Polylepta zonata* (Zetterstedt 1852)

**Material.** Sweden: 1 F , Uppl. Grisslehamn, 12. VII. 1935, Hedgren; 1 C , Uppl. Värmdö, 21. VI. 1925, Hedgren.

The species was known only by the Swedish type specimen (Zetterstedt 1852), but recently discovered also in other regions of Europe: France, Czech Republic, Hungary and Bulgaria (Kurina 2003).

#### 11. *Sciophila geniculata* Zetterstedt 1838

**Material.** Sweden: 3 FF , Uppl. Värmdö, 28. VI. 1925, Hedgren; 1 F , Sdm. Dalarö, 30. VII. 1923, Hedgren.

Known from Great Britain, France, Norway, Sweden, Finland, Latvia and Estonia (Matile 1988, Zaitzev 1982).

12. *Sciophila hirta* Meigen 1818

**Material.** Sweden: 1 F , Stock. - tr., VIII. 1921, Hedgren.; Germany: 1 F , Franznsbd., F. Kowarz.

Holarctic species (Zaitzev 1982), previously reported in Sweden by Matile (1988).

13. *Sciophila interrupta* (Winnertz 1963)

**Material.** Germany: 1 F , Franznsbd., F. Kowarz.

Rare European species. Previously reported from Austria, Germany, Great Britain and Russia: district of St Petersburg (Matile 1988, Zaitzev 1994)

14. *Sciophila limbata* Zetterstedt 1852

**Material.** Sweden: 1 F , Upl., Rbke.; Germany: 1 F , Franznsbd., 01. VI. 1913, F. Kowarz.

Transpalaeartic species (Zaitzev 1982). Reported in Sweden by Matile (1988).

15. *Sciophila lutea* Macquart 1826

**Material.** Sweden: 2 FF , S: Up. Ekhagen (211), from *Lactarius rufus*, Leg. 06. IX. 1956, emergence 29. IX. 1956, E. Kjellander leg.; 1 F , S: Sdm. Mälärhöjden (171), from *Cortinarius traganus*, Leg. 31. VIII. 1956, emergence 25. IX. 1956, E. Kjellander leg.; 2 FF , S: Sdm., Mälärhöjden (332), from *Russula deliciosus*, Leg. 20. IX. 1956, emergence 13. X. and 15. X. 1956, E. Kjellander leg.; 2 FF 3 CC , Up. Adelsö (289), from *Lactarius necator*, Leg. 09. IX. 1956, emergence 06. X. and 10. X. 1956, E. Kjellander leg.; 1 F , S: Up. Adelsö (269), from *Polyporus ovinus*, Leg. 09. IX. 1956, emergence 15. X. 1956, E. Kjellander leg.; 1 F Uppl. Expflt., VIII. 1922, Hedgren.; Germany: 1 F , Franznsbd., Berlin, 26. IV. 1910, F. Kowarz.

Transpalaeartic species, widely distributed in Europe (Matile 1988, Zaitzev 1994). Previously recorded from Messaure area in Sweden (Plassmann 1979). Feeding on many species of Ascomycetes, Basidiomycetes and Gasteromycetes (Yakovlev 1994)

\*16. *Sciophila nigronitida* Landrock 1925

**Material.** Sweden: 1 F , Lp. m., Bhn.; 1 C , Sm., Bhn.

Holarctic species, widely distributed in Europe (Matile 1988, Zaitzev 1994). First record in Sweden.

\*17. *Sciophila nonnisilva* Hutson 1979

**Material.** Sweden: 1 F , Uppl. Värmdö, 19. VIII. 1925, Hedgren.

Holarctic species (Zaitzev 1982, 1994). First record in Sweden.

18. *Sciophila rufa* Meigen 1830

**Material.** Sweden: 2 CC , Sm., Bhn.

Most common transpalaeartic species of the genus (Zaitzev 1982, 1994). Previously recorded from Messaure area in Sweden (Plassmann 1978a). According to Zaitzev's (1994) key, it is possible to determine also females of the species without examination of terminalia.

*Sciophila* sp. (cf. *geniculata* Zetterstedt 1838)

**Material.** Sweden: 1 F , Uppl. Björkö 2, 12. VIII. 1936, Hedgren.

The specimen is similar but not conspecific to *S. geniculata* sensu Zaitzev (1982). Further investigation should indicate, whether it is a new species or the species *S. nitens* (Winnertz 1863), reported as a junior synonym of *S. geniculata* so far.

*Sciophila* sp.

**Material.** Norway: 1 C , Dv., Bhn. Sweden: 1 C , S: Sdm. Vårby (503), from *Clavaria cristata*, Leg. 14. X. 1956, emergence 19. XI. 1956, E. Kjellander leg.; 2 CC , O. G., Bhn.; 1 C , B. S., Bhn.; 1 C , Bh., Bhn.; 1 C , Sm., Bhn.; 4 CC , Uppl. Värmdö, 28. VI., 05. VII. and 16. VII. 1925, Hedgren; 1 C , Uppl. Expflt., IX. 1922, Hedgren. Germany: 3 CC , Franznsbd., F. Kowarz; 3 CC , Franznsbd., Wilherg, F. Kowarz.

Most of the female specimens of the genus *Sciophila* Meigen 1818, with a few exceptions, could not be associated with males. There are no published keys and the terminalia have generally not been figured.

**Acknowledgements**

My very special thanks are due to Dr. T. Pape (Swedish Museum of Natural History, Stockholm) for the opportunity to work with the material in Stockholm and for loaning it. I express my best thanks to Mr. K. Hedmark (Vuollerim, Sweden) for valuable comments and discussion. I am greatly indebted to Mrs. M. Roos (Tartu, Estonia) and to Dr. P. Chandler (Melksham, United Kingdom) for critical perusal of the manuscript. The study was financially supported by grant 4990 of the Estonian Science Foundation.

