RESEARCH ARTICLES
ОРИГИНАЛЬНЫЕ СТАТЬИ

FUNGUS GNATS (DIPTERA: BOLITOPHILIDAE, DIADOCIDIIDAE, KEROPLATIDAE, MYCETOPHILIDAE) IN THE KOSTOMUKSHA STATE NATURE RESERVE, RUSSIA

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Received: 29.04.2020. Revised: 18.08.2020. Accepted: 15.09.2020.

Fungus gnats represent an informal assemblage of insect families in the superfamily Sciaroidea. This is a highly diverse group comprising nearly 1000 species in Fennoscandia. Fungus gnats are comparatively well studied in the Republic of Karelia, although the coverage is uneven. Hence, any new data from poorly known areas would provide a better background for further analysis of zoogeographical patterns both at local and at Fennoscandian level. With just 100 known species, the fauna of fungus gnats in the Kostomuksha State Nature Reserve has until recently been insufficiently studied. The paper presents the results of faunistic research in the Kostomuksha State Nature Reserve since 1993. The revised checklist is based on original material and includes 177 species of fungus gnats belonging to the families Bolitophilidae, Diadocidiidae, Keroplatidae and Mycetophilidae. Eighty-five species were added to the fauna, and eight species were removed from the list. The revealed diversity is comparatively low and most of the recorded taxa are common in Fennoscandia. However, a number of rare and remarkable species was found, indicating a potentially rich fauna. Five species (*Mycomya obliqua*, *Sciophila krysheni*, *Syntemna morosa*, *Mycetophila devioides*, *Mycetophila haruspica*) are reported for the first time from the Republic of Karelia and Russia. *Mycomya obliqua* is also new for the Palaearctic region. All remarkable records are commented, and male genitalia images are provided for poorly known species. Two species of presumably western origin (*Sciophila krysheni* and *Mycetophila devioides*) and one Nearctic species (*Mycomya obliqua*) are discussed in more details. A relatively low diversity is explained by an insufficient earlier collecting activity and concentration of recent Malaise trapping on small islands with a poorer fauna. The need for further studies in the Kostomuksha State Nature Reserve, with a better coverage of habitats and using additional collecting methods, is substantiated.

Key words: checklist, fauna, rare species, Republic of Karelia, Sciaroidea

Introduction

The informal name «fungus gnats» is used by most authors to designate an assemblage of five families in the superfamily Sciaroidea: Bolitophilidae, Diadocidiidae, Ditomyiidae, Keroplatidae and Mycetophilidae. This is a highly diverse group, including more than 5000 species worldwide (Pape et al., 2011) and nearly 1500 species in the Palaearctic region (Søli et al., 2000). In Europe, the diversity of fungus gnats increases northwards, with the richest fauna in the boreal zone. Fungus gnats are well known in Scandinavian countries, largely due to growing interest since the beginning of the XXI century. Nowadays, the number of known species exceeds 750 in Finland and Sweden (Kjærandsen et al., 2007; Jakovlev, 2014), and 600 (only for the family Mycetophilidae) in Norway (Søli & Rindal, 2012), and may reach around 1000 in the whole of Fennoscandia (Salmela & Kaunisto, 2015).

The Republic of Karelia (hereafter – Karelia), with 676 known species of fungus gnats (Jakovlev et al., 2014), is one of the best-studied regions in Russia. However, with a few exceptions, collecting in its territory has been sporadic (Polevoi, 2000; Yakovlev et al., 2003), giving a rather fragmented picture of the fungus gnat distribution. This hampers the analysis of zoogeographical patterns at local and Fennoscandian level, and makes any new data from insufficiently studied areas very important. Kostomuksha State Nature Reserve is one of the places with a poorly known fauna of fungus gnats. The available species list, including 95 species, dates back to the late 1990s and is based on irregular sampling in several locations (Polevoi, 1997). Five species were added in previous publications (Polevoi, 2001a, 2003; Polevoi & Hedmark, 2004; Jakovlev & Polevoi, 2008). Besides, there are numerous recent, unpublished additions

to the fauna, and the existing list needs taxonomic revision, too. Some of the published species were split into separate taxa, others are differently interpreted nowadays.

In this paper, we aimed to incorporate all available data from the Kostomuksha State Nature Reserve in a revised species list, provide additional information on poorly known species and briefly discuss the zoogeographic patterns observed in the local fauna.

Material and Methods

The Kostomuksha State Nature Reserve is located in the central part of Karelia, near the border with Finland. This area belongs to the northern taiga subzone and is mostly covered by coniferous forests. More information on ecosystems can be found in Lindholm et al. (1997).

Material was collected during several short expeditions in 1993–1995 and in 2012. Additional data were obtained in 2017 as a result of a Malaise trapping project. Twelve portable Malaise traps were installed on islands in Lake Kamennoe and in the forests along its shores. The traps were deployed on 12–14.06.2017 and checked twice a month until 05–06.09.2017, when all the traps were removed. Collecting points were grouped into seven localities (Table), and Malaise trap sites were assigned to the nearest named locality (Fig. 1). Details on collecting methods and habitats for each locality are given in Table. All the material is stored in the collection of the Forest Research Institute in Petrozavodsk (if not stated otherwise). The order of families and nomenclature in the species list follows Kjærandsen et al. (2007).

Results

The fauna of the Kostomuksha State Nature Reserve includes 177 species of fungus gnats. Five species (*Mycomya obliqua* (Say, 1824), *Sciophila krysheni* Polevoi, 2001, *Syntemna morosa* Winnertz, 1863, *Mycetophila devioides* Bechev, 1988, *Mycetophila haruspica* Plassmann, 1990) are reported for the first time from Karelia and Russia. *Mycomya obliqua* is also new for the Palaearctic region. Additionally, six previously undescribed species will be considered elsewhere, and they are not included in the present list. Eighty-five species (marked with an asterisk) were added to the fauna of the Kostomuksha State Nature Reserve. Eight species, earlier published from this Protected Area, should be removed from the list. Additional comments are provided for species erroneously reported in previous publications and for rare species with poorly known distribution.

Species list

Family Bolitophilidae

Bolitophila cinerea Meigen, 1818 – 1 ♂, Kuikoniemi, 06–09.07.1993.

**Bolitophila hybrida* (Meigen, 1804) – 1 ♂, Luzhmaguba, 13–25.07.2017.

Bolitophila modesta Lackschewitz, 1937 – 1 ♂, River Kamennaya, 23–25.08.1995.

Bolitophila rossica Landrock, 1912 – 2 ♂♂, River Kamennaya, 23–26.08.1995; 1 ♀, Ehrimavara, 16.09.2012.

Table. Information on collecting localities in the Kostomuksha State Nature Reserve

Locality	Co-ordinates	Biotope	Collecting method	Collector	Year
River Kamennaya (6–7 km WNW of the Luvozero village)	64.481 °N, 30.616 °E 64.475 °N, 30.587 °E	Various types of pine (*Pinus sylvestris* L.)- and spruce (*Picea abies* (L.) H.Karst.)-dominated forests	Sweep netting and Malaise traps	A. Polevoi	1994, 1995
Kuikoniemi	64.531 °N, 30.253 °E 64.528 °N, 30.254 °E 64.530 °N, 30.241 °E	*Vaccinium vitis-idaea* L. pine forests and *V. myrtillus* L. spruce dominated forests	Malaise traps	A. Polevoi, G. Várkonyi et al.	1993, 2017
Luzhmaguba	64.426 °N, 30.317 °E 64.438 °N, 30.350 °E	*Vaccinium vitis-idaea* pine forests	Malaise traps	G. Várkonyi et al.	2017
Mokrovary	64.517 °N, 30.243 °E	*Vaccinium myrtillus* pine forests	Sweep netting	A. Polevoi	2012
Shapovara	64.485 °N, 30.186 °E 64.482 °N, 30.170 °E 64.488 °N, 30.147 °E 64.508 °N, 30.159 °E 64.486 °N, 30.172 °E	*Vaccinium vitis-idaea* pine forests	Malaise traps	G. Várkonyi et al.	2017
Ehrimavara	64.552 °N, 30.212 °E	*Vaccinium myrtillus* pine forests	Sweep netting	A. Polevoi	2012
Teternavolok	64.437 °N, 30.138 °E 64.433 °N, 30.184 °E 64.459 °N, 30.157 °E 64.459 °N, 30.155 °E	*Vaccinium vitis-idaea* and *V. myrtillus* pine forests	Sweep netting and Malaise traps	A. Polevoi, G. Várkonyi et al.	2012, 2017

