INTRODUCTION

Fungus gnats constitute a rich assemblage of nematocerous flies, traditionally placed in the superfamily Sciaroidea (e.g. Blagoderov & Grimaldi 2004). The family classification is currently under debate, where the latest contribution by Amorim & Rindal (2007) included nine families in the Mycetophiliformia and proposed a new superfamily classification. Five of the families (Bolitophilidae, Diadocidiidae, Ditomyiidae, Keroplatidae, and Mycetophilidae) are by most European authors covered together by the informal name fungus gnats. The majority of fungus gnats with known habitat requirements develop as larvae in fungal substrates, like sporocarps of Agaricales living on the ground, wood inhabiting fungi and mycelia in decaying wood (e.g. Hutson et al. 1980, Yakovlev 1994). Adult fungus gnats are especially common and diverse in damp forest environments. From being largely neglected and underestimated in surveys (Ottesen 1993, Hedström 1994) the species diversity of Nordic fungus gnats have gained a
steadily increasing attention during the last two decades. Updated checklists are now available for Karelia (Polevoi 2000), Finland (Polevoi & Jakovlev 2004, Jakovlev et al. 2006), Sweden (Hedmark 2000, Kurina et al. 2005, Kjærandsen et al. 2007a), Denmark (Petersen & Meier 2001), The Faroes (Kjærandsen & Jørgensen 1992) and Iceland (Kjærandsen et al. 2007b). It has become evident that the Nordic and especially the boreal fauna is very rich and make up a major proportion of the entire European fauna (see Kjærandsen & Bengtson 2005).

In Norway, Gammelmo & Søli (2006) presented a checklist of 473 species of the family Mycetophilidae, Gammelmo & Rindal (2006) summarized the knowledge of the family Ditomyiidae, known with two species, and Rindal & Gammelmo (2007) summarized the knowledge of the family Diadocidiidae, known with four species. It is evident, however, that the present knowledge of Norwegian fungus gnats is still rather scanty and has been concentrated to a few larger surveys. Kjærandsen (1993) reported 50 species of the families Bolitophilidae and Mycetophilidae from cave systems in southern Norway. Søli (1994) reported 214 species of the families Diadocidiidae and Mycetophilidae from Jostedalen. Økland & Zaitzev (1997) reported 320 species of Bolitophilidae, Keroplatidae, Diadocidiidae and Mycetophilidae from a large survey in boreal coniferous forests of southeastern Norway. The fauna and diversity of fungus gnats in the rest of the country remains fragmental and practically unknown, even after Gammelmo & Søli (2006) presented data on 61 species of Mycetophilidae new to Norway. Still, the 2006 Norwegian Red List of Diptera includes

Figure 1A. The sampling site at Jordalsgrend and the traps used. The Malaise trap.
126 species of fungus gnats (Gammelmo et al. 2006).

Only a few records of fungus gnats from the county of Møre og Romsdal have been published to date. Siebke (1877) listed eight species names of which six can be recognized without reasonable doubt, viz. *Boletina dubia* (Meigen, 1804), *Exechia fusca* (Meigen, 1804) as *Mycetophila*, *Mycetophila fungorum* (De Geer, 1776) as *Mycetophila punctata* Meigen, 1804, *Mycomya (M.) griseovittata* (Zetterstedt, 1852) as *Sciophila fasciata* Zetterstedt, 1838, *Neuratelia nemoralis* (Meigen, 1818) as *Boletina*, and *Urytalpa ochracea* (Meigen, 1818) as *Platyura*. The two other names, *Mycetophila bimaculata* Fabricius, 1805 and *Mycetophila ornaticollis* Meigen, 1818 can not be assigned to modern names with any certainty as Siebke (1877) referred to Zetterstedt (1852) who largely misinterpreted and used these names for a variety of species (see Kjærandsen 2005, Kjærandsen et al. submitted). We know of only two additional published records from Møre og Romsdal; a female of *Neuratelia nigricornis* Edwards, 1941 reported by Gammelmo & Søli (2006), and a record of *Sciophila salassea* Matile, 1983 reported by Chandler (2006).

In 2004 the first author (JK) started working with Nordic fungus gnats at the Zoological Museum in Lund, Sweden, funded by the Swedish Taxonomic Initiative (see Miller 2005, Kjærandsen & Bengtson 2005). One of the initial purposes was to obtain a better knowledge of the species diversity of fungus gnat from various parts of the Nordic region. The contact with the second author (JBJ) led to a collecting program for fungus gnats in a boreal-oceanic forest in northwestern Norway, a

![Figure 1B. The window trap. The photos are taken by the second author (JBJ) on the 26 April 2006 when the window trap was replaced by the Malaise trap. Photo: J.B. Jordal](image)
completely unknown area with regard to this insect group. In this paper we report a high diversity of fungus gnats found in this little studied area of Norway, and give records of and comments on new and redlisted species for Norway.

MATERIAL AND METHODS

Møre og Romsdal is a province with large topographical variation including islands, fjords, valleys and mountains up to nearly 2000 meters. Forests cover 4428 km² (29 %) of a total land area of 15104 km². Many of the forests grow as narrow bonds in steep slopes between the fjords or rivers and the treeless mountain areas. During the last 400 years, these forests have been cut to a relatively large extent, but not everywhere. During the second half of the 20th century, parts of the steep and less accessible areas have been left undisturbed. Thus, today there are still scattered areas of deciduous or mixed woodlands that can be described as old-growth forests, like in parts of the fjord districts in the rest of western Norway.

The climatic gradients from the coast towards the inland are among the steepest in Europe, annual precipitation ranging from 3000 to 700 mm, and January mean temperature from +4 °C to -8 °C over a distance of 100-130 km (www.met.no, data from the period 1961-1990).
Sampling sites and material

The majority of the material was collected by the second author (JBJ) at a single site at Jordalsgrend. A single Malaise trap of type Marris House Nets was operated in the period 1 May to 6 October 2004, and again in the period 6 October 2006 to 1 May 2007. The trap was placed near a small rock wall facing towards northeast with the collecting bottle also pointing towards northeast (Figure 1A). A home made window trap with 0.87 m² glass area (0.83 x 1.05 m) placed over a piece of rain gutter (Figure 1B) was operated at exactly the same place in the period 26 April 2005 to 26 April 2006. The insects were collected and preserved in 70 % alcohol (2004) or 50 % ethylene glycol mixed with water (2006-2007). The traps were protected against heavy rainfall and snow by a simple roof. The site is situated 130 m a.s.l. in a northeast-faced steep slope (about 30 °) between the Sunndalsfjord and a treeless mountain area, in the middle part of the fjord district (Figure 2). The vegetation in the area belongs to the markedly oceanic vegetation section and the southern boreal vegetation zone (Moen 1998, Table 1). The forest at the site is old deciduous, dominated by Betula pubescens and Populus tremula, supplemented by smaller amounts of Sorbus aucuparia, Corylus avellana, Prunus padus, Alnus incana, Salix caprea and scattered Pinus sylvestris. The ground vegetation is dominated mainly by low herbs and ferns, while smaller parts are dominated by Vaccinium myrtillus, or by taller ferns. The ground is rough with smaller rock walls and scree material combined with boulders and smaller and larger stones covered by a thick moss carpet. There are considerable amounts of dead and decaying wood of all tree species present, especially of Populus tremula. Jordal (2004) characterized the locality as an old-growth forest of high biological value.

At Øvre Vike, Malaise traps were operated at three sites by O. Hanssen in the period 12 June to 28 July 1999. This is a southwest-faced slope of about 25° at the eastern side of the lake Eikesdalsvatnet below steep treeless mountains (Figure 2). The vegetation in the area belongs to the markedly to weakly oceanic vegetation section and the boreonemoral vegetation zone (Moen 1998, Table 1).

### Table 1. Localities in the county of Møre og Romsdal from where from data on fungus gnats are known. Abbreviations: Ann. = Annual, BN = boreonemoral, KEYHABMIX = Proportion of forest key habitats within a radius of 1 km, O1 = weakly oceanic, O2 = markedly oceanic, O3 = strongly oceanic SB = southern boreal, OC = transition between oceanic and continental sections, Veg. = Vegetation.

<table>
<thead>
<tr>
<th>No.</th>
<th>Province</th>
<th>EIS</th>
<th>Municipality</th>
<th>Locality</th>
<th>Collector / Source</th>
<th>Position UTM32V-WGS84</th>
<th>Veg. zone</th>
<th>Veg. section</th>
<th>Ann. prec.</th>
<th>Days with rainfall &gt;0,1 mm</th>
<th>Jan. mean temp.</th>
<th>July mean temp.</th>
<th>KEYHABMIX</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>MRI</td>
<td>85</td>
<td>Sunndal</td>
<td>Jordalsgrend</td>
<td>Leg. J. B. Jordal</td>
<td>MQ 6518 6022</td>
<td>SB</td>
<td>O2</td>
<td>1500</td>
<td>190 -1 °C</td>
<td>14 °C</td>
<td>30 %</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>MRI</td>
<td>78</td>
<td>Nesset</td>
<td>Øvre Vike</td>
<td>Leg. O. Hanssen</td>
<td>MQ 5798 3621</td>
<td>BN</td>
<td>O2/O1</td>
<td>1100</td>
<td>160 -1 °C</td>
<td>15 °C</td>
<td>40 %</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>MRY</td>
<td>90</td>
<td>Aure</td>
<td>Ånes</td>
<td>Leg. F. Oldervik</td>
<td>MR 7284 1645</td>
<td>SB</td>
<td>O3</td>
<td>1500</td>
<td>220 0 °C</td>
<td>14 °C</td>
<td>20 %</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>MRY</td>
<td>77</td>
<td>Molde</td>
<td>Sekken</td>
<td>Leg. T. Andersen</td>
<td>MQ 09-17 47-50</td>
<td>SB</td>
<td>O2</td>
<td>1700</td>
<td>200-220 0,5 °C</td>
<td>13 °C</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>MRI</td>
<td>77</td>
<td>Norddal</td>
<td>Tafjord</td>
<td>Gammelmo &amp; Soli (2006)</td>
<td>MQ 14-18, 00-07</td>
<td>SB (BN)</td>
<td>O1/OC</td>
<td>1000</td>
<td>190 0,5 °C</td>
<td>15 °C</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>MRI</td>
<td>77</td>
<td>Rauma</td>
<td>Veblingsnes</td>
<td>Siebke (1877)</td>
<td>MQ 31 36</td>
<td>BN</td>
<td>O1</td>
<td>1200</td>
<td>180 -0,5 °C</td>
<td>14 °C</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>MRI</td>
<td>77</td>
<td>Rauma</td>
<td>Horgheim</td>
<td>Siebke (1877)</td>
<td>MQ 37-38, 26-27</td>
<td>BN</td>
<td>O1</td>
<td>1000</td>
<td>170 -2 °C</td>
<td>13 °C</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>MRI</td>
<td>76</td>
<td>Stordal</td>
<td>Hove</td>
<td>Siebke (1877)</td>
<td>LQ 95-06, 18-19</td>
<td>BN</td>
<td>O2</td>
<td>1500</td>
<td>200 -0,4 °C</td>
<td>13,5 °C</td>
<td></td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>MRY</td>
<td>76</td>
<td>Ørskog</td>
<td>Ørskog</td>
<td>Siebke (1877)</td>
<td>LQ 84-90, 28-30</td>
<td>BN</td>
<td>O2 (SB)</td>
<td>1600</td>
<td>200 0 °C</td>
<td>13 °C</td>
<td></td>
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</tr>
</tbody>
</table>
1. The locality is an old, grazed, deciduous and mixed forest dominated by Corylus avellana and Betula verrucosa, with some large, pollarded Ulmus glabra, further with scattered Betula pubescens, Populus tremula, Salix caprea, Sorbus aucuparia and Pinus sylvestris. The ground is covered mainly by low herbs, moss or naked earth. The locality is described as a forest of high biological value, in earlier times influenced by pollarding, grazing and intensive cultivation of Corylus avellana to produce nuts and barrel hoops (Jordal 2005). There is a considerable amount of dead wood, especially of Betula verrucosa, Corylus avellana and Ulmus glabra.

At Ånes (Figure 2), a window trap was operated by F. Oldervik in the period 26 April 2006 - 26 April 2007. The locality is an old deciduous forest situated in the strongly oceanic vegetation section and the southern boreal vegetation zone (Moen 1998, Table 1). To date only parts of this material has been determined, and here we mostly report species that were not found at other localities.

Additional localities in Møre og Romsdal from where data on fungus gnats are known are given in Table 1 and shown in Figure 2. The division between coastal (MRY) and interior (MRI) parts of Møre og Romsdal, and other geographical regions of Norway, follows the revised "Strand system" Økland (1981). Acronyms for Swedish provinces follow the Fauna Entomologica Scandinavica series (e.g. Pont & Meier 2002).  

**Species identification and digitalization**  
Careful examination of terminalia is usually needed for identification of fungus gnats. The material was identified in alcohol under a Nikon ZMU stereo microscope by the first author (JK). For parts of the material maceration of the terminalia in KOH was needed for secure identification. A few specimens were slide-mounted in Canada balsam as described by Kjærandsen (2006), the rest are stored dark in 80 % alcohol. All specimens were recorded with unique identification codes using the Biota 2 database software (Colwell 2007), and the list of examined material was extracted from this database. For each species the localities are sorted hierarchically within each district, locality and site, respectively. Genera and species are listed alphabetically within a classification basically following Bechev (2000). All examined material is deposited at the Zoological Museum, Lund University (MZLU).

**RESULTS**

Treatment of some 23000 specimens from the traps operated at Jordalsgrend resulted in the identification of 315 species. The Malaise trap catches from Øvre Vike yielded only 438 specimens, but comprise 82 species of which 24 species were not found at Jordalsgrend. Another 11 species have so far been identified in the samples from Ånes. Screening of literature and additional material from other localities in Møre og Romsdal added 7 species, bringing the total up to 357 species belonging to the families Bolitophilidae (11), Diadocidiidae (6), Ditomyiidae (2), Keroplatidae (11) and Mycetophilidae (327). Ten of the species are considered to be new to science, and three species represented with a single female each could not be identified to species level. Another 57 species (16 %) are recorded for the first time in Norway, and 34 species (10 %) are included in the 2006 Norwegian Red List.

**Checklist for Møre og Romsdal**

Small numbers after species names correspond to localities as given in Table 1 and Figure 2. Codes: * = new to Norway, © = first published record or new name interpretation, N = new to science. Red List codes: DD = Data Deficient, EN = Endangered, NT = Near Threatened, VU = Vulnerable.

**Family Bolitophilidae**

*Genus Bolitophila*  
Subgenus Bolitophila  
*Bolitophila (B.) austriaca* (Mayer, 1950) 3  
* Bolitophila (B.) basicornis* (Mayer, 1951) 1  
* Bolitophila (B.) caspersi* Plassmann, 1986 1  
*Bolitophila (B.) cinerea* Meigen, 1818 1, 3  
* Bolitophila (B.) tenella* Winnertz, 1863 1
Subgenus Cliopisa
Bolitophila (C.) dubia Siebke, 1863 1, 3
* Bolitophila (C.) edwardsiana Stackelberg, 1969 1
Bolitophila (C.) hybridia (Meigen, 1804) 1
* Bolitophila (C.) ingricta Stackelberg, 1969 1
* Bolitophila (C.) limitis Polevoi, 1996 1
Bolitophila (C.) occlusa Edwards, 1913 3

Family Diadocidiidae

Genus Diadocidia
Subgenus Adidocidia
Diadocidia (A.) trispinosa Polevoi, 1996 1
NT Diadocidia (A.) valida Mik, 1874 1

Subgenus Diadocidia
Diadocidia (D.) ferruginosa (Meigen, 1830) 1, 2
Diadocidia (D.) spinosula Tollet, 1948 1, 2
Diadocidia (D.) sp. A 1
Diadocidia (D.) sp. B 2

Family Ditomyiidae

Genus Symmerus
EN Symmerus annulatus (Meigen, 1830) 2
EN Symmerus nobilis Lackschewitz, 1937 1, 2

Family Keroplatidae
Subfamily Keroplatinae
Genus Keroplatus
VU Keroplatus testaceus Dalman, 1818 1

Genus Monocentrota
DD Monocentrota lundstroemi Edwards, 1925 4

Genus Neoplatyura
Neoplatyura flava (Macquart, 1826) 1

Genus Orfelia
Orfelia sp. A (unidentified female) 2

Genus Pyratula
Pyratula zonata (Zetterstedt, 1855) 1

Genus Urytalpa
Urytalpa ochracea (Meigen, 1818) 6, 7

Subfamily Macrocerinae

Genus Macrocerca
Macrocera angulata Meigen, 1818 1, 2
Macrocera parva Lundström, 1914 2

Macrocerca stigma Curtis, 1837 1, 2
Macrocerca stigmoides Edwards, 1925 1
Macrocerca zetterstedi Lundström, 1914 1, 3

Family Mycetophilidae
Subfamily Mycomyinae

Genus Mycomya
Subgenus Cymomyra
NT Mycomya (C.) circumdata (Staeger, 1840) 1

Subgenus Mycomya
Mycomya (M.) annulata (Meigen, 1818) 1, 2
Mycomya (M.) bicolor (Dziedzicki, 1885) 1
Mycomya (M.) cinerasens (Macquart, 1826) 1
Mycomya (M.) collini Edwards, 1941 2
* Mycomya (M.) denmax Väisänen, 1979 1
Mycomya (M.) dziedzickii Väisänen, 1984 1
Mycomya (M.) egregia (Dziedzicki, 1885) 1
Mycomya (M.) griseovittata (Zetterstedt, 1852) 3, 7
* Mycomya (M.) karlica Väisänen, 1979 1, 2
Mycomya (M.) marginata (Meigen, 1818) 1
Mycomya (M.) neohylina Väisänen, 1984 1
Mycomya (M.) nitida (Zetterstedt, 1852) 1, 2
Mycomya (M.) ornata (Meigen, 1818) 1, 3
Mycomya (M.) prominens (Lundström, 1913) 1
Mycomya (M.) ruficollis (Zetterstedt, 1852) 2
Mycomya (M.) shermani Garrett, 1924 1
Mycomya (M.) sigma Johannsen, 1910 1, 3
Mycomya (M.) tenuis (Walker, 1856) 1, 3
Mycomya (M.) trivittata (Zetterstedt, 1838) 1
Mycomya (M.) tumida (Winnertz, 1863) 1
Mycomya (M.) wankowiczi (Dziedzicki, 1885) 1
Mycomya (M.) winnertzi (Dziedzicki, 1885) 1

Subgenus Mycomyopsis
* Mycomya (MO.) parandentata Väisänen, 1984 1
Mycomya (MO.) trilineata (Zetterstedt, 1838) 1

Subgenus Neomycomya
Mycomya (N.) limbrila (Meigen, 1818) 1

Genus Neoempheria
Neoempheria pictipennis (Haliday, 1833) 1

Subfamily Sciophilinae

Genus Acnemia
DD Acnemia longipes Winnertz, 1863 1
Acnemia nitidicollis (Meigen, 1818) 1, 2, 3

Genus Acomoptera
Acomoptera difficilis (Dziedzicki, 1885) 1

Genus Allocotocera
Allocotocera pulchella (Curtis, 1837) 1, 2
Genus *Anaclileia*
*Anaclileia dispar* (Winnertz, 1863) 1, 3

Genus *Azana*
*Azana anomala* (Staeger, 1840) 1, 3

Genus *Coelophthinia*
*Coelophthinia thoracica* (Winnertz, 1863) 1

Genus *Leptomorphus*
Subgenus *Leptomorphus*
*Leptomorphus* (L.) *forcipatus* (Landrock, 1918) 1, 2

Genus *Megalopelma*
*Megalopelma nigroclavatum* (Strobl, 1910) 2

Genus *Monoclona*
*Monoclona braueri* (Strobl, 1895) 2
*Monoclona rufilata* (Walker, 1836) 1, 2
*Monoclona silvatica* Zaitzev, 1983 1

Genus *Neuratelia*
*Neuratelia nemoralis* (Meigen, 1818) 1, 3, 9
*Neuratelia nigricornis* Edwards, 1941 1

Genus *Phthinia*
*Phthinia humilis* Winnertz, 1863 1
*Phthinia mira* (Ostroverkhova, 1977) 1
*Phthinia winnertzi* Mik, 1869 1, 3

Genus *Polylepta*
*Polylepta borealis* Lundström, 1912 2
*Polylepta guttiventris* (Zetterstedt, 1852) 1

Genus *Sciophila*
*Sciophila fenestella* Curtis, 1837 1, 2
*Sciophila jakutica* Blagoderov, 1992 2
*Sciophila nigronitida* Landrock, 1925 2
*Sciophila nonnisiiva* Hutson, 1979 1, 2
*Sciophila pomaceae* Chandler 2006 1
*Sciophila rufa* Meigen, 1830 2
*Sciophila salassea* Matile, 1983 1, 2

Genus *Speolepta*
*Speolepta leptogaster* (Winnertz, 1863) 1

Subfamily Gnoristinae

Genus *Apolephthisa*
*Apolephthisa subincana* (Curtis, 1837) 1, 2

Genus *Boletina*
*Boletina basalis* (Meigen, 1818) 1, 2
*Boletina bidenticulata* Sasakawa & Kimura, 1974 2
*Boletina dispecta* Dziedzicki, 1885 1
*Boletina dubia* (Meigen, 1804) 8

Genus *Boletina edwardsi* Chandler, 1992 1
*Boletina gripha* Dziedzicki, 1885 1, 2, 3
*Boletina griphoides* Edwards, 1925 1
*Boletina lundbeckii* Lundström, 1912 3
*Boletina lundstroemi* Landrock, 1912 1, 2
*Boletina maculata* Holmgren, 1870 1
*Boletina moravica* Landrock, 1912 1
*Boletina nigricans* Dziedzicki, 1885 1
*Boletina nigricosa* Staeger, 1840 1
*Boletina nitida* Grzegorzek, 1885 1, 2
*Boletina plana* (Walker, 1856) 1, 2, 3
*Boletina rejecta* Edwards, 1941 1
*Boletina sciarina* Staeger, 1840 1, 2
*Boletina takagii* Sasakawa & Kimura, 1974 1, 2
*Boletina triangularis* Polevoi, 1995 1
*Boletina trivittata* (Meigen, 1818) 1

Genus *Coelosia*
*Coelosia fusca* Bezzi, 1892 1
*Coelosia truncata* Lundström, 1909 1

Genus *Dziedzickia*
*Dziedzickia marginata* (Dziedzicki, 1885) 1

Genus *Ectrepesthoneura*
*Ectrepesthoneura hirta* (Winnertz, 1846) 1, 2
*Ectrepesthoneura ovata* Ostroverkhova, 1977 1
= *E. bucera* Plassmann, 1980
*Ectrepesthoneura pubescens* (Zetterstedt, 1860) 1

Genus *Gnoriste*
*Gnoriste bilineata* Zetterstedt, 1852 1

Genus *Grzegorzekia*
*Grzegorzekia collaria* (Meigen, 1818) 2

Genus *Palaeodocosia*
*Palaeodocosia alpicola* (Strobl, 1895) 1
*Palaeodocosia vittata* (Coquillett, 1901) 1

Genus *Saigusaia*
*Saigusaia flaviventris* (Strobl, 1894) 1, 2

Genus *Synapha*
*Synapha vitripennis* (Meigen, 1818) 1, 2

Genus *Synapha elegansia* Plassmann, 1978 1, 2
*Synapha hungarica* (Lundström, 1912) 1, 2
*Synapha nitidula* Edwards, 1925 1, 2
*Synapha relicta* (Lundström, 1912) 1, 2
*Synapha styliata* Hutson, 1979 1

Genus *Tetragoneura*
*Tetragoneura sylvatica* (Curtis, 1837) 1, 2
Subfamily Leiinae

Genus Docosia

Docosia gilvipes (Haliday in Walker, 1856)

Genus Leia

VU Leia bilineata (Winnertz, 1863)
VU Leia cylindrica (Winnertz, 1863)
Leia subfasciata (Meigen, 1818)

Genus Rondaniella

Rondaniella dimidiata (Meigen, 1804)

Tribe Exechiini

Genus Allodia

Subgenus Allodia

Allodia (A.) angofoenica Edwards, 1921
Allodia (A.) lugens (Wiedemann, 1817)
Allodia (A.) lundstroemi Edwards, 1921
Allodia (A.) ornaticollis (Meigen, 1818)
Allodia (A.) truncata Edwards, 1921
Allodia (A.) zaitzevi Kurina, 1998

Subgenus Brachycampta

NT Allodia (B.) altemans (Zetterstedt, 1838)
Allodia (B.) czernyi (Landrock, 1912)
NT Allodia (B.) foliifera (Strobl, 1910)
* Allodia (B.) neglecta (Edwards, 1925)

Genus Allodiopsis

Allodiopsis domestica (Meigen, 1830)
Allodiopsis rustica (Edwards, 1941)

Genus Anatella

Anatella ankeli Plassmann, 1977
* Anatella aquila Zaitzev, 1899
Anatella ciliata Winnertz, 1863
Anatella flavomaculata Edwards, 1925
Anatella lenis Dziedzicki, 1923
Anatella longisetosa Dziedzicki, 1923
Anatella minuta (Staeger, 1840)
* Anatella pseudogibba Plassmann, 1977
Anatella setigera Edwards, 1921
Anatella simpatica Dziedzicki, 1923
NT Anatella turi Dziedzicki, 1923
Anatella unguigera Edwards, 1921

Genus Brachypeza

Subgenus Brachypeza

* Brachypeza (B.) armata Winnertz, 1863
Brachypeza (B.) bisignata Winnertz, 1863

Genus Brevicornu

* Brevicornu canescens (Zetterstedt, 1852)
* Brevicornu fasciculatum (Lackschewitz, 1937)

* Brevicornu fuscipenne (Staeger, 1840)
Brevicornu griseicolle (Staeger, 1840)
Brevicornu griseolum (Zetterstedt, 1852)
* Brevicornu improvisum Zaitzev, 1992
* Brevicornu nigrofuscum (Lundström, 1909)
Brevicornu ruficorne (Meigen, 1838)
NT Brevicornu serenun (Winnertz, 1863)
Brevicornu sericoma (Meigen, 1830)
* Brevicornu verrali (Edwards, 1925)

Genus Cordyla

Cordyla bomloensis Kjærandsen & Kurina, 2004
Cordyla brevicornis (Staeger, 1840)
Cordyla crassicornis Meigen, 1818
Cordyla fasciata Meigen, 1830
Cordyla fissa Edwards, 1925
Cordyla flaviceps (Staeger, 1840)
Cordyla fusca Meigen, 1804
* Cordyla insons Lastovka & Matile, 1974
Cordyla murina Winnertz, 1863
Cordyla nitens Winnertz, 1863
Cordyla parvipalpis Edwards, 1925
Cordyla pusilla Edwards, 1925
Cordyla semilivava (Staeger, 1840)
N Cordyla sp. A
N Cordyla sp. B

Genus Exechia

* Exechia borealis Lundström, 1912
Exechia confinis Winnertz, 1863
Exechia contaminata Winnertz, 1863
Exechia dizona Edwards, 1924
Exechia dorsalis (Staeger, 1840)
Exechia exigua Lundström, 1909
Exechia festiva Winnertz, 1863
Exechia fusca (Meigen, 1804)
Exechia nigra Edwards, 1925
* Exechia nigroscutellata Landrock, 1912
Exechia parva Lundström, 1909
Exechia parvula (Zetterstedt, 1852)
* Exechia pseudocincta Strobl, 1910
Exechia separata Lundström, 1912
Exechia spinuligera Lundström, 1912
Exechia sp. A (unidentified female)

Genus Exechiopsis

Subgenus Exechiopsis

Exechiopsis (E.) aemula Plassmann, 1984
Exechiopsis (E.) clypeata (Lundström, 1911)
Exechiopsis (E.) distendens (Lackschewitz, 1937)
Exechiopsis (E.) furcata (Lundström, 1911)
Exechiopsis (E.) hammi Edwards, 1925
Exechiopsis (E.) indecisa (Walker, 1856)
Exechiopsis (E.) januarii (Lundström, 1913)
Exechiopsis (E.) latcheschewitziana (Stackelberg, 1948)
Exechiopsis (E.) landrocki (Lundström, 1912)
Exechiopsis (E.) pseudindecisa Lastovka & Matile, 1974
Exechiopsis (E.) pseudopulchella (Lundström, 1912) 1, 3
Exechiopsis (E.) pulchella (Winnertz, 1863) 1, 3
Exechiopsis (E.) sagittata Lastovka & Matile, 1974 1, 3
Exechiopsis (E.) subulata (Winnertz, 1863) 1, 3

Subgenus Xenexechia
VU Exechiopsis (X.) leptura (Meigen, 1830) 1, 3
DD Exechiopsis (X.) membranacea (Lundström, 1912) 1, 3
Exechiopsis (X.) pollicata (Edwards, 1925) 1
* Exechiopsis (X.) seducta (Plassmann, 1976) 1

Genus Myrosia
Myrosia maculosa (Meigen, 1818) 3

Genus Notolopha
Notolopha cristata (Staeger, 1840) 1, 3

Genus Pseudexechia
Pseudexechia aurivernica Chandler, 1978 1
Pseudexechia trisignata (Edwards, 1913) 1, 3
* Pseudexechia sp. A 1

Genus Pseudobrachypeza
Pseudobrachypeza helvetica (Walker, 1856) 1, 3

Genus Pseudorymosia
Pseudorymosia fovea (Dziedzicki, 1910) 1, 3

Genus Rymosia
Rymosia bifida Edwards, 1925 1
Rymosia fasciata (Meigen, 1804) 1
Rymosia placida Winnertz, 1863 1
* Rymosia spinipes Winnertz, 1863 1

Genus Stigmatomeria
Stigmatomeria crassicornis (Stannius, 1831) 1, 3

Genus Synplasta
* Synplasta gracilis (Winnertz, 1863) 1, 3
* Synplasta sp. A (unidentified female) 1

Genus Tarnania
Tarnania fenestralis (Meigen, 1818) 1, 3
Tarnania tarnanii (Dziedzicki, 1910) 1, 3

Tribe Mycetophilini

Genus Dynatosoma
Dynatosoma cochleare Strobl, 1895 1
Dynatosoma fuscicorne (Meigen, 1818) 1, 2, 3
Dynatosoma nigromaculatum Lundström, 1913 1, 2
Dynatosoma norwegiense Zaitzev & Økland, 1994 1
Dynatosoma reciprocum (Walker, 1848) 1, 3

Genus Epicypta
Epicypta aterrima (Zetterstedt, 1852) 2

Genus Mycetophilia
Mycetophilia abbreviata Landrock, 1914 1
Mycetophilia adumbrata Mik, 1884 1
Mycetophilia alea LaFoon, 1965 1, 2
Mycetophilia attonsa (LaFoon, 1957) 2
Mycetophilia autumnalis Lundström, 1909 1, 3
Mycetophilia bialorussica Dziedzicki, 1884 1, 2
* Mycetophilia biosta Meigen, 1818 1
Mycetophilia blanda Winnertz, 1863 1
Mycetophilia bohemia (Lastovka, 1963) 1
Mycetophilia brevitarsata (Lastovka, 1963) 1
Mycetophilia confluens Dziedzicki, 1884 1
Mycetophilia curviseta Lundström, 1911 1, 3
VU Mycetophilia edwardsi Lundström, 1913 1
Mycetophilia evanida Lastovka, 1972 1
Mycetophilia finlandica Edwards, 1913 1
* Mycetophilia forcipata Lundström, 1913 1, 3
VU Mycetophilia formosa Lundström, 1911 1
Mycetophilia fungorum (De Geer, 1776) 1, 2, 3, 4, 6
* Mycetophilia gentilicia Zaitzev, 1999 1, 2
EN Mycetophilia gibbula Edwards, 1925 1, 2
Mycetophilia helischkoi Landrock, 1918 1
Mycetophilia ichneumonea Say, 1823 1, 2
Mycetophilia lubomirskii Dziedzicki, 1884 1
Mycetophilia luctuosa Meigen, 1830 4
* Mycetophilia magnicauda Strobl, 1895 1
Mycetophilia marginata Winnertz, 1863 1
Mycetophilia mohilevensis Dziedzicki, 1884 1
* Mycetophilia nigrofusca Dziedzicki, 1884 1, 2
* Mycetophilia occultans Lundström, 1913 1, 2
Mycetophilia ocellus Walker, 1848 1, 4
Mycetophilia ornata Stephens, 1829 1
* Mycetophilia perpillida Chandler, 1993 1
Mycetophilia pumila Winnertz, 1863 1
* Mycetophilia quadra Lundström, 1909 1
Mycetophilia schnablii (Dziedzicki, 1884) 1
* Mycetophilia sigmoideae Loew, 1869 2
Mycetophilia signata Meigen, 1830 1
Mycetophilia signatoides Dziedzicki, 1884 1
Mycetophilia sordida van der Wulp, 1874 1
* Mycetophilia stolida Walker, 1856 1, 2
Mycetophilia strigatoides (Landrock, 1927) 1
* Mycetophilia stroblii Lastovka, 1972 1
Mycetophilia stylata (Dziedzicki, 1884) 1
* Mycetophilia subsigillata Zaitzev, 1999 1
Mycetophilia sumavica (Lastovka, 1963) 1
* Mycetophilia uliginosa Chandler, 1988 1
Mycetophilia unipunctata Meigen, 1818 1
* Mycetophilia v-nigrum Lundström, 1913 1, 2
Mycetophilia vittipes Zetterstedt, 1852 1
* Mycetophilia zetterstedi Lundström, 1906 1
N Mycetophilia sp. A 1
N Mycetophilia sp. B 1

Genus Phronia
Phronia biarcuata (Becker, 1908) 1
Phronia braueri Dziedzicki, 1889 1
Phronia caliginosa Dziedzicki, 1889
Phronia cinerascens Winnertz, 1863
Phronia conformis (Walker, 1856)
* Phronia coricanica Chandler, 1992
Phronia digitata Hackman, 1970
Phronia disgrega Dziedzicki, 1889
* Phronia dziedzickii Lundström, 1906
Phronia egregia Dziedzicki, 1889
Phronia exigua (Zetterstedt, 1852)
Phronia forcipata Winnertz, 1863
Phronia humeralis Winnertz, 1863
Phronia interstincta Dziedzicki, 1889
* Phronia maculata Dziedzicki, 1889
Phronia mutabilis Dziedzicki, 1889
Phronia nigricornis (Zetterstedt, 1852)
Phronia flavipes Winnertz, 1863
Phronia forcipata Winnertz, 1863
Phronia humeralis Winnertz, 1863
Phronia interstincta Dziedzicki, 1889
* Phronia maculata Dziedzicki, 1889
Phronia mutabilis Dziedzicki, 1889
Phronia nigricornis (Zetterstedt, 1852)
Phronia nigripalpis Lundström, 1909
Phronia nitidiventris (van der Wulp, 1859)
Phronia notata Dziedzicki, 1889
NT Phronia obtusa Winnertz, 1863
Phronia peculiaris Dziedzicki, 1889
Phronia petulans Dziedzicki, 1889
Phronia siebeckii Dziedzicki, 1889
Phronia strenua Winnertz, 1863
Phronia tenuis Winnertz, 1863
Phronia tiefi Dziedzicki, 1889
* Phronia triangularis Winnertz, 1863
□ Phronia unica Dziedzicki, 1889
* Phronia vitrea Plassmann, 1999
Phronia willistoni Dziedzicki, 1889
 NT Phronia sp. A
 NT Phronia sp. B
 NT Phronia sp. C
Genus Platurocypta
Platurocypta testata (Edwards, 1925)
Genus Sceptonia
Sceptonia costata (van der Wulp, 1859)
* Sceptonia demejerei Bechev, 1997
Sceptonia fumipes Edwards, 1925
Sceptonia fuscalpis Edwards, 1925
Sceptonia nigra (Meigen, 1804)
* Sceptonia pughi Chandler, 1991
Sceptonia regni Chandler, 1991
* Sceptonia thaya Servik, 2004
Genus Trichonta
* Trichonta apicalis Strob. 1998
Trichonta atricauca (Zetterstedt, 1852)
Trichonta brevicauda Lundström, 1906
Trichonta comica Gagné, 1981
* Trichonta excisa Lundström, 1916
Trichonta falcata Lundström, 1911
* Trichonta girschneri Landrock, 1912
Trichonta hamata Milk, 1880
Trichonta melanura (Staeger, 1840)
Trichonta subfuscus Lundström, 1909
Trichonta submaculata (Staeger, 1840)
* Trichonta subterminalis Zaitzev & Menzel, 1996
Trichonta terminalis (Walker, 1856)
Trichonta venosa (Staeger, 1840)
Trichonta vulcani (Dziedzicki, 1889)
Genus Zygomyia
* Zygomyia angusta Plassmann, 1977
Zygomyia humeralis (Wiedemann, 1817)
Zygomyia kiddi Chandler, 1991
Zygomyia notata (Stannius, 1831)
Zygomyia pictipennis (Staeger, 1840)
Zygomyia pseudohumeralis Caspers, 1980
Zygomyia semifusca (Meigen, 1818)
* Zygomyia valerianae Chandler, 1991
Zygomyia valida Winnertz, 1863
Zygomyia vara (Staeger, 1840)

Notes on the species considered to be new to science
Two species of Diadocidia appear to be new to science but need further verification. One is close to D. (D.) fissa Zaitzev, 1994 and D. (D.) furnacea Chandler, 1994 in the structure of the male terminalia. The other is very close to D. (D.) ferruginosa, but has distinctly more triangular ninth tergite and slightly more slender gonostylus. The two undescribed species of Cordyla are already known from several areas in the Nordic region, but their description is pending on a forthcoming revision (O. Kurina in prep.). The undescribed species of Pseudexechia is close to P. trisignata and will be described in a forthcoming European revision (J. Kjerandsen in prep.). Three species of Phronia apparently await description, one of which will be described by Jakovlev & Polevoi (submitted). Finally, two species of Mycetophila could not be assigned to any known species.

Species new to Norway
Codes: MT = Malaise trap, WT = window trap.

Allodoria (B.) neglecta Edwards, 1925
A Palaearctic species, widely distributed in Europe.

Anatella pseudogibba Plassmann, 1977
MRY, Aure, Ånes, 1 Mar-1 Apr 2007 — 1 ♂ (WT).
A European species, known from western parts and Estonia.

Boletina bidenticulata Sasakawa & Kimura, 1974
MRI, Nesset, Øvre Vike, site 1, 12 Jun-28 Jul 1999 (MT) — 6 ♂♂.
This species, originally described from Japan, was recently reported from the European part of Russia and Finland (Zaitzev et al. 2006). It has previously been confused with B. dispecta in Europe.

Bolitophila (Bolitophila) basicornis (Mayer, 1951)
MRI, Sunndal, Jordalsgrend, 31 May-13 Jul 2004 (MT) — 1 ♂; 14 Jun-3 Jul 2005 (WT) — 1 ♂.
This widely distributed Palaearctic species has to our knowledge not previously been published from Norway.

Bolitophila (Bolitophila) caspersi Plassmann, 1986
MRI, Sunndal, Jordalsgrend, 1-31 May 2004 (MT) — 1 ♂.
A little known Palaearctic and probably strictly boreal species, in Europe previously recorded only from northern Sweden (type material) and Finland (Polevoi et al. 2006).

Bolitophila (Bolitophila) tenella Winnertz, 1863
MRI, Sunndal, Jordalsgrend, 6-11 Nov 2005 (WT) — 5 ♂♂; 1 Feb-1 Mar 2006 (WT) — 1 ♂.
This widely distributed Palaearctic species has to our knowledge not previously been published from Norway.

Bolitophila (Cliopisa) ingrica Stackelberg, 1969
MRI, Sunndal, Jordalsgrend, 31 May-13 Jul 2004 (MT) — 1 ♂.
This widely distributed Palaearctic species has to our knowledge not previously been published from Norway.

Bolitophila (Cliopisa) limitis Polevoi, 1996
MRI, Sunndal, Jordalsgrend, 13-31 May 2005 (WT) — 1 ♂.
A little known species previously reported from the type locality in southeastern Finland only (Polevoi 1996).

Brachypeza (Brachypeza) armata Winnertz, 1863
A Palaearctic species with a mainly northwestern distribution in Europe.

Brevicornu canescens (Zetterstedt, 1852)
= Brevicornu griseolum auct. nec (Zetterstedt, 1852)
MRI, Sunndal, Jordalsgrend, 6-23 Oct 2005 (WT) — 1 ♂.
This species name was reinstated by Kjærandsen (2005), but not implemented in the Norwegian checklist by Gammelmo & Søli (2006). Hence, previous Norwegian records of B. griseolum now most likely refers to B. canescens, while B. boreale (Lundström, 1914) is a junior synonym of the true B. griseolum sensu auctore (see Kjærandsen 2005).

Brevicornu fasciculatum (Lackschewitz, 1937)
MRI, Sunndal, Jordalsgrend, 31 May-13 Jul 2004 (MT) — 1 ♂; 26 Aug-6 Oct 2004 (MT) — 4 ♂♂; 25 Aug-15 Sep 2005 (WT) — 1 ♂; Nesset, Øvre Vike, site 1, 12 Jun-2 Jul 1999 (MT) — 1 ♂; site 3 (MT) — 1 ♂.
This European species was previously known from Karelia, Finland, Sweden, Latvia, Germany and the Czech Republic (Chandler 2005).

Brevicornu improvisum Zaitzev, 1992
MRY, Aure, Ånes, 31 May-14 Jun 2006 (WT) — 1 ♂.
A Holarctic species with a northwestern distribution in Europe.

Brevicornu nigrofuscum (Lundström, 1909)
A European species with a western distribution.
Brevicornu verralli (Edwards, 1925)
MRI, Sunndal, Jordalsgrend, 6-23 Oct 2005 (WT) — 1 ♂.
This Western Palaearctic species is widespread in Europe.

Cordyla insons Lastovka & Matile, 1974
This European species was recently reinstated as separate from E. spinuligera and mentioned from Norway by (Kjærandsen et al. 2007b).

Exechia borealis Lundström, 1912
MRI, Sunndal, Jordalsgrend, 11 Nov-1 Dec 2005 (WT) — 1 ♂.
This species was recently reinstated as separate from E. spinuligera and mentioned from Norway by (Kjærandsen et al. 2007b).

Exechiopsis (Xenexechia) seducta (Plassmann, 1976)
MRI, Sunndal, Jordalsgrend, 1-26 Apr 2006 (WT) — 1 ♂.
This European species was previously known only from Karelia (Polevoi 2000), Finland (Jakovlev et al. 2006), Sweden (type) and Hungary (Chandler 2005).

Macrocera angulata Meigen, 1818
A Western Palaearctic species, widely distributed in Europe.

Monoclonia braueri (Strobl, 1895)
MRI, Nesset, Øvre Vike, site 1, 12 Jun-2 Jul 1999 (MT) — 1 ♂; site 3 (MT) — 1 ♂.
This Palaearctic species has a northern and central distribution in Europe. Confusion is possible with the closely related and Holarctic Monoclonia furcata Johannsen, 1910, in Europe reported only from Norway (Okland & Zaitzev 1997) and Romania (Chandler 2005).

Monoclonia silvatica Zaitzev, 1983
? = Monoclonia mikii Kertesz, 1898
MRI, Sunndal, Jordalsgrend, 31 May-26 Aug 2004 (MT) — 1 ♀, 3 ♂♂.
A little known Palaearctic species, in Europe previously reported from eastern and central parts (Chandler 2005). According to Chandler (2005) this species is an unconfirmed junior synonym of Monoclonia mikii Kertesz, 1898 (not known from Norway). An old record of M. mikii from Finland by C. Lundström is incorrect and rather belongs to M. braueri (J. Jakovlev pers. com.).

Mycetophila biusta Meigen, 1818
MRI, Sunndal, Jordalsgrend, 31 May-13 Jul 2004 (MT) — 1 ♂.
This western European species was listed without any known Norwegian records by Gammelmo & Soli (2006).

Mycetophila blanda Winnertz, 1863
This Palaearctic species is widely distributed in Europe.

Mycetophila forcipata Lundström, 1913
A widely distributed Palaearctic species.

Mycetophila gentilicia Zaitzev, 1999
Identification of species in the M. vittipes group is difficult and several species have been described based only on minute details of the male gonostylus. Using Zaitzev (1999, 2003) we find the specimens to belong to M. gentilicia, previously known only from the Moscow and Kostroma provinces and Altai Mountains of Russia (Zaitzev 2003). However, it is likely to be an overlooked species.
Mycetophila magnicauda Strobl, 1895  
A widely distributed European species.

Mycetophila nigrofusca Dziedzicki, 1884  
**MRI**, Sunndal, Jordalsgrend, 13 Jul-26 Aug 2004 (MT) — 1 ♂; 6-23 Oct 2005 (WT) — 2 ♂♂; **Nesset, Øvre Vike, site 1, 12 Jun-2 Jul 1999 (MT) — 1 ♂.**  
This Palaearctic species has a mainly northwestern distribution in Europe.

Mycetophila occultans Lundström, 1913  
A widely distributed European species.

Mycetophila perpallida Chandler, 1993  
This Western Palaearctic species is widespread in Europe but has previously been confused with *M. fungorum*.

Mycetophila quadra Lundström, 1909  
A Palaearctic species, in Europe previously reported from Karelia, Finland, Sweden, Germany, Switzerland and Hungary (Chandler 2005). The two ♀♀ from Jordalsgrend differ from the illustrated type material (Lundström 1909) and illustration by Zaitzev (2003) in having two instead of three large spoon shaped setae apically on the ventral branch of the gonostylus.

Mycetophila sigmoides Loew, 1869  
**MRI**, Nesset, Øvre Vike, site 1, 12 Jun-28 Jul 1999 (MT) — 2 ♂♂.  
This Holarctic species is in Europe reported from northern and central parts (Chandler 2005).

Mycetophila stolida Walker, 1856  
**MRI**, Sunndal, Jordalsgrend, 13 Jul-26 Aug 2004 (MT) — 1 ♂; **Nesset, Øvre Vike, site 3, 2-28 Jul 1999 (MT) — 1 ♂.**  
This Holarctic species is widely distributed in Europe.

Mycetophila strobli Lastovka, 1972  
This Palaearctic species is widely distributed in Europe.

Mycetophila subsigillata Zaitzev, 1999  
Of this Palaearctic species there are so far only scattered records in Europe. Some earlier European records of *M. sigillata* Dziedzicki, 1884 (not known from Norway) may refer to this species.

Mycetophila uliginosa Chandler, 1988  
This European species is previously reported only from Great Britain, Spain and France (Chandler 2005).

Mycetophila v-nigrum Lundström, 1913  
**MRI**, Sunndal, Jordalsgrend, 26 Aug-6 Oct 2004 (MT) — 1 ♂; 6-23 Oct 2005 (WT) — 1 ♂; **Nesset, Øvre Vike, site 3, 2-28 Jul 1999 (MT) — 1 ♂.**  
This Palaearctic species is widely distributed in Europe.

Mycetophila zetterstedti Lundström, 1906  
This Palaearctic species is in Europe reported from northern and central parts (Chandler 2005).

Mycomya (Mycomya) collini Edwards, 1941  
**MRI**, Nesset, Øvre Vike, site 1, 2-28 Jul 1999 (MT) — 1 ♂.  
A poorly known European species with unknown biology, previously recorded at a few localities in England, Germany, Switzerland, Estonia and Finland (Väisänen 1984, Chandler 2005, Falk &
Chandler 2005). May be under-recorded due to low population size (Falk & Chandler 2005).

*Mymyca (Mycomya) karelica* Väisänen, 1979


A little known Palaearctic species, in Europe previously known with a northeastern distribution recorded from Karelia, Finland, Estonia and Poland (Chandler 2005).

*Mymyca (Mycomyopsis) paradentata* Väisänen, 1984


A Palaearctic species, in Europe widely distributed north of the Mediterranean area (Chandler 2005).

*Phronia coritanica* Chandler, 1992


This European species has mainly a westerly distribution (Chandler 2005).

*Phronia maculata* Dziedzicki, 1889


This Palaearctic species in widely distributed in Europe.

*Phronia triangularis* Winnertz, 1863


A widely distributed European species.

*Phronia vitrea* Plassmann, 1999


This European species has a mainly northwesterly distribution. Listed without known records by Gammelmo & Søli (2006). Might have been reported under the name *P. longelamellata* by Søli (1994) (see Kallweit 1998, Chandler 2001).

*Rymosia spinipes* Winnertz, 1863


A widespread Palaearctic species, seemingly uncommon and local throughout its range.

*Sceptonia demeijerei* Bechev, 1997

**MRI**, Nesset, Øvre Vike, site 1, 12 Jun-2 Jul 1999 (MT) — 1 ♂.

A mainly northwestern European species.

*Sceptonia pughi* Chandler, 1991

**MRI**, Nesset, Øvre Vike, site 1, 12 Jun-2 Jul 1999 (MT) — 1 ♂, 1 ♀.

This European species is known from Finland (Jakovlev et al. 2006), Sweden (Kurina et al. 2005), Great Britain, France, Slovakia, Hungary and Bulgaria (Chandler 2005).

*Sceptonia thaya* Sevcik, 2004


This European species is so far reported only from The Czech Republic (type) and Finland (Jakovlev et al. 2006).

*Sciophila jakutica* Blagoderov, 1992


This European species is described from Siberia (Blagoderov 1992), in Europe previously recorded from Karelia, Finland, Sweden, The Czech Republic and Switzerland (Chandler 2005).

*Sciophila pomacea* Chandler 2006

= *S. ochracea* Stephens in Walker, 1856 [homonym]


A Holarctic species, in Europe previously recorded from Russia N (Karelia) and S. Finland, Denmark, Germany, Great Britain and France (Chandler 2005). A replacement name was suggested by Chandler (2006) due to homonymy.
Synplasta gracilis (Winnertz, 1863)


First records of this genus from Norway, a second yet unidentified species of Synplasta also present with a single female from Jordalsgrend. S. gracilis is widely distributed in Europe.

Syntemna elegantia Plassmann, 1978

MRI, Sunndal, Jordalsgrend, 6-23 Oct 2005 (WT) — 3 ♂♂; Nestet, Øvre Vike, site 1, 12 Jun-28 Jul 1999 (MT) — 1 ♀, 4 ♂♂; site 2, 12 Jun-2 Jul 1999 (MT) — 2 ♂♂.

This species is known from northern and central parts of Europe.

Trichonta apicalis Strobl, 1898

MRI, Sunndal, Jordalsgrend, 1-26 Apr 2006 (WT) — 2 ♂♂.

A widely distributed European species.

Trichonta excisa Lundström, 1916

MRI, Nesset, Øvre Vike, site 3, 12 Jun-2 Jul 1999 (MT) — 1 ♂.

A Holarctic species, in Europe previously known only from Karelia, Poland and Romania (Chandler 2005).

Trichonta girschneri Landrock, 1912

MRI, Sunndal, Jordalsgrend, 31 May-13 Jul 2004 (MT) — 1 ♂.

This Holarctic species is widely distributed in Europe.

Trichonta subterminalis Zaitzev & Menzel, 1996

MRI, Nesset, Øvre Vike, site 1, 12 Jun-2 Jul 1999 — 2 ♂♂; MRY, Aure, Ånes, 26 Apr-14 Jun 2006 — 6 ♂♂.

A Palaeartic species; in Europe previously known from Ukraine, Russia C, Estonia (Chandler 2005), and Finland (Polevoi et al. 2006).

Zygomyia angusta Plassmann, 1977

MRI, Sunndal, Jordalsgrend, 26 Aug-6 Oct 2004 (MT) — 1 ♀, 1 ♂.

This European species is previously known only from Karelia, Estonia and Germany (Chandler 2005), and from Finland (Jakovlev et al. 2006).

Zygomyia valeriae Chandler, 1991

MRI, Sunndal, Jordalsgrend, 31 May-13 Jul 2004 (MT) — 1 ♂.

This species is previously known with a mainly southwestern distribution in Europe.

Species on the 2006 Norwegian Red List

Acnemia longipes Winnertz, 1863


This wide Palaeartic species has mainly a northwestern distribution in Europe. Redlisted (DD) in Norway based on a single record from western Norway (HOY) (Gammelmo et al. 2006). Probably a common species in southern Norway.

Allodia (Allodia) zaitzevi Kurina, 1998


Listed without known records by Gammelmo & Sohl (2006), and redlisted (NT) based on a single record from southeastern Norway (VE) (Gammelmo et al. 2006). Probably a common and widespread species in Norway, possibly partly reported as A. (A.) pyxidiiformis Zaitzev, 1983 by Øklund & Zaitzev (1997).

Allodia (Brachycampta) alternans (Zetterstedt, 1838)


Redlisted (NT) based on records from two localities in southeastern Norway (AK, VE).

Allodia (Brachycampta) foliifera (Strobl, 1910)

Redlisted (NT) based on a single record from southeastern Norway (VE).

**Anatella aquila** Zaitzev, 1989

Redlisted (DD) based on a single record from western Norway (SFI) (Søli 1994).

**Anatella turia** Dziedzicki, 1923

Redlisted (NT) based on records from two localities (SFI, AK).

**Boletina takagii** Sasakawa & Kimura, 1974

**MRI**, Sunndal, Jordalsgrend, 15 Sep-6 Oct 2005 (WT) — 1 ♂; 11 Nov-1 Dec 2005 (WT) — 1 ♂; Nesset, Øvre Vike, site 1, 2-28 Jul 1999 (MT) — 4 ♂♂; site 2 (MT) — 1 ♂; site 3 (MT) — 1 ♂.
A little known Palaearctic and probably strictly boreal species, in Europe previously recorded only from northern parts of Karelia (Polevoi 2000), northern Finland (Jakovlev et al. 2006) and Norway (FV) (Gammelmo & Søli 2006). Redlisted (DD) and suggested by Gammelmo et al. (2006) to be associated with sandy pine forests. The present records represent the most western and southern locality in Europe. Type material from Hokkaido, Japan has been studied by the first author to confirm the identity of this species.

**Boletina (Cliopisa) edwardsiana** Stackelberg, 1969

This species is redlisted (DD) based on a single record from southeastern Norway (HES) (Økland & Zaitzev 1997).

**Brevicornu serenum** (Winnertz, 1863)

Redlisted (NT) based on a single record from southeastern Norway (VE) (Gammelmo & Søli 2006).

**Diadocidia (Adidocidia) valida** Mik, 1874

Redlisted (NT) and previously known only from three localities (TEY, VE, SFI) (Rindal & Gammelmo 2007).

**Exechia nigroscutellata** Landrock, 1912

Redlisted (VU) based on a single record from southeastern Norway (AK) (Gammelmo & Søli 2006).

**Exechia pseudocincta** Strobl, 1910

Redlisted (VU) based on a single record from southeastern Norway (AK) (Gammelmo & Søli 2006).

**Exechiopsis (Exechiopsis) landrocki** (Lundström, 1912)

Redlisted (DD) based on a single female record from southwestern Norway (HOI). Although only females have been published from Norway, the single record from mine galleries in Atramadalen by Kjærandsen (1993) has been confirmed later by more material of both sexes, and the female terminalia conforms to illustrations provided by Burghhele-Balacesco (1967).

**Exechiopsis (Xenechexia) leptura** (Meigen, 1830)

Redlisted (VU) based on a single record from southeastern Norway (AK) (Økland & Zaitzev 1997). Probably a common species in western Norway.
**Exechiopsis (Xenexechia) membranacea** (Lundström, 1912)


Redlisted (DD) based on a single record from southeastern Norway (AK) (Gammelmo et al. 2006).

**Keroplatus testaceus** Dalman, 1818


This large conspicuous species is redlisted (VU), likely to have a strong preference for old-growth forests, and known from few localities only (Økland & Søli 1992).

**Leia bilineata** (Winnertz, 1863)


Redlisted (VU) based on records from two localities in southeastern Norway (AK, VE) (Gammelmo et al. 2006).

**Leia cylindrica** (Winnertz, 1863)

**MRI**, Sunndal, Jordalsgrend, 6-23 Oct 2005 (WT) — 1 ♀, 4 ♂♂.

Redlisted (VU) based on records from two localities in southeastern Norway (AK, VE) (Gammelmo et al. 2006).

**Monocentrota lundstroemi** Edwards, 1925


Redlisted (DD) based on a record from one locality only (HOY) (Gammelmo et al. 2006).

**Mycetophila abbreviata** Landrock, 1914


Redlisted (DD) based on a record from one locality only (HOY) (Gammelmo et al. 2006).

**Mycetophila gibbula** Edwards, 1925


Redlisted (DD) based on a single record from western Norway (SFI) (Søli 1994). Probably a common species in western Norway.

**Mycetophila formosa** Lundström, 1911


Redlisted (VU) based on a single record from southeastern Norway (VE) (Gammelmo & Søli 2006).

**Mycetophila edwardsi** Lundström, 1913


This widely distributed Palaearctic species is redlisted (NT) based on one record only from southeastern Norway (TEY) (Gammelmo & Søli 2006).

**Mycomya (Cymomya) circumdata** (Staeger, 1840)


This widely distributed Palaearctic species is redlisted (NT) based on one record only from southeastern Norway (TEY) (Gammelmo & Søli 2006).

**Mycomya (Mycomya) denmax** Väisänen, 1979


This widespread Holarctic species has mainly a northwestern distribution in Europe. Redlisted (VU) based on a single record from southeastern Norway (VE) (Gammelmo & Søli 2006).

**Neuratelia nigricornis** Edwards, 1941

A little known species, in Norway known only with one ♀ from **MRI**: Norddal, Tafjord, 15 Jun 1989 (Gammelmo & Søli 2006) and redlisted (DD) by Gammelmo et al. (2006).
Palaeodocosia alpicola (Strobl, 1895)
Redlisted (VU) based on a single record from southeastern Norway (TEY) (Gammelmo & Solli 2006).

Phronia dziedzickii Lundström, 1906
Redlisted (VU) based on a single record from southeastern Norway (OS) (Økland & Zaitzev 1997).

Phronia obtusa Winnertz, 1863
Redlisted (NT) based on records from two localities in southeastern Norway (AK) (Gammelmo et al. 2006, Økland & Zaitzev 1997) and (OS) (Økland & Zaitzev 1997).

Phronia unica Dziedzicki, 1889
MRI, Sunndal, Jordalsgrend, 1-26 Apr 2006 (WT) — 3 ♂♂.
Redlisted (DD) based on a single record from western Norway (HOY) (Gammelmo & Solli 2006).

Sciophila nonnisilva Hutson, 1979
MRI, Sunndal, Jordalsgrend, 1-31 May 2004 (MT) — 1 ♂; 13 Jul-26 Aug 2004 (MT) — 1 ♂; Nesset, Øvre Vike, site 1, 12 Jun-2 Jul 1999 (MT) — 1 ♂.
Redlisted (NT) based on a few records in southeastern Norway (OS) (Økland & Zaitzev 1997).

Sciophila salassea Matile, 1983
MRI, Sunndal, Jordalsgrend, 1-31 May 2004 (MT) — 1 ♂; Nesset, Øvre Vike, site 1, 12 Jun-2 Jul 1999 (MT) — 9 ♂♂ (2 ♂♂ deposited NMS and 1 ♂♂ coll. Chandler); site 2 (MT) — 2 ♂♂.
Redlisted (VU) based on a few records from southeastern Norway (OS) (Økland & Zaitzev 1997). The record from Øvre Vike published by Chandler (2006) concerns the same material as listed above.

Symmerus annulatus (Meigen, 1830)
MRI, Nesset, Øvre Vike, site 3, 12 Jun-2 Jul 1999 (MT) — 1 ♂.
Redlisted (EN) and previously known only from four localities in southeastern Norway (AK, TEY) (Gammelmo & Rindal 2006).

Symmerus nobilis Lackschewitz, 1937
Redlisted (EN) and previously known only from two localities in southeastern Norway (AK, TEY) (Gammelmo & Rindal 2006). Gammelmo & Rindal (2006) suggested the Symmerus species to have a preference for south facing warm broadleaved forests. While the site at Øvre Vike can be characterized as such, the site at Jordalsgrend is facing NW and is hardly a typical warm, broadleaved forest.

Other noteworthy species

Diadocidia (Adidocidia) trispinosa Polevoi, 1996
Diadocidia (Adidocidia) borealis auct. nec Coquillett, 1900
MRI, Sunndal, Jordalsgrend, 1 May-13 Jul 2004 (MT) — 1 ♀, 4 ♂♂.
Published under the name D. (A.) borealis by Økland & Zaitzev (1997), and previously known from a number of sites in SE Norway (AK, BØ, OS, HEN, HES) (Rindal & Gammelmo 2007).

Cordyla bomloensis Kjærandsen & Kurina, 2004
The first record of this species after the original description from localities further south in western Norway (HOY, RY) (Kjærandsen & Kurina 2004). After screening large amounts of European Cordyla this unique species has only been found at a few oceanic localities in western Norway and in a boreal-alpine area of the Italian Alps (Kurina submitted, pers. comm.).
DISCUSSION

High species diversity at a single site
By using two complementary trapping methods throughout the year in a practically unstudied area of Norway we revealed a high diversity of fungus gnats at a single site. Altogether 315 species of fungus gnats entering an area of roughly 1 square meter over a two years timeframe may be characterized as exceptionally high species richness. Møre og Romsdal and the site at Jordalsgrend now have 63 % and 56 %, respectively, of the known Norwegian fauna of the family Mycetophilidae. Some 16 % of the species are new to the Norwegian fauna a year after updated checklists have been published, and 3 % are new to science. Yet, the actual number of fungus gnats in Møre og Romsdal is probably considerably larger.

The story is not new. Every time a larger survey of fungus gnats have been undertaken in the Nordic region surprisingly new and higher levels of species diversity have been revealed (Plassmann 1978, 1979, 1980, Søli 1994, Økland & Zaitzev 1997, Hedmark 1998, 2000, Polevoi 2000, Kurina et al. 2005, Jakovlev & Siitonen 2005, Jakovlev et al. 2006). Many little known species from remote areas turn up as rarities, later often to become known as widely distributed and even common. A smaller proportion of species are usually also claimed to be new to science (typically 4-10 %). This might be seen as a normal description of the knowledge accumulation for a diverse and little known insect group with few active taxonomists, but after some 200 years of taxonomic work on fungus gnats in Europe, and several larger surveys in the Nordic region, one would expect the knowledge of the fauna to have reached a saturated level where the rate of new discoveries are on the decline. This seems not to be the case as yet (see Kjærandsen et al. 2007a) and this contribution brings us very fast towards the estimated fauna of 550 Norwegian species of Mycetophilidae (Gammelmo & Søli 2006).

The species richness at Jordalsgrend is considerably higher than Søli (1994) reported using extensive sweep netting, one Malaise trap and two light traps during one season at 11 localities at Jostedalen. It is about the same species richness that Økland & Zaitzev (1997) reported based on numerous Malaise and window trap catches over a three year period at 38 localities spread over boreal and boreonemoral forests of southeastern Norway. It is a considerably higher diversity than Kurina et al. (2005) reported using Malaise and window traps at 17 localities over a two years period in boreonemoral, oak-dominated forests in Sweden. The Messaure area with boreal mixed-deciduous forest in northern Sweden (LU) is known to have higher species richness (Hedmark 2000, Kjærandsen et al. 2007a) and in boreal areas of southern Finland (Ta) 433 species of fungus gnats have been caught in old spruce-dominated forests using 20 Malaise traps at 10 sites during one season (J. Jakovlev pers. com.). If we compare the species composition from Jordalsgrend with other surveys we find only 43 % of the species in common with Jostedalen, 56 % of the species in common with the mainly boreal forests of southeastern Norway, 75 % of the species in common with boreal forests of northern Sweden (LU), and 48 % of the species in common with boreonemoral forests of southern Sweden. Still, 9 % of the species from Jordalsgrend were not reported in any of the areas mentioned above, and 8 % seem to form a group of species mainly distributed in the boreonemoral and/or nemoral zone. The latter group include species like Cordyla bomloensis, Monoclonia silvatica, Mycetophila adumbrata, Mycetophila forcipata, Mycetophila gentilicia, Palaeodocosia alpica, Phronia conformis, Phronia coritanica, Phronia maculata, Phronia triangularis, Phthinia winnertzi and Zygomyia valeriae. Another four species in this group were also reported from nearby Jostedalen, viz. Anatella longisetosa, Mycetophila mohilevensis, Mycetophila ornata and Phronia humeralis.

There are several plausible explanations for the high species diversity found at Jordalsgrend. As opposed to many other insects groups fungus gnats seem to display an increasing diversity towards the north in Europe (Jakovlev & Siitonen 2005, Kjærandsen & Bengtson 2005), possibly with the
exception of some southern high altitude forests (see Kurina submitted). Being mainly crepuscular, drought intolerant forests dwellers, fungus gnats are well adapted to the largely cool and wet climate in the Nordic region. The major vegetation zones in the Nordic countries (nemoral, boreonemoral, boreal and arctic/alpine) can be explained largely by variation in summer temperatures from south to north or from lowland to higher altitudes. In addition, there are vegetation sections following a gradient from oceanic (warm winters, humid, small temperature range) to continental climate (cold winters, dry, large temperature range) (Moen 1998). In Norway, only southern parts of the boreal and the boreonemoral zone having a more or less continental (or weakly oceanic) climate are reasonably well studied with respect to fungus gnats. The present paper represents the first larger survey in the boreal-oceanic (Atlantic) area along the coast of Norway where the boreal, mixed or deciduous forests at some places may be climatologically considered to be temperate rain forest (see Holien & Tønsberg 1996, Gaarder 2004). It seems reasonable to assume that such a "rain forest element", with boreal, old-growth deciduous and mixed forests, is a particularly suitable habitat for fungus gnats. Jostedalen, surveyed by Søli (1994), is situated only about 150 km south of Jordalsgrend and has some similarities, but this area has a less oceanic climate (Moen 1998), and the forest is dominated by birch (Søli 1994).

Økland (1996) found the proportion of old-growth forest in the surrounding 100 km² landscape to show the strongest influence on species richness of fungus gnats in southeastern Norway. The environmental variable OLDGRWTH used by Økland (1996) is difficult to evaluate at Jordalsgrend due to the complexity of the surrounding landscape with a high proportion of sea surface and alpine areas. The variable KEYHABMIX defined as the proportion of key habitats and protected areas of mixed forests within a circle of radius 1 km and used by Økland et al. (2005) is easier to evaluate. 40 % of this circle is covered by sea (fjord) at Jordalsgrend, but in the remaining land area, KEYHABMIX is assumed to be approximately 30 %. A comparison between the 17 Malaise trap collections from boreal and boreonemoral, spruce-dominated forests of southeastern Norway (dots and trendline) reproduced from Økland (1996), and the closest comparable Malaise trap sample (31 May - 26 August 2004) from the boreal-oceanic, old deciduous forest at Jordalsgrend in the present study (big square).

Figure 3. Number of fungus gnat species expressed as proportion of old-growth forest in the surrounding landscape. A comparison between the 17 Malaise trap collections from boreal and boreonemoral, spruce-dominated forests of southeastern Norway (dots and trendline) reproduced from Økland (1996), and the closest comparable Malaise trap sample (31 May - 26 August 2004) from the boreal-oceanic, old deciduous forest at Jordalsgrend in the present study (big square).
On the redlisted species

Many fungus gnats are undoubtedly dependent on the restricted and threatened occurrence of undisturbed old-growth forests in Norway, and with their high species diversity they can serve as an excellent model group for biomonitoring. With 126 species included in the 2006 Norwegian Red List, a welcome and rightful attention is brought to the group. In light of the discussion above, however, fungus gnats representing 54% of all redlisted Diptera in Norway might be partly unjustified at our present state of knowledge. While the current Red List of fungus gnats seems to be based mainly on the fauna studied in southeastern Norway, the rich fauna of fungus gnats further north and west in Norway might reveal a rather different picture. We demonstrate here that investigations in new areas and using alternative methods of sampling reveal that some of the redlisted fungus gnats may be widespread and common. For comparison, only fungus gnats of the family Keroplatidae were considered well enough known to be evaluated in the 2005 Swedish Red List, resulting in only 4% of the redlisted Diptera being fungus gnats (Gärdenfors 2005).

The finding of 30 redlisted species at Jordalsgrend and four additional species from other localities in Møre og Romsdal, is a high number, even taking into consideration the qualities of the forest at Jordalsgrend. Three of the species found in Møre og Romsdal are considered to be endangered (EN) in Norway. Our findings of both species of Symmerus give a completely new perspective on the distribution of the family Ditomyiidae in Norway, previously reported from southeastern parts only (Gammelmo & Rindal 2006), and redlisted due to restricted extent of occurrence and occupancy. The species Mycetophila gibbula is listed as endangered in Norway due to restricted area of occupancy, based on a single record from southeastern Norway. This species is widespread in Europe and also characterized as widespread in Sweden (Kjærandsen et al. submitted). Altogether 9 of the 12 species considered to be vulnerable (VU), and all redlisted due to restricted area of occupancy, are previously known only with one record each from southeastern Norway. The species Exechia nigroscutellata, E. pseudocincta and Leia cylindrica appear to be quite widespread and common in Sweden (Kjærandsen et al. 2007a) and Finland (J. Jakovlev pers. com.). Four of the 9 species considered to be near threatened (NT) are previously known only with one record each in Norway. Several of them are found in high numbers and at more than one locality in Møre og Romsdal. For instance, Alloedia zaitzevi, found in abundance at Jordalsgrend and Ånes, is a common species in boreal and boreonemoral areas of Sweden (Kjærandsen et al. 2007a) and one of the most common species in southern Finland (J. Jakovlev pers. com.). Among the 10 species considered to be data deficient (DD), at least Acnemia longipes and Exechiopsis (X.) membranacea might prove to be common and widespread in Norway.

Implications for forest management

At this stage, rather than focusing on redlisted fungus gnats, we recommend documentation of species diversity of the group as a better criterion for forest management. As pointed out by Økland & Zaitzev (1997), boreal deciduous forests are underrepresented in investigations of fungus gnats, and this is especially true for the old deciduous forests with continuity in dead wood. The high species diversity found at Jordalsgrend reveals a new picture when compared with other surveys in the Nordic region, and the old, (sub)oceanic forests dominated by deciduous trees may form important "hot spots" for both fungus gnats and other organisms. In addition to normal processes creating dead wood, snow avalanches and rock falls break down trees in the steep West Norwegian mountain slopes, thus speeding up the process of creating decaying wood. Populations of many species dependent on dead wood may be larger here than elsewhere. Our results indicate that there may exist a new and hitherto unknown boreal element of fungus gnats that could be especially present in humid, old-growth deciduous or mixed forests, a possible "boreal rainforest element". However, we will not speculate further on this pending on a better understanding of the distribution pattern of fungus gnats in the entire Nordic region. Alternatively,
these oceanic forests may have high species diversity, consisting of a mixture of widespread boreal and boreonemoral species, mainly due to the favourable climate and especially where the proportion of dead and decaying wood is high. In any case, there are several reasons to underline the significance of the oceanic forests of western Norway as important areas for the conservation of biological diversity in a regional perspective, and this may have implications for future forest management as these forests are underrepresented in most conservation plans. Further investigations in the "rain forests" of Norway are highly recommended.

Acknowledgements. The study was financially supported by the Swedish Taxonomy Initiative (see Miller 2005). We are very grateful to Finn Oldervik (Aure) and to Oddvar Hanssen (Norwegian Institute for Nature Research, Trondheim) for providing us with additional material from Møre og Romsdal. Finally we thank Kjell Hedmark, Jevgeni Jakovlev, Olavi Kurina and Mikael Sörensson for commenting on early drafts of the manuscript.

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Received 12 June 2007, accepted 20 September 2007