## References

- Chandler, P. 1992. New records and nine additions to the British list of fungus gnats of the smaller families and sub-families (Diptera: Mycetophilidae). – Br. J. Ent. Nat. Hist. 5: 107-126.
- Chandler, P. 1998. 20. Mycetophilidae. – In: Merz, B., Bächli, G., Haenni, J.-P. & Gonseth, Y. (eds.) Fauna Helvetica 1. Diptera – Checklist: 113-125. CSCF und Schweizerische Entomologische Gesellschaft.
- Edwards, F.W. 1925. British Fungus-Gnats (Diptera, Mycetophilidae). With a revised Generic Classification of the Family. – Transactions of the Entomological Society of London 73: 505-670.
- Hedmark, K. 1998. Fungus gnats – new species to Sweden and Finland (Diptera: Mycetophilidae s. lat.). – Ent. Tidskr., 119: 1-12.
- Hedmark, K. 2000. Fungus gnats in the taiga – new species from Sweden in a Fennoscandian perspective (Diptera: Sciaroidea excl. Sciaridae). – Ent. Tidskr. 121: 73-89.
- Kallweit, U. & Plassmann, E. 1999. Mycetophilidae. – In: Schumann, H., Bährmann, R. & Stark, A. (eds.) Checkliste der Dipteren Deutschlands. Studia Dipterologica – Supplement 2: 61-69. Halle, Saale.
- Kurina, O. 2003. Notes on the Palaearctic species of the genus *Polylepta* (Diptera: Mycetophilidae) with a new synonymization. – Ent. Fennica (in press)
- Matile, L. 1988. Tribe Sciophilini. – In: Soós, A. & Papp, L. (eds.) Catalogue of Palaearctic Diptera. Volume 3. Ceratopogonidae – Mycetophilidae: 231-241. Akademiai Kiadó, Budapest.
- Økland, B. & Zaitzev, A.I. 1997. Mycetophilids (Diptera, Sciaroidea) from southeastern Norway. – Fauna norv. Ser. B 44: 27-37.
- Plassmann, E. 1978a. Pilzmücken aus Messaure in Sweden. I. Barberfallenfänge (Diptera: Mycetophilidae). – Senckenbergiana biol. 58: 147-156.
- Plassmann, E. 1978b. Neue Pilzmücken aus Sweden und Bulgarien (Insecta: Diptera: Mycetophilidae). – Senckenbergiana biol. 59: 205-214.
- Plassmann, E. 1979. Pilzmücken aus Messaure in Sweden. II. Luftstrom- Fallenfänge (Insecta: Diptera: Mycetophilidae). – Senckenbergiana biol. 59: 371-388.
- Plassmann, E. 1980. Pilzmücken aus Messaure in Sweden. III. Lichtfallenfänge (Insecta: Diptera: Mycetophilidae). – Senckenbergiana biol. 60: 175-189.
- Plassmann, E. 1984. Sechs neue Pilzmücken aus Sweden, Österreich, Griechenland und Brasilien (Diptera, Nematocera, Mycetophilidae). –

- Nachrichtenblatt der Bayerischen Entomologen 33: 44-49.
- Plassmann, E. 1990. Fünf neue Pilzmücken aus Sweden (Diptera, Nematocera, Mycetophilidae). – Nachrichtenblatt der Bayerischen Entomologen 39: 61-64.
- Plassmann, E. 1999. Neue bayerische und schwedische Pilzmücken (Diptera, Nematocera, Sciaroidea, Mycetophilidae). – Mitt. Münch. Ent. Ges. 89: 5-9.
- Plassmann, E. & Schacht, W. 2001. Neue Pilzmückenfänge aus Bayern (Diptera Sciaroidea: Ditomyiidae, Bolitophilidae, Diadocidiidae, Keroplatidae, Mycetophilidae). – Entomofauna, 22: 1-8.
- Polevoi, A.V. 2000. Fungus gnats (Diptera: Bolitophilidae, Ditomyiidae, Keroplatidae, Diadocidiidae, Mycetophilidae) of Karelia. – Karelian Research Centre of Russian Academy of Sciences, Petrozavodsk (In Russian).
- Zaitzev, A.I. 1982. Fungus gnats of the genus *Sciophila* Meig. of the Holarctic. – Nauka, Moscow. (In Russian).
- Zaitzev, A.I. 1994. Fungus gnats of the fauna of Russia and Adjacent regions. Part I. – Nauka, Moscow. (In Russian).
- Zetterstedt, J. W. 1852. Diptera Scandinaviae, disposita et descripta. 11: 4091-4546; Lundae.
- Yakovlev, E. B. 1994. Palaearctic Diptera associated with fungi and myxomycetes. – Karelian Research Centre of Russian Academy of Sciences, Petrozavodsk. (In Russian, with English summary).

## Sammanfattning

Swampmyggor inom tribuset Sciophilini bevarade i Naturhistoriska riksmuseet i Stockholms samlingar har gått igenom. Materialet var främst insamlat i Sverige och Tyskland av fyra olika samlare, mestadels under slutet av 1800-talet och i början av 1900-talet. Totalt innehöll materialet 18 arter, varav 15 var från Sverige och 8 från Tyskland. Tre arter – *Allocotocera pulchella* (Curtis, 1837), *Sciophila nigronitida* Landrock, 1925 och *Sciophila nonnisilva* Hutson, 1979 – rapporteras härmed för första gången från Sverige.