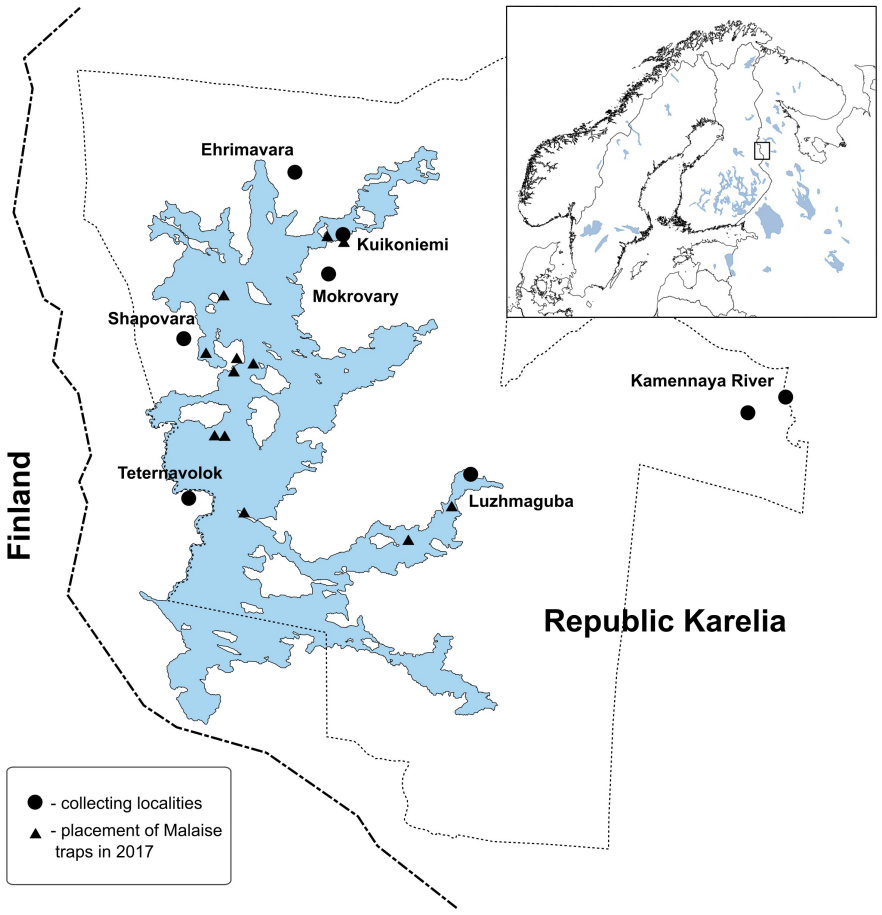

Fig. 1. Collecting localities in the Kostomuksha State Nature Reserve (Russia).

Family Diadocidiidae

Diadocidia ferruginosa (Meigen, 1830) – 1 ♂, River Kamennaya, 23–26.08.1995; 1 ♂, Luzhmaguba, 12–29.06.2017; 1 ♂, Shapovara, 29.06–11.07.2017.

**Diadocidia trispinosa* Polevoi, 1996 – 2 ♂♂, Kuikoniemi, 29.06–11.07.2017.

Family Keroplatidae

Subfamily Keroplatinae

Tribe Orfeliini

**Isoneuromyia semirufa* (Meigen, 1818) – 3 ♂♂, Luzhmaguba, 13.07–11.08.2017.

**Macrorrhyncha flava* Winnertz, 1846 – 2 ♂♂, 1 ♀, Luzhmaguba, 25.07–23.08.2017.

**Neoplatyura flava* (Macquart, 1826) – 2 ♂♂, 1 ♀, Kuikoniemi, 26.07–08.08.2017; 1 ♀, Luzhmaguba, 25.07–11.08.2017; 2 ♀♀, Teternavolok, 25.07–11.08.2017; 1 ♂, 2 ♀♀, Shapovara, 26.07–08.08.2017.

**Pyratula zonata* (Zetterstedt, 1855) – 5 ♂♂, 1 ♀, Kuikoniemi, 29.06–11.07.2017; 2 ♂♂, Teternavolok, 29.06–25.07.2017; 7 ♂♂, Shapovara, 29.06–26.07.2017.

Subfamily Macrocerinae

Macrocera parva Lundström, 1914 – 1 ♂, Kuikoniemi, 06–09.07.1993; 1 ♂, 1 ♀, Luzhmaguba, 29.06–25.07.2017; 1 ♂, Teternavolok, 25.07–11.08.2017; 2 ♂♂, Shapovara, 26.07–23.08.2017.

**Macrocera stigmoides* Edwards, 1925 – 1 ♀, Luzhmaguba, 12–29.06.2017.

**Macrocera zetterstedti* Lundström, 1914 – 4 ♂♂, 1 ♀, Kuikoniemi, 14.06–11.07.2017; 10 ♂♂, 7 ♀♀, Luzhmaguba, 12–29.06.2017; 1 ♀, Teternavolok, 12–29.06.2017; 3 ♂♂, 3 ♀♀, Shapovara, 13–29.06.2017.

Family Mycetophilidae

Subfamily Mycomyinae

Mycomya affinis (Staeger, 1840) – 1 ♂, River Kamennaya, 23–26.08.1995.

Mycomya annulata (Meigen, 1818) – 915 ♂♂, River Kamennaya, 23–27.08.1995; 17 ♂♂, Kuikoniemi, 24.08–05.09.2017; 8 ♂♂, Luzhmaguba, 11.08–05.09.2017; 12 ♂♂, Shapovara, 23.08–06.09.2017.

Mycomya confusa Väisänen, 1979 – 19 ♂♂, River Kamennaya, 23–27.08.1995; 5 ♂♂, Kuikoniemi, 08.08–05.09.2017; 6 ♂♂, Luzhmaguba, 11.08–05.09.2017; 1 ♂, Teternavolok, 23.08–05.09.2017.

Mycomya festivalis Väisänen, 1984 – 1 ♂, River Kamennaya, 23–26.08.1995; 12 ♂♂,

Kuikoniemi, 14.06–26.07.2017; 3 ♂♂, Teternavolok, 29.06–25.07.2017; 15 ♂♂, Shapovara, 29.06–26.07.2017.

Mycomya heydeni (Plassmann, 1970) – 1 ♂, River Kamennaya, 24.08.1995.

Mycomya humida Garrett, 1924 – 13 ♂♂, River Kamennaya, 23–27.08.1995.

Mycomya nigricornis (Zetterstedt, 1852) – 20 ♂♂, River Kamennaya, 23–27.08.1995.

**Mycomya nitida* (Zetterstedt, 1852) – 23 ♂♂, Kuikoniemi, 14.06–26.07.2017; 8 ♂♂, Luzhmaguba, 12.06–25.07.2017; 9 ♂♂, Teternavolok, 29.06–25.07.2017; 54 ♂♂, Shapovara, 13.06–26.07.2017.

**Mycomya obliqua* (Say, 1824) – 13 ♂♂, River Kamennaya, 23–27.08.1995; 9 ♂♂, Kuikoniemi, 08.08–05.09.2017; 4 ♂♂, Luzhmaguba, 11–23.08.2017; 1 ♂, Teternavolok, 25.07–11.08.2017; 2 ♂♂, Shapovara, 24.08–06.09.2017.

Remark. This species is widely distributed in Karelia, but all earlier records were assigned to the closely related species *M. circumdata* (Staeger, 1840). According to Väisänen (1984), *M. circumdata* is a Palaearctic species, while *M. obliqua* has a Nearctic distribution. However, in Karelia, *M. obliqua* proved to be quite common, while *M. circumdata* is known by one unpublished specimen. These species are distinguished by their size and the structure of male genitalia, especially the shape of sternal lateral appendage (Väisänen, 1984). The difference in the latter is best seen in the lateral view (Fig. 2). *Mycomya obliqua* is reported here for the first time from Karelia, Russia and Palaearctic region.

Mycomya pseudoapicalis Landrock, 1925 – 2 ♂♂, Kuikoniemi, 06–09.07.1993; 1 ♂, Kuikoniemi, 11–26.07.2017.

**Mycomya pulchella* (Dziedzicki, 1885) – 2 ♂♂, Kuikoniemi, 24.08–05.09.2017; 1 ♂, Luzhmaguba, 11–23.08.2017.

Mycomya ruficollis (Zetterstedt, 1852) – 2 ♂♂, Kuikoniemi, 06–09.07.1993; 3 ♂♂, Shapovara, 29.06–26.07.2017.

Mycomya shermani Garrett, 1924 – 77 ♂♂, River Kamennaya, 23–27.08.1995; 3 ♂♂, Ehrimavara, 15.09.2012; 2 ♂♂, Kuikoniemi, 08.08–05.09.2017; 1 ♂, Teternavolok, 23.08–05.09.2017.

**Mycomya sigma* Johannsen, 1910 – 1 ♂, Teternavolok, 12–29.06.2017.

Mycomya subarctica Väisänen, 1979 – 1 ♂, River Kamennaya, 25–27.08.1995.

**Mycomya trilineata* (Zetterstedt, 1838) – 2 ♂♂, Kuikoniemi, 08.08–05.09.2017; 2 ♂♂, Luzhmaguba, 11–23.08.2017; 3 ♂♂, Teternavolok, 11.08–05.09.2017; 3 ♂♂, Shapovara, 24.08–06.09.2017.

Mycomya trivittata (Zetterstedt, 1838) – 3 ♂♂, Kuikoniemi, 06–09.07.1993; 1 ♂, River Kamennaya, 24.08.1995; 2 ♂♂, Luzhmaguba, 25.07–

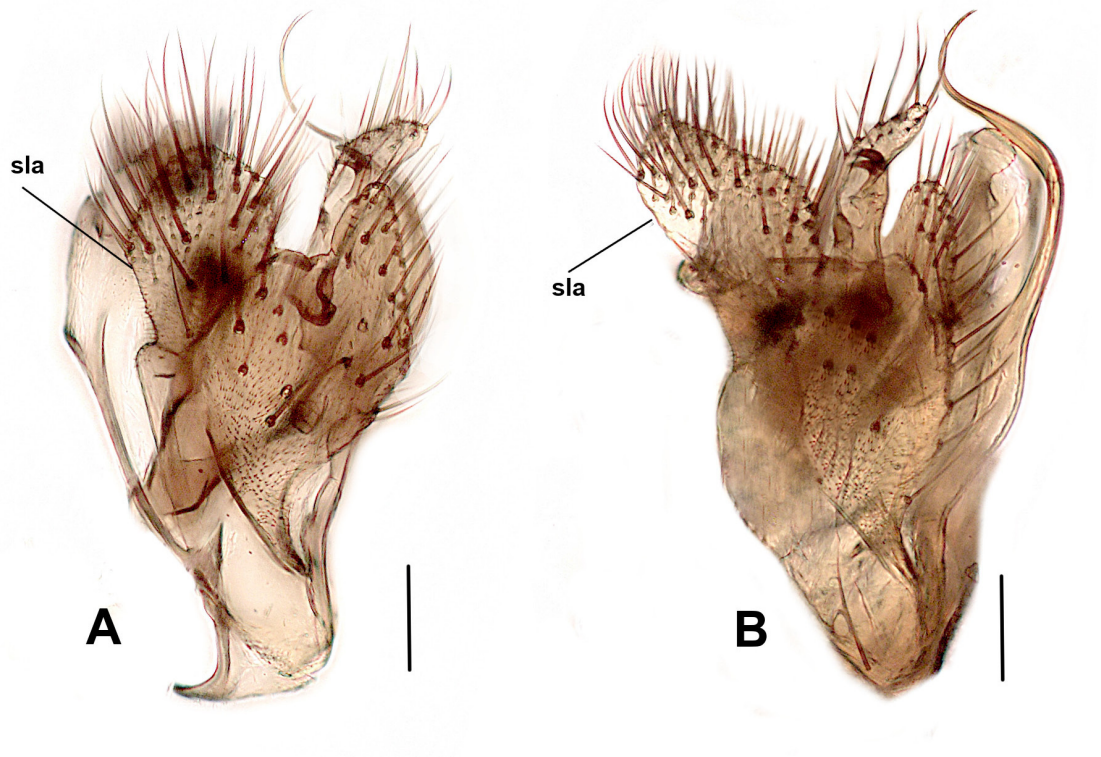

Fig. 2. Male genitalia of *Mycomya* spp. in the lateral view. Designations: A – *Mycomya obliqua*; B – *Mycomya circumdata*. Scale bars: 0.2 mm. Abbreviation: sla – sternal lateral appendage.

11.08.2017; 1 ♂, Teternavolok, 23.08–05.09.2017; 2 ♂♂, Shapovara, 11.07–05.09.2017.

Mycomya vittiventris (Zetterstedt, 1852) – 1 ♂, River Kamennaya, 24.08.1995; 1 ♂, Kuikoniemi, 08–24.08.2017; 1 ♂, Luzhmaguba, 11–23.08.2017; 1 ♂, Teternavolok, 25.07–11.08.2017.

**Neoempheria striata* (Meigen, 1818) – 1 ♀, Teternavolok, 29.06–11.07.2017.

Subfamily Sciophilinae

Acnemia falcata Zaitzev, 1982 – 1 ♂, River Kamennaya, 23–26.08.1995.

Acnemia longipes Winnertz, 1863 – 3 ♂♂, River Kamennaya, 23–27.08.1995.

**Allocotocera pulchella* (Curtis, 1837) – 21 ♂♂, 3 ♀♀, Kuikoniemi, 11.07–24.08.2017; 42 ♂♂, 13 ♀♀, Luzhmaguba, 29.06–23.08.2017; 8 ♂♂, 1 ♀, Teternavolok, 11.07–11.08.2017; 10 ♂♂, 4 ♀♀, Shapovara, 29.06–23.08.2017.

**Azana anomala* (Staeger, 1840) – 1 ♂, Shapovara, 13–29.06.2017.

Monoclona braueri (Strobl, 1895) – 1 ♂, River Kamennaya, 25–27.08.1995.

Monoclona rufilatera (Walker, 1837) – 1 ♂, River Kamennaya, 26–27.08.1995.

Neuratelia nemoralis (Meigen, 1818) – 3 ♂♂, Kuikoniemi, 06–09.07.1993; 1 ♂, Kuikoniemi, 29.06–11.07.2017; 1 ♂, Luzhmaguba, 12–29.06.2017; 1 ♂, 2 ♀♀, Teternavolok, 12.06–11.07.2017; 3 ♂♂, 3 ♀♀, Shapovara, 13.06–11.07.2017.

Phthinia humilis Winnertz, 1863 – 1 ♂, River Kamennaya, 23–26.08.1995; 1 ♂, Kuikoniemi, 14–29.06.2017; 1 ♂, Luzhmaguba, 29.06–13.07.2017; 1 ♂, Shapovara, 29.06–11.07.2017.

**Phthinia mira* (Ostroverkhova, 1977) – 2 ♂♂, Luzhmaguba, 29.06–13.07.2017.

**Phthinia setosa* Zaitzev, 1994 – 1 ♂, Kuikoniemi, 08–24.08.2017; 1 ♂, Shapovara, 11–26.07.2017.

Polylepta borealis Lundström, 1912 – 6 ♂♂, Kuikoniemi, 06–09.07.1993; 65 ♂♂, 1 ♀, Kuikoniemi, 14.06–24.08.2017; 26 ♂♂, 5 ♀♀, Luzhmaguba, 12.06–11.08.2017; 14 ♂♂, 4 ♀♀, Teternavolok, 12.06–23.08.2017; 57 ♂♂, 3 ♀♀, Shapovara, 13.06–08.08.2017.

**Polylepta guttiventris* (Zetterstedt, 1852) – 1 ♂, 1 ♀, Kuikoniemi, 26.07–08.08.2017.

Sciophila fenestella Curtis, 1837 – 1 ♂, River Kamennaya, 26–27.08.1995; 1 ♂, Teternavolok, 29.06–11.07.2017.

**Sciophila geniculata* Zetterstedt, 1838 – 4 ♂♂, Luzhmaguba, 29.06–25.07.2017; 1 ♂, Teternavolok, 11–25.07.2017.

Sciophila hirta Meigen, 1818 – 2 ♂♂, River Kamennaya, 23–25.08.1995; 2 ♂♂, Luzhmaguba, 12–29.06.2017.

**Sciophila krysheni* Polevoi, 2001 – 1 ♂, Luzhmaguba, 12–29.06.2017.

Remark. This is a rare species, described from Finland and also recorded from Sweden, the United Kingdom and the Czech Republic (Kjærandsen et al., 2007). It is reported here for the first time from Karelia and Russia.

**Sciophila lutea* Macquart, 1826 – 1 ♂, Shapovara, 13–29.06.2017.

Sciophila persubtilis Polevoi, 2001 – 1 ♂, River Kamennaya, 07–09.07.1994 (stored in the collection of the Zoological Institute RAS, St. Petersburg, Russia).

Remark. This species is described based on specimens from three Karelian localities, including the Kostomuksha State Nature Reserve (Polevoi, 2001a). It was earlier published as *S. exserta* Zaitzev, 1982 (Polevoi, 1997).

Subfamily Gnoristinae

Acomoptera difficilis (Dziedzicki, 1885) – 1 ♂, Kuikoniemi, 06–09.07.1993.

**Boletina basalis* (Meigen, 1818) – 130 ♂♂, Kuikoniemi, 14.06–26.07.2017; 31 ♂♂, Luzhmaguba, 12.06–25.07.2017; 24 ♂♂, Teternavolok, 12.06–11.07.2017; 176 ♂♂, Shapovara, 13.06–26.07.2017.

**Boletina bidenticulata* Sasakawa & Kimura, 1974 – 8 ♂♂, Kuikoniemi, 08.08–05.09.2017; 9 ♂♂, Luzhmaguba, 25.07–05.09.2017; 5 ♂♂, Teternavolok, 11.08–05.09.2017; 14 ♂♂, Shapovara, 25.07–06.09.2017.

**Boletina cordata* Polevoi & Hedmark, 2004 – 1 ♂, Luzhmaguba, 12–29.06.2017.

Remark. This rare species is known so far only from north-western Russia, Finland, Norway and Sweden (Polevoi & Hedmark, 2004; Søli & Kjærandsen, 2008; Polevoi, 2010).

Boletina dissipata Plassmann, 1986 – 51 ♂♂, River Kamennaya, 23–27.08.1995; 4 ♂♂, Kuikoniemi, 26.07–24.08.2017; 4 ♂♂, Luzhmaguba, 25.07–11.08.2017; 3 ♂♂, Teternavolok, 11–23.08.2017; 2 ♂♂, Shapovara, 23.08–06.09.2017.

Boletina falcata Polevoi & Hedmark, 2004 – 5 ♂♂, River Kamennaya, 23–27.08.1995 (stored in the collection of the Zoological Institute RAS, St. Petersburg, Russia).

Remark. This species is described based on specimens from Finland, Sweden and Karelia, including five males from the Kostomuksha State Nature Reserve (Polevoi & Hedmark, 2004).

**Boletina gusakovae* Zaitzev, 1994 – 5 ♂♂, Luzhmaguba, 11.08–05.09.2017; 3 ♂♂, Teternavolok, 23.08–05.09.2017; 5 ♂♂, Shapovara, 08.08–06.09.2017.

**Boletina hedstroemi* Polevoi & Hedmark, 2004 – 1 ♂♂, River Kamennaya, 25–27.08.1995; 4 ♂♂, Luzhmaguba, 23.08–05.09.2017.

Remark. Records of *Boletina rejecta* Edwards, 1941 published earlier (Polevoi, 1997) partially belong to this species.

Boletina moravica Landrock, 1912 – 1 ♂, River Kamennaya, 23–26.08.1995.

Boletina nigricans Dziedzicki, 1885 – 88 ♂♂, Kuikoniemi, 06–09.07.1993; 93 ♂♂, Kuikoniemi, 29.06–05.09.2017; 42 ♂♂, River Kamennaya, 23–27.08.1995; 1 ♂, Mokrovary, 18.09.2012; 41 ♂♂, Ehrimavara, 15–16.09.2012; 132 ♂♂, Luzhmaguba, 12.06–05.09.2017; 51 ♂♂, Teternavolok, 11.07–05.09.2017; 109 ♂♂, Shapovara, 29.06–06.09.2017.

**Boletina nigrofusca* Dziedzicki, 1885 – 4 ♂♂, Teternavolok, 11.07–05.09.2017; 2 ♂♂, Shapovara, 29.06–08.08.2017.

**Boletina nitiduloides* Zaitzev, 1994 – 2 ♂♂, Kuikoniemi, 14–29.06.2017; 3 ♂♂, Shapovara, 13–29.06.2017.

Boletina onegensis Polevoi, 1994 – 63 ♂♂, River Kamennaya, 23–27.08.1995; 7 ♂♂, Ehrimavara, 16.09.2012; 26 ♂♂, Kuikoniemi, 24.08–05.09.2017; 18 ♂♂, Luzhmaguba, 25.07–05.09.2017; 9 ♂♂, Teternavolok, 23.08–05.09.2017; 15 ♂♂, Shapovara, 23.08–06.09.2017.

**Boletina pinusia* Maximova, 2001 – 2 ♂♂, Teternavolok, 29.06–11.07.2017; 1 ♂, Shapovara, 13–29.06.2017.

Boletina pectinungris Edwards, 1932 – 1 ♂, River Kamennaya, 23–26.08.1995.

**Boletina plana* (Walker, 1856) – 1 ♂, Kuikoniemi, 26.07–08.08.2017.

Boletina rejecta Edwards, 1941 – 1 ♂♂, River Kamennaya, 26–27.08.1995; 2 ♂♂, Luzhmaguba, 25.07–23.08.2017.

Boletina trivittata (Meigen, 1818) – 5 ♂♂, River Kamennaya, 23–27.08.1995; 3 ♂♂, Ehrimavara, 16.09.2012; 1 ♂, 5 ♀♀, Kuikoniemi, 14–29.06.2017; 5 ♂♂, 1 ♀, Luzhmaguba, 12–29.06.2017; 1 ♂, 1 ♀, Teternavolok, 12–29.06.2017; 9 ♂♂, 2 ♀♀, Shapovara, 13–29.06.2017.

Boletina villosa Landrock, 1912 – 5 ♂♂, River Kamennaya, 25–27.08.1995.

**Coelosia fusca* Bezzi, 1892 – 2 ♂♂, 1 ♀, Shapovara, 13–29.06.2017.

Coelosia tenella (Zetterstedt, 1852) – 2 ♂♂, River Kamennaya, 07–09.07.1994; 1 ♂, River Kamennaya, 25–27.08.1995; 1 ♂, Kuikoniemi, 08–24.08.2017; 1 ♂, Luzhmaguba, 23.08–05.09.2017.

Coelosia truncata Lundström, 1909 – 8 ♂♂, Kuikoniemi, 06–09.07.1993; 1 ♂, River Kamennaya, 07–09.07.1994.

Dziedzickia marginata (Dziedzicki, 1885) – 3 ♂♂, River Kamennaya, 23–27.08.1995; 5 ♂♂, Kuikoniemi, 08.08–05.09.2017; 2 ♂♂, Luzhmaguba, 25.07–05.09.2017.

**Grzegorzekia collaris* (Meigen, 1818) – 1 ♂, Teternavolok, 29.06–11.07.2017.

**Katatopygia erythropyga* (Holmgren, 1883) – 1 ♂, Kuikoniemi, 24.08–05.09.2017; 1 ♂, Shapovara, 08–24.08.2017.

**Katatopygia sahlbergi* (Lundström, 1906) – 1 ♂, Teternavolok, 12–29.06.2017.

Palaeodocosia vittata (Coquillett, 1901) (= *Palaeodocosia janickii* (Dziedzicki, 1923)) – 1 ♂, River Kamennaya, 23.08.19952 ♂♂, 1 ♀, Kuikoniemi, 26.07–24.08.2017; 2 ♂♂, 3 ♀♀, Luzhmaguba, 25.07–05.09.2017; 1 ♂, 1 ♀, Teternavolok, 25.07–05.09.2017; 3 ♂♂, 1 ♀, Shapovara, 08.08–06.09.2017.

Syntemna elegantia Plassmann, 1978 – 1 ♂, River Kamennaya, 26–27.08.1995.

Remark. Polevoi (2003) reported this specimen as collected from Kostomuksha. In fact, the collecting locality lies within the Kostomuksha State Nature Reserve.

**Syntemna hungarica* (Lundström, 1912) – 1 ♂, Shapovara, 08–24.08.2017.

**Syntemna morosa* Winnertz, 1863 – 1 ♀, Kuikoniemi, 08–24.08.2017.

Remark. This is a European species with probably a boreo-alpine distribution (Polevoi, 2003; Kjærandsen et al., 2007). It is reported here for the first time from Karelia and Russia.

**Syntemna stylata* Hutson, 1979 – 4 ♂♂, Kuikoniemi, 26.07–24.08.2017; 1 ♂, Luzhmaguba, 25.07–11.08.2017; 6 ♂♂, Shapovara, 26.07–24.08.2017.

Subfamily Leiinae

Ectrepesthoneura hirta (Winnertz, 1846) – 9 ♂♂, River Kamennaya, 07–09.07.1994; 2 ♂♂, Luzhmaguba, 29.06–13.07.2017; 3 ♂♂, Teternavolok, 29.06–11.08.2017; 5 ♂♂, Shapovara, 11.07–24.08.2017.

**Ectrepesthoneura ovata* Ostroverkhova, 1977 – 1 ♂, Teternavolok, 29.06–11.07.2017.

**Ectrepesthoneura pubescens* (Zetterstedt, 1860) – 150 ♂♂, 34 ♀♀, Kuikoniemi, 14.06–11.07.2017; 80 ♂♂, 35 ♀♀, Luzhmaguba,

12.06–13.07.2017; 95 ♂♂, 20 ♀♀, Teternavolok, 12.06–11.07.2017; 317 ♂♂, 116 ♀♀, Shapovara, 13.06–11.07.2017.

Ectrepesthoneura referta Plassmann, 1976 – 2 ♂♂, Kuikoniemi, 06–09.07.1993; 1 ♂, Luzhmaguba, 29.06–13.07.2017; 2 ♂♂, Shapovara, 11–26.07.2017.

**Ectrepesthoneura tori* Zaitzev & Økland, 1992 – 1 ♂, Luzhmaguba, 12–29.06.2017.

**Leia picta* Meigen, 1830 – 1 ♀, Teternavolok, 25.07–11.08.2017.

Leia subfasciata (Meigen, 1818) – 1 ♂, Luzhmaguba, 13–25.07.2017; 3 ♂♂, Shapovara, 11–26.07.2017.

Leia winthemi Lehmann, 1822 – 1 ♂, Luzhmaguba, 23.08–05.09.2017; 1 ♂, Teternavolok, 25.07–11.08.2017; 4 ♂♂, Shapovara, 11.07–08.08.2017.

Rondaniella dimidiata (Meigen, 1804) – 2 ♂♂, 1 ♀, River Kamennaya, 23–26.08.1995; 2 ♂♂, 2 ♀♀, Kuikoniemi, 11.07–24.08.2017; 13 ♂♂, 3 ♀♀, Luzhmaguba, 13.07–05.09.2017; 1 ♂, 2 ♀♀, Teternavolok, 25.07–05.09.2017; 1 ♂, 2 ♀♀, Shapovara, 29.06–08.08.2017.

Subfamily Mycetophilinae

Tribe Exechiini

**Allodia czernyi* (Landrock, 1912) – 1 ♂, Kuikoniemi, 14–29.06.2017.

**Allodia foliifera* (Strobl, 1910) – 1 ♂, Shapovara, 13–29.06.2017.

**Allodia zaitzevi* Kurina, 1997 – 2 ♂♂, River Kamennaya, 23–26.08.1995.

Remark. This species had previously been published as *A. pyxidiiformis* Zaitzev, 1983 (Polevoi, 1997).

Anatella bremia Chandler, 1994 – 1 ♂, River Kamennaya, 23–25.08.1995.

Brachypeza bisignata Winnertz, 1863 – 1 ♂, River Kamennaya, 23–26.08.1995.

**Brevicornu bellum* (Johannsen, 1911) – 1 ♂, Shapovara, 28.07–08.08.2017.

**Brevicornu bipartitum* Laštovka & Matile, 1974 – 2 ♂♂, Teternavolok, 12–29.06.2017.

**Brevicornu sericoma* (Meigen, 1830) – 1 ♂, Shapovara, 14–29.06.2017.

Cordyla brevicornis (Staeger, 1840) – 3 ♂♂, River Kamennaya, 23–26.08.1995; 10 ♂♂, Kuikoniemi, 29.06–05.09.2017; 85 ♂♂, Luzhmaguba, 12.06–05.09.2017; 54 ♂♂, Teternavolok, 29.06–05.09.2017; 279 ♂♂, Shapovara, 13.06–06.09.2017.

**Cordyla fasciata* Meigen, 1830 – 3 ♂♂, Luzhmaguba, 25.07–11.08.2017; 3 ♂♂, Shapovara, 25.07–24.08.2017.

**Cordyla flaviceps* (Staeger, 1840) – 1 ♂, Kuikoniemi, 24.08–05.09.2017; 3 ♂♂, Teternavolok, 25.07–05.09.2017; 3 ♂♂, Shapovara, 26.07–24.08.2017.

Cordyla fusca Meigen, 1804 – 1 ♂, River Kamennaya, 26–27.08.1995.

Cordyla insons Laštovka & Matile, 1974 – 2 ♂♂, River Kamennaya, 07–09.07.1994; 1 ♂, Kuikoniemi, 26.07–08.08.2017.

**Cordyla murina* Winnertz, 1863 – 6 ♂♂, Kuikoniemi, 26.07–05.09.2017; 3 ♂♂, Teternavolok, 25.07–05.09.2017; 13 ♂♂, Shapovara, 26.07–06.09.2017.

**Cordyla nitens* Winnertz, 1863 – 2 ♂♂, River Kamennaya, 23–27.08.1995; 2 ♂♂, Kuikoniemi, 26.07–24.08.2017; 3 ♂♂, Luzhmaguba, 25.07–11.08.2017; 1 ♂, Teternavolok, 11–23.08.2017; 6 ♂♂, Shapovara, 11.07–23.08.2017.

Cordyla nitidula Edwards, 1925 – 3 ♂♂, River Kamennaya, 25–27.08.1995.

Cordyla parvipalpis Edwards, 1925 – 1 ♂, River Kamennaya, 07–09.07.1994; 16 ♂♂, River Kamennaya, 23–27.08.1995; 32 ♂♂, Kuikoniemi, 14.06–05.09.2017; 47 ♂♂, Luzhmaguba, 12.06–05.09.2017; 15 ♂♂, Teternavolok, 12.06–05.09.2017; 99 ♂♂, Shapovara, 13.06–06.09.2017.

**Cordyla pusilla* Edwards, 1925 – 1 ♂, Teternavolok, 13–29.06.2017; 1 ♂, Shapovara, 13–29.06.2017.

Cordyla semiflava (Staeger, 1840) – 1 ♂, River Kamennaya, 23–26.08.1995.

**Exechia dorsalis* (Staeger, 1840) – 1 ♂, Kuikoniemi, 14–29.06.2017; 1 ♂, Teternavolok, 12–29.06.2017; 1 ♂, Shapovara, 13–29.06.2017.

Exechia lundstroemi Landrock, 1923 – 1 ♂, River Kamennaya, 23–26.08.1995; 1 ♂, Shapovara, 28.07–08.08.2017.

Exechia parva Lundström, 1909 – 1 ♂, River Kamennaya, 25–27.08.1995.

**Exechia papyracea* Stackelberg, 1948 – 1 ♂, Shapovara, 11–26.07.2017.

**Exechiopsis aemula* Plassmann, 1984 – 1 ♂, Kuikoniemi, 29.06–11.07.2017; 1 ♂, Teternavolok, 23.08–05.09.2017.

**Exechiopsis indecisa* Walker, 1856 – 1 ♂, Ehrimavara, 16.09.2012.

**Exechiopsis pseudopulchella* (Lundström, 1912) – 2 ♂♂, Luzhmaguba, 12.06–23.08.2017; 1 ♂, Teternavolok, 12–29.06.2017.

**Rymosia fasciata* (Meigen, 1804) – 1 ♂, Shapovara, 11–26.07.2017.

**Rymosia setiger* Dziedzicki, 1910 – 1 ♂, Teternavolok, 13–29.06.2017; 1 ♂, Shapovara, 13–29.06.2017.

**Tarnania tarnanii* (Dziedzicki, 1910) – 1 ♂, Luzhmaguba, 23.08–05.09.2017; 3 ♂♂, Shapovara, 13–29.06.2017.

Tribe Mycetophilini

**Dynatosoma fuscicorne* (Meigen, 1818) – 3 ♂♂, Kuikoniemi, 11.07–24.08.2017.

**Epicypta aterrima* (Zetterstedt, 1852) – 3 ♂♂, Kuikoniemi, 29.06–08.08.2017; 2 ♂♂, Luzhmaguba, 29.06–25.07.2017.

**Epicypta fumigata* (Dziedzicki, 1923) – 1 ♂, Kuikoniemi, 08–24.08.2017; 1 ♂, Luzhmaguba, 13–25.07.2017.

**Mycetophila adumbrata* Mik, 1884 – 1 ♂, Luzhmaguba, 12–29.06.2017.

Remark. The species is widely distributed in Europe, but quite rare in Fennoscandia. In Karelia, it had previously only been recorded from the Kivach State Nature Reserve (Polevoi, 2006).

Mycetophila abiecta (Laštovka, 1963) – 2 ♂♂, River Kamennaya, 23–27.08.1995; 1 ♂, Kuikoniemi, 06–09.07.1993.

**Mycetophila alea* Laffoon, 1965 – 1 ♂, Luzhmaguba, 13–25.07.2017.

**Mycetophila attonsa* (Laffoon, 1957) – 1 ♂, Kuikoniemi, 14–29.06.2017; 1 ♂, Shapovara, 28.07–08.08.2017.

Mycetophila bohemica (Laštovka, 1963) – 1 ♂, Kuikoniemi, 06–09.07.1993; 1 ♂, Shapovara, 08–24.08.2017.

Mycetophila brevitarsata (Laštovka, 1963) – 1 ♂, Kuikoniemi, 06–09.07.1993; 1 ♂, Kuikoniemi, 24.08–05.09.2017; 1 ♂, River Kamennaya, 25–27.08.1995; 1 ♂, Teternavolok, 12–29.06.2017.

**Mycetophila caudata* Staeger, 1840 – 1 ♂, Luzhmaguba, 12–29.06.2017.

Mycetophila confluens Dziedzicki, 1884 – 6 ♂♂, River Kamennaya, 23–26.08.1995; 7 ♂♂, Kuikoniemi, 14.06–05.09.2017; 7 ♂♂, Luzhmaguba, 25.07–05.09.2017; 8 ♂♂, Teternavolok, 12.06–05.09.2017; 10 ♂♂, Shapovara, 11.07–06.09.2017.

Mycetophila dentata Lundström, 1913 – 1 ♂, River Kamennaya, 25–27.08.1995.

**Mycetophila devioides* Bechev, 1988 – 1 ♂, River Kamennaya, 23–26.08.1995.

Remark. This is a rare European species known from Bulgaria, Slovakia, Ukraine, and Finland (Jakovlev et al., 2014). It is reported here for the first time from Karelia and Russia. The photos of male genitalia are given to show details, which are not available in the literature (Fig. 3).

**Mycetophila finlandica* Edwards, 1913 – 3 ♂♂, Kuikoniemi, 26.07–05.09.2017; 1 ♂, Luzhmaguba, 11–23.08.2017; 6 ♂♂, Teternavolok, 11.07–05.09.2017; 13 ♂♂, Shapovara, 11.07–06.09.2017.

**Mycetophila flava* Winnertz, 1863 – 1 ♂, Kuikoniemi, 14–29.06.2017; 3 ♂♂, Teternavolok, 13.06–11.07.2017; 2 ♂♂, Shapovara, 13–29.06.2017.

**Mycetophila haruspica* Plassmann, 1990 – 1 ♂, River Kamennaya, 23–26.08.1995.

Remark. This is a rare species, described from Sweden and later found in Norway and Finland. The male from the Kostomuksha State Nature Reserve had been left unidentified for a long time due to a quite uninformative original description. This issue was solved after photos of male genitalia were published by Salmela & Kaunisto (2015). It is reported here for the first time from Karelia and Russia.

Mycetophila hetschkoi Landrock, 1918 – 1 ♂, River Kamennaya, 23–26.08.1995; 30 ♂♂, Kuikoniemi, 11.07–05.09.2017; 4 ♂♂, Luzhmaguba, 29.06–05.09.2017; 7 ♂♂, Teternavolok, 25.07–05.09.2017; 28 ♂♂, Shapovara, 29.06–06.09.2017.

Mycetophila ichneumonea Say, 1823 – 2 ♂♂, River Kamennaya, 23–27.08.1995; 4 ♂♂, Kuikoniemi, 11.07–05.09.2017; 4 ♂♂, Luzhmaguba, 12.06–05.09.2017; 3 ♂♂, Teternavolok, 13.06–05.09.2017; 6 ♂♂, Shapovara, 13.06–06.09.2017.

**Mycetophila laeta* Walker, 1848 – 1 ♂, Teternavolok, 12–29.06.2017.

**Mycetophila lubomirskii* Dziedzicki, 1884 – 1 ♂, Shapovara, 08–24.08.2017.

Mycetophila luctuosa Meigen, 1830 – 2 ♂♂, River Kamennaya, 23–26.08.1995.

Mycetophila ocellus Walker, 1848 – 1 ♂, River Kamennaya, 23–26.08.1995; 6 ♂♂, Kuikoniemi, 14.06–05.09.2017; 2 ♂♂, Luzhmaguba, 12.06–25.07.2017; 2 ♂♂, Shapovara, 13–29.06.2017.

**Mycetophila perpallida* Chandler, 1993 – 1 ♂, Kuikoniemi, 06–09.07.1993; 27 ♂♂, Kuikoniemi, 14.06–05.09.2017; 1 ♂, Teternavolok, 17.09.2012; 9 ♂♂, Teternavolok, 12.06–05.09.2017; 39 ♂♂, Luzhmaguba, 12.06–05.09.2017; 51 ♂♂, Shapovara, 13.06–06.09.2017.

Remark. The records of *M. fungorum* (De Geer, 1776) published previously (Polevoi, 1997) belong to this species.

Mycetophila strigatoides (Landrock, 1927) – 2 ♂♂, Kuikoniemi, 06–09.07.1993; 1 ♂, River Kamennaya, 23–26.08.1995.

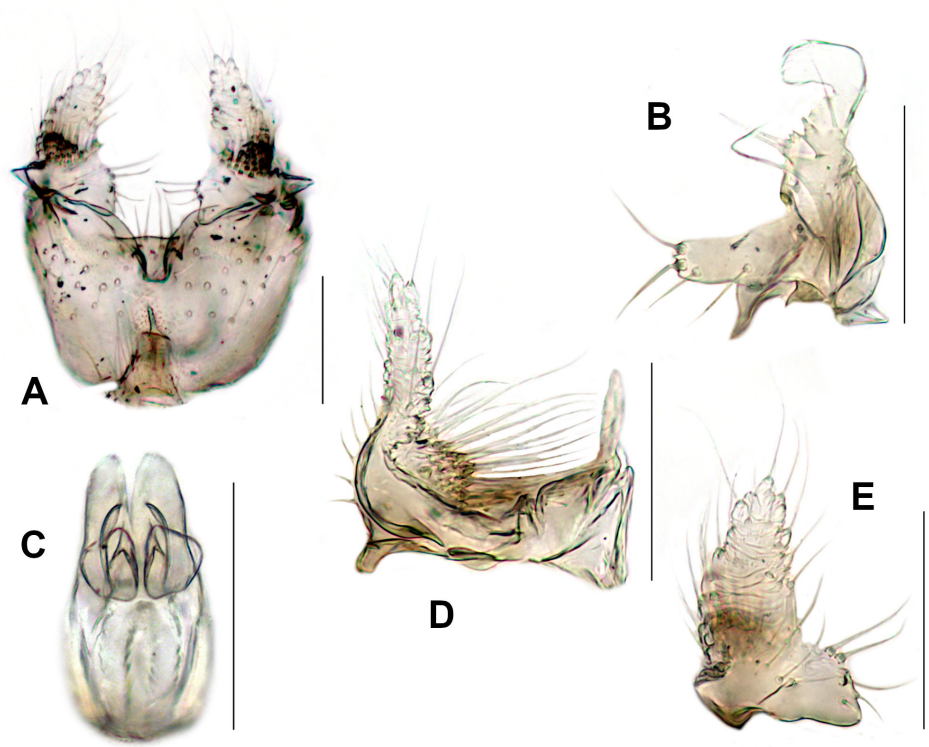

Fig. 3. Male genitalia of *Mycetophila devioides*. Designations: A – ventral view; B – dorsal lobe of gonostylus; C – aedeagal complex, dorsal view; D – gonostylus, lateral view; E – ventral lobe of gonostylus. Scale bars: 0.1 mm.

Mycetophila strobli Laštovka, 1972 – 1 ♂, River Kamennaya, 23–25.08.1995; 20 ♂♂, Kuikoniemi, 08.08–05.09.2017; 4 ♂♂, Luzhmaguba, 25.07–05.09.2017; 9 ♂♂, Teternavolok, 13.06–05.09.2017; 16 ♂♂, Shapovara, 13.06–06.09.2017.

**Mycetophila subsigillata* Zaitzev, 1999 – 1 ♂, Kuikoniemi, 14–29.06.2017.

Phronia biarquata (Becker, 1908) – 2 ♂♂, River Kamennaya, 23–26.08.1995.

Phronia braueri Dziedzicki, 1889 – 2 ♂♂, River Kamennaya, 23–27.08.1995.

Phronia caliginosa Dziedzicki, 1889 – 6 ♂♂, River Kamennaya, 23–27.08.1995; 1 ♂, Kuikoniemi, 24.08–05.09.2017; 1 ♂, Teternavolok, 23.08–05.09.2017.

Phronia cinerascens Winnertz, 1863 – 18 ♂♂, River Kamennaya, 23–27.08.1995; 4 ♂♂, Kuikoniemi, 06–09.07.1993; 4 ♂♂, Kuikoniemi, 11.07–05.09.2017; 2 ♂♂, Shapovara, 23.08–06.09.2017.

Phronia crassitarsus Hackman, 1970 – 1 ♂, River Kamennaya, 25–27.08.1995; 1 ♂, River Kamennaya, 23–26.08.1995.

Phronia disgrega Dziedzicki, 1889 – 2 ♂♂, River Kamennaya, 23–26.08.1995; 1 ♂, Kuikoniemi, 26.07–08.08.2017; 1 ♂, Luzhmaguba, 25.07–11.08.2017.

Phronia distincta Hackman, 1970 – 2 ♂♂, River Kamennaya, 23–25.08.1995.

Phronia egregia Dziedzicki, 1889 – 1 ♂, River Kamennaya, 23–26.08.1995.

Phronia elegantula Hackman, 1970 – 6 ♂♂, River Kamennaya, 23–26.08.1995.

Phronia fennica Jakovlev & Polevoi, 2008 – 1 ♂, River Kamennaya, 23–26.08.1995.

Remark. This species was described based on specimens from Finland and Karelia, including the Kostomuksha State Nature Reserve (Jakovlev & Polevoi, 2008). It had been published previously as *P. petulans* Dziedzicki, 1889 (Polevoi, 1997).

Phronia forcipata Winnertz, 1863 – 5 ♂♂, River Kamennaya, 23–27.08.1995; 2 ♂♂, Kuikoniemi, 06–09.07.1993; 6 ♂♂, Luzhmaguba, 29.06–05.09.2017; 1 ♂, Teternavolok, 29.06–11.07.2017; 2 ♂♂, Shapovara, 29.06–06.09.2017.

Phronia gagnei Chandler, 1992 – 2 ♂♂, River Kamennaya, 23–25.08.1995.

Phronia nigricornis (Zetterstedt, 1852) – 3 ♂♂, River Kamennaya, 23–26.08.1995.

Phronia nigripalpis Lundström, 1909 – 1 ♂, River Kamennaya, 07–09.07.1994; 2 ♂♂, River Kamennaya, 25–27.08.1995; 116 ♂♂, Kuikoniemi, 06–09.07.1993; 5 ♂♂, Kuikoniemi, 08.08–05.09.2017; 3 ♂♂, Luzhmaguba, 11–23.08.2017; 1 ♂, Teternavolok, 25.07–11.08.2017; 1 ♂, Shapovara, 08–24.08.2017.

**Phronia nitidiventris* (Van der Wulp, 1858) – 1 ♂, Luzhmaguba, 23.08–05.09.2017.

Phronia obtusa Winnertz, 1863 – 1 ♂, Kuikoniemi, 06–09.07.1993.

Phronia portschinskyi Dziedzicki, 1889 – 1 ♂, River Kamennaya, 23–25.08.1995.

Phronia strenua Winnertz, 1863 (= *Phronia flavicollis* Winnertz, 1863) – 1 ♂, Kuikoniemi, 06–09.07.1993; 2 ♂♂, Kuikoniemi, 24.08–05.09.2017; 1 ♂, River Kamennaya, 23–26.08.1995; 1 ♂, Teternavolok, 23.08–05.09.2017.

**Platurocypta punctum* (Stannius, 1831) – 1 ♀, Kuikoniemi, 11–26.07.2017; 1 ♂, Luzhmaguba, 25.07–11.08.2017; 1 ♀, Teternavolok, 25.07–11.08.2017.

**Platurocypta testata* (Edwards, 1925) – 5 ♂♂, Kuikoniemi, 14.06–24.08.2017; 1 ♂, Luzhmaguba, 13–25.07.2017; 2 ♀♀, Teternavolok, 11–25.07.2017; 5 ♂♂, 1 ♀, Shapovara, 11.07–05.09.2017.

**Sceptonia costata* (Van der Wulp, 1858) – 2 ♂♂, Kuikoniemi, 11.07–24.08.2017; 5 ♂♂, Luzhmaguba, 12.06–11.08.2017; 2 ♂♂, Teternavolok, 13–29.06.2017; 4 ♂♂, Shapovara, 25.07–05.09.2017.

Sceptonia fumipes Edwards, 1925 – 5 ♂♂, River Kamennaya, 23–27.08.1995; 3 ♂♂, Kuikoniemi, 08.08–05.09.2017; 2 ♂♂, Luzhmaguba, 13.07–11.08.2017; 2 ♂♂, Teternavolok, 29.06–11.07.2017; 1 ♂, Shapovara, 29.06–11.07.2017.

Sceptonia fuscipalpis Edwards, 1925 – 1 ♂, River Kamennaya, 23–26.08.1995; 2 ♂♂, Kuikoniemi, 14.06–24.08.2017; 2 ♂♂, Shapovara, 13.06–11.07.2017.

**Sceptonia nigra* (Meigen, 1804) – 3 ♂♂, Kuikoniemi, 11.07–05.09.2017; 12 ♂♂, Luzhmaguba, 12.06–11.08.2017; 9 ♂♂, Teternavolok, 12.06–05.09.2017; 14 ♂♂, Shapovara, 13.06–24.08.2017.

**Sceptonia regni* Chandler, 1991 – 1 ♂, Kuikoniemi, 11–26.07.2017; 1 ♂, Luzhmaguba, 12–29.06.2017; 3 ♂♂, Shapovara, 29.06–08.08.2017.

Trichonta fissicauda (Zetterstedt, 1852) – 1 ♂, Kuikoniemi, 06–09.07.1993.

**Trichonta flavicauda* Lundström, 1914 – 1 ♂, Teternavolok, 12–29.06.2017.

Remark. This is a Holarctic species, which is rather rare in northern Europe. In Karelia and the Murmansk region, this species was so far reported only from Protected Areas (Polevoi, 2000, 2010).

Trichonta melanura (Staeger, 1840) – 1 ♂, Kuikoniemi, 06–09.07.1993; 1 ♂, River Kamennaya, 23–26.08.1995.

Remark. The record of *Trichonta delicata* Gagné, 1981 published previously (Polevoi, 1997) belongs to this species.

Trichonta venosa (Staeger, 1840) – 1 ♂, Kuikoniemi, 06–09.07.1993; 1 ♂, Shapovara, 26.07–08.08.2017.

**Trichonta vitta* (Meigen, 1830) – 1 ♂, Kuikoniemi, 26.07–08.08.2017; 1 ♂, Luzhmaguba, 23.08–05.09.2017; 1 ♂, Shapovara, 11–26.07.2017.

**Zygomyia pseudohumeralis* Caspers, 1980 – 1 ♂, Kuikoniemi, 24.08–05.09.2017; 2 ♂♂, Shapovara, 26.07–24.08.2017.

Zygomyia semifusca (Meigen, 1818) – 1 ♀, River Kamennaya, 23–26.08.1995; 14 ♂♂, 6 ♀♀, Kuikoniemi, 14.06–05.09.2017; 1 ♂, 1 ♀, Luzhmaguba, 12.06–11.08.2017; 1 ♂, 4 ♀♀, Teternavolok, 12.06–11.08.2017; 2 ♂♂, 2 ♀♀, Shapovara, 13.06–26.07.2017.

Species removed from the list

Mycomya circumdata (Staeger, 1840). Misidentification. All specimens from the Kostomuksha State Nature Reserve belong to *M. obliqua*.

Sciophila exserta Zaitzev, 1982. Misidentification. The specimen belongs to *S. persubtilis*.

Boletina gripha Dziedzicki, 1885. Misidentification. All specimens from the Kostomuksha State Nature Reserve belong to a closely related, yet undescribed species.

Allodia pyxidiiformis Zaitzev, 1983. Misidentification. All specimens from the Kostomuksha State Nature Reserve belong to *A. zaitzevi*.

Mycetophila fungorum (De Geer, 1776). Misidentification. All specimens from the Kostomuksha State Nature Reserve belong to *M. perpallida*.

Phronia avidoides Jakovlev & Polevoi, 2008. One male reported by Jakovlev & Polevoi (2008) was in fact collected outside the Kostomuksha State Nature Reserve.

Phronia petulans Dziedzicki, 1889. Misidentification. The specimen belongs to *P. fennica*.

Trichonta delicata Gagné, 1981. Misidentification. The specimen belongs to *T. melanura*.

Discussion

Considering the relatively low number of species recorded, a detailed discussion on the zoogeographical structure of the fauna is hardly possible, but several aspects are worth mentioning. Most of the species found in the Kostomuksha State Nature Reserve are common and widely distributed, not only in Karelia or Fennoscandia, but also in the Palaearctic region as a whole. Due to the location of the study area in the northern taiga subzone and its proximity to the western border of Karelia, we could expect to find western and northern elements in the fauna. However, only *Sciophila krysheni* and *Mycetophila devioides* can be tentatively considered as a species of western origin, based on their known distribution. As to typical northern species, it appears that such taxa are mostly limited to the northern boreal, subarctic and arctic zones,

dispersing southwards not farther than the northern flanks of spruce (*Picea abies* (L.) H.Karst.) forests. The record of *Mycomya obliqua* as a new species for the Palaearctic region is remarkable, but not something extraordinary. As our knowledge of the regional fauna increases, more and more Nearctic species are being found (Polevoi, 2010; Jakovlev et al., 2014; Salmela & Kaunisto, 2015; Polevoi & Salmela, 2016). It becomes clear that a substantial part of fungus gnats occurring in the northern boreal zone have a circumpolar range. Therefore, we can expect further findings of Nearctic species in the Palaearctic region and vice versa.

It is evident that the collecting activity in the Kostomuksha State Nature Reserve prior to 2017 was insufficient. The phenology in Sciaroidea is not uniform and certain species groups may be active in various periods during the flight season (Polevoi, 2000). So, a more or less complete coverage of the fauna can only be achieved through continuous sampling from early spring to late autumn. The Malaise trapping in 2017 satisfied these requirements and produced quite a good catch, which almost doubled the number of known species. Still, 177 species is a relatively small number of taxa, compared with other local faunas in Fennoscandia. For example, 277 to 320 species were reported from several localities in Norway (Økland & Zaitzev, 1997; Kjærandsen & Jordal, 2007; Søli & Rindal, 2012); 248 species were found in the Tyresta National Park in Sweden (Jakovlev et al., 2008); and 310 species – in the Koitajoki Protected Area in Finland (Polevoi, 2001b). In the Pasvik State Nature Reserve (Murmansk region, Russia), 329 species were detected during just two years (Polevoi, 2010). Such an unexpectedly low diversity can be explained by the placement of most Malaise traps on small islands, where the fauna may be considerably poorer.

Conclusions

We can definitely state that the fungus gnat fauna of the Kostomuksha State Nature Reserve is far from being comprehensively studied. On the other hand, a range of remarkable records and the finding of previously undescribed species may indicate a potentially high diversity of fungus gnats in this area. More studies are needed, which should not only cover the whole flight activity period, but also include various habitats. Although Malaise traps appear to be one of the best methods for catching fungus gnats, there are other approaches (window traps, sweet bait traps, pitfall traps and colour plates, emergence traps) which probably should be used, too.

Acknowledgements

I am grateful to the administration of the Kostomuksha State Nature Reserve for the assistance during our expeditions. I also sincerely acknowledge the efforts by Gergely Várkonyi (Kuhmo, Finland) on organising Malaise trapping in 2017. I thank Jevgeni Jakovlev (Helsinki) and two anonymous referees for their valuable comments on the manuscript, and also Olga Kislova (Petrozavodsk) for checking the English language. The study was carried out under state order to the Karelian Research Centre of the Russian Academy of Sciences (Forest Research Institute KRC RAS).

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ГРИБНЫЕ КОМАРЫ (DIPTERA: BOLITOPHILIDAE, DIADOCIDIIDAE, KEROPLATIDAE, MYCETOPHILIDAE) ЗАПОВЕДНИКА «КОСТОМУКШСКИЙ» (РОССИЯ)

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Неформальное название «грибные комары» используется большинством авторов для обозначения нескольких семейств в надсемействе Sciaroidea. Это очень разнообразная группа, насчитывающая около 1000 видов в Фенноскандии. Грибные комары в течение длительного времени изучаются в Карелии, которая на данный момент является одним из наиболее хорошо изученных регионов России. Однако территория Республики Карелия охвачена исследованиями неравномерно, и любые новые данные из слабо изученных регионов могут послужить основой для более адекватного анализа закономерностей зоогеографического распространения как на местном уровне, так и на уровне всей Фенноскандии. Фауна грибных комаров заповедника «Костомукшский», насчитывающая всего 100 видов, до недавнего времени была недостаточно изучена. В статье представлены результаты фаунистических исследований в Костомукшