

On the family Bolitophilidae (Diptera, Mycetophiliformia) in Norway

Eirik Rindal, Geir Søli & Øivind Gammelmo

Rindal, E., Søli, G. & Gammelmo, Ø. 2008. On the family Bolitophilidae (Diptera, Mycetophiliformia) in Norway. *Norw. J. Entomol.* 55, 169–173.

Bolitophilidae is a little studied family of nematocerous Diptera. In all 21 species have been recorded from Norway and are listed here, one for the first time. This is the first check-list of Bolitophilidae from Norway.

Key words: Diptera, Mycetophiliformia, Bolitophilidae, check list, Norway.

Eirik Rindal, Natural History Museum, University of Oslo, P.O. Box 1172 Blindern, N0-0318 Oslo, Norway. E-mail: eirik.rindal@nhm.uio.no

Geir Søli, Natural History Museum, University of Oslo, P.O. Box 1172 Blindern, N0-0318 Oslo, Norway. E-mail: geir.solli@nhm.uio.no

Øivind Gammelmo, BioFokus, Gaustadalléen 21, NO-0349 Oslo, Norway. E-mail: oivind@biofokus.no

INTRODUCTION

Members of the family Bolitophilidae are delicate, medium sized gnats. Their slender habitus with long legs is quite distinct (Figure 1) and they are also easy to recognize from other flies based on their characteristic wing venation (Figure 2). In terms of species diversity the family is among the smallest in Mycetophiliformia (systematics following Amorim & Rindal (2007)), with 57 currently recognized extant species in one single genus, *Bolitophila* Meigen, 1818. In addition two fossil taxa have been described, including a second genus, *Mangas* Kovalev, 1986, from Lower Cretaceous deposits in Mongolia. The genus is divided in two subgenera, viz. *Bolitophila* s.s. and *Cliopisa* Enderlein, 1936. Except for two newly described oriental species (Ševčík & Papp 2004), the family is confined to the Holarctic region, including the Mediterranean part of North Africa. 36 species are recorded from the Palearctic and 20

species from the Nearctic region (Bechev 2000). As with most groups in Mycetophiliformia, little is known about their biology in general, but their larvae are often found in sporophores of fleshy fungi. Keys for identification and illustrations of genitalia can be found in Plassmann (1975) and Hutson et al. (1980).

The first two Norwegian records date back to Siebke (1863) and two more species were added in “Enumeratio Insectorum Norwegicorum” (Siebke 1877). Our knowledge about this family has accumulated slowly, and today 21 species have been recorded from Norway. The present paper is the first attempt to compile a complete list of Norwegian Bolitophilidae since Siebke (1877). More species will certainly be added in the years to come. In comparison, the Swedish list contains 25 species (Kjærandsen et al. 2007), and there is no reason to assume a lower number of species in Norway.



Figure 1. *Bolitophila dubia* Siebke, 1863, a typical member of the family Bolitophilidae with slender body and long legs. (Photo: K. Sund, NHMO.)

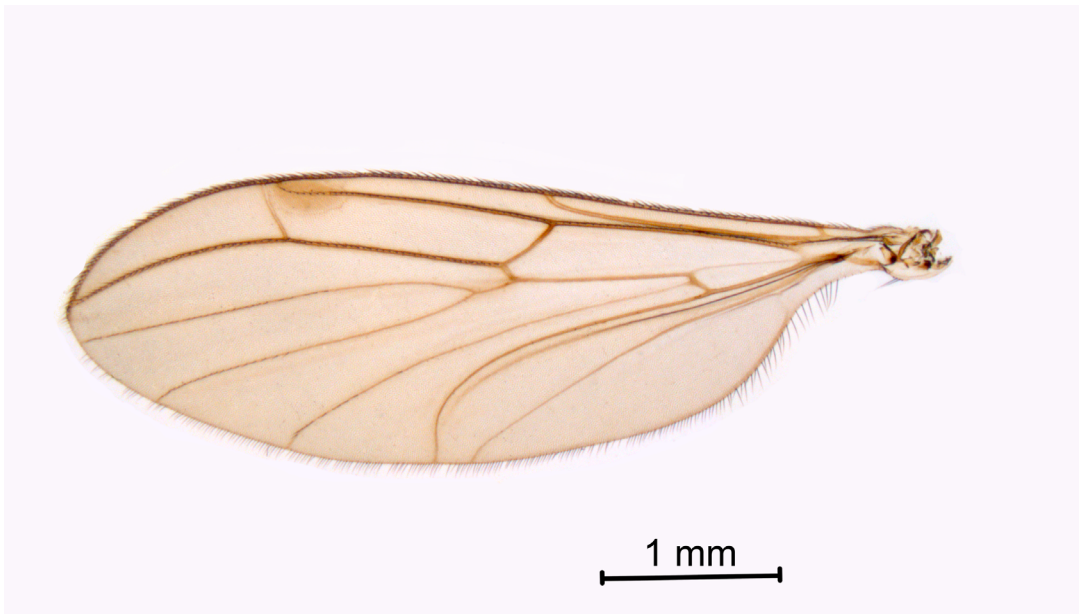


Figure 2. Characteristic wing venation of Bolitophilidae (*Bolitophila* sp.). (Photo: E. Rindal, NHMO.)

THE CHECK LIST

The Norwegian distribution for each species, is based on material kept in the collection of Natural History Museum, University of Oslo (NHMO), published or unpublished, together with other previously published records. References for published records are given under “Norwegian sources”. For species on the Norwegian Red list, their respective category is given (e.g. NT), see Gammelmo et al. (2006).

***Bolitophila (Bolitophila) austriaca* (Mayer, 1950)**

Distribution: VE, OS, STI, MRY
Norwegian sources: Økland (1995), Økland & Zaitzev (1997), Chandler (2004), Kjærandsen & Jordal (2007).

***Bolitophila (Bolitophila) basicornis* (Mayer, 1951)**

Distribution: ON, TRY, MRI
Norwegian sources: Kjærandsen & Jordal (2007).

***Bolitophila (Bolitophila) caspersi* Plassmann, 1986**

Distribution: AAY, RY, VE, TEI, AK, OS, STI, ON, MRI
Norwegian sources: Kjærandsen & Jordal (2007).

***Bolitophila (Bolitophila) cinerea* Meigen, 1818**

Distribution: MRI, MRY
Norwegian sources: Siebke (1863, 1877), Storm (1898), Kjærandsen (1993), Økland (1995), Økland & Zaitzev (1997), Chandler (2004), Kjærandsen & Jordal (2007).

***Bolitophila (Bolitophila) saundersii* (Curtis, 1836)**

Distribution: AK, HOI, HES
Norwegian sources: Økland (1995), Økland & Zaitzev (1997), DN (1999), Hansen & Falck (2000), Chandler (2004).

***Bolitophila (Bolitophila) tenella* Winnertz, 1863**

Distribution: TEY, VE, NTI, TRY, MRI
Norwegian sources: Kjærandsen & Jordal (2007).

***Bolitophila (Cliopisa) aperta* Lundström, 1914**

Distribution: AAY, VE, AK, OS,
Norwegian sources: Økland (1995), Økland & Zaitzev (1997), Chandler (2004).

***Bolitophila (Cliopisa) bimaculata* Zetterstedt, 1838**

Distribution: TEY, OS, ON, AK
Norwegian sources: Siebke (1877), Storm (1898), Økland (1995), Økland & Zaitzev (1997), Chandler (2004).

***Bolitophila (Cliopisa) dubia* Siebke, 1863**

Distribution: TRY, VE, HOY, OS, ON, MRI, MRY
Norwegian sources: Siebke (1863, 1877), Storm (1898), Økland (1995), Økland & Zaitzev (1997), DN (1999), Chandler (2004), Kjærandsen & Jordal (2007).

^{DD} *Bolitophila (Cliopisa) edwardsiana* Stackelberg, 1969

Distribution: HES, ON, MRI
Norwegian sources: Økland (1995), Økland & Zaitzev (1997), DN (1999), Chandler (2004), Gammelmo et al. (2006), Kjærandsen & Jordal (2007).

***Bolitophila (Cliopisa) fumida* Edwards, 1941**

Distribution: VE, BØ, OS
Norwegian sources: Økland (1995), DN (1999), Chandler (2004).

***Bolitophila (Cliopisa) hybrida* (Meigen, 1804)**

= *fusca* Meigen, 1818 (Siebke 1877, Storm 1898).
Distribution: AAY, TEY, VE, AK, OS, ON, MRI
Norwegian sources: Siebke (1877), Storm (1898), Økland (1995), Økland & Zaitzev (1997), Chandler (2004), Kjærandsen & Jordal (2007).

***Bolitophila (Cliopisa) ingrlica* Stackelberg, 1969**

Distribution: VE, MRI
Norwegian sources: Kjærandsen & Jordal (2007).

***Bolitophila (Cliopisa) limitis* Polevoi, 1996**

Distribution: MRI
Norwegian sources: Kjærandsen & Jordal (2007).

NT *Bolitophila (Cliopisa) maculipennis* Walker, 1835

Distribution: VE

Norwegian sources: Gammelmo et al. (2006).

***Bolitophila (Cliopisa) modesta* Lackschewitz, 1937.**

Distribution: TRY, STI

New to Norway. Norwegian records: **TRY**: Tromsø: Granheim, Breivikeidet (EIS 162), 2 October 1987, 1♂, leg. G. Søli, coll. NHMO; **STI**: Oppdal, Kongsvold fjellstue, 9 July 1988, 1♂, leg. T. Andersen, coll. NHMO.

***Bolitophila (Cliopisa) nigrolineata* Landrock, 1912**

Distribution: VE, AK, OS

Norwegian sources: Økland (1995), Økland & Zaitzev (1997), Chandler (2004).

NT *Bolitophila (Cliopisa) obscurior* Stackelberg, 1969

Distribution: OS

Norwegian sources: Økland (1995), Økland & Zaitzev (1997), DN (1999), Chandler (2004), Gammelmo et al. (2006).

***Bolitophila (Cliopisa) oclusa* Edwards, 1913**

Distribution: TRY, TEY, VE, OS, MRY

Norwegian sources: Økland (1995), Økland & Zaitzev (1997), DN (1999), Chandler (2004), Kjærandsen & Jordal (2007).

***Bolitophila (Cliopisa) pseudohybrida* Landrock, 1912**

Distribution: OS

Norwegian sources: Økland (1995), Økland & Zaitzev (1997), Chandler (2004), DN (1999).

VU *Bolitophila (Cliopisa) rossica* Landrock, 1912

Distribution: OS

Norwegian sources: Økland (1995), Økland & Zaitzev (1997), DN (1999), Chandler (2004), Gammelmo et al. (2006).

Acknowledgements. We want to thank Jostein Kjærandsen and Leif Aarvik for valuable comments and suggestions on

the manuscript.

REFERENCES

- Amorim, D.S. & Rindal, E. 2007. A phylogenetic study of the Mycetophiliformia, with creation of the subfamilies Heterotrichinae, Ohakuneinae, and Chiletrichinae for the Rangomaramidae (Diptera, Bibionomorpha). *Zootaxa*, 1535: 1–92.
- Bechev, D.N. 2000. World distribution of the genera of fungus gnats (Diptera: Sciaroidea, excluding Sciaridae). *Studia Dipterologica*, 7: 543–552.
- Chandler, P.J. 2004. Fauna Europaea: Mycetophilidae. Fauna Europaea version 1.2. <http://www.faunaeur.org>
- DN. 1999. Nasjonal rødliste for truede arter i Norge 1998. Norwegian Red List 1998. DN-rapport 3, 1–161. (Direktoratet for Naturforvaltning).
- Gammelmo, Ø., Nielsen, T. R., Falck, M., Greve, L. & Søli, G. E. E. 2006. Tovinger Diptera. Pp. 285–296 in J. A. Kålås, Å. Viken & T. Bakken (eds), Norsk Rødliste 2006 – 2006 Norwegian Red List. Artsdatabanken, Norway.
- Hansen, L.O. & Falck, M. 2000. Insektfaunaen ved Østensjøvannet. Oslo: Østensjøvannets venner, 1–34.
- Hutson, A.M., Ackland, D.M. & Kidd, L.N. 1980. Mycetophilidae (Bolitophilinae, Ditomyiinae, Diadocidiinae, Keroplatinae, Sciophilinae and Manotinae) (Diptera, Nematocera). *Handbooks For the Identification of British Insects*, 9, 1–111.
- Kjærandsen, J. 1993. Diptera in mines and cave systems in southern Norway. *Entomologica fennica*, 4, 151–160.
- Kjærandsen, J. & Jordal, J. B. 2007. Fungus gnats (Diptera: Bolitophilidae, Diadocidiidae, Ditomyiidae, Keroplatidae and Mycetophilidae) from Møre og Romsdal. *Norw. J. Entomol.* 54, 147–171.
- Kjærandsen, J. 1993. Diptera in mines and cave systems in southern Norway. *Entomol. Fenn.* 4, 151–160.
- Kjærandsen, J., Hedmark, K., Kurina, O., Polevoi, A., Økland, B. & Götmark, F. 2007. Annotated checklist of fungus gnats from Sweden (Diptera: Bolitophilidae, Diadocidiidae, Ditomyiidae, Keroplatidae and Mycetophilidae). *Insect Systematics and Evolution Supplements*, 65: 1–128.
- Økland, B. 1995. Unlogged forests: important sites for preserving the diversity of mycetophilids (Diptera: Sciaroidea). *Biological Conservation* 76, 297–310.

- Økland, B. & Zaitzev, A. I. 1997. Mycetophilids (Diptera, Sciaroidea) from southeastern Norway. Fauna norv. Ser. B 44, 27–37.
- Plassmann, E. 1975. Zum Vorkommen imaginaler Pilzmücken (Diptera: Mycetophilidae) in Bodenfallen während der wintermonate im Messauregebiet. Entomologisk Tidskrift, 1–2, 27–28.
- Ševčík, J & Papp, L. 2004. Bolitophilidae (Diptera) from Taiwan: a family new to the Oriental region. Acta Zoologica Academiae Scientiarum Hungaricae 50 (1): 55–62.
- Siebke, H. 1863. Beretning om en i Sommeren 1861 foretagen entomologisk Reise. Nyt Magazin for Naturvidenskaberne, Bd. 12, No. V. Diptera, 108–110, 114–115, 148–192.
- Siebke, H. 1877. Enumeratio Insectorum Norwegicorum, Fasculum IV, Catalogum Dipterorum continentem. 255 pp. A. W. Brøgger, Christiania.
- Storm, V. 1898. Entomologiske Undersøgelser. Det Kgl. Norske Videnskabers Selsk. Skrifter. 1898. No. 5, 1–19.

Received: 22 April 2008

Accepted: 2 October 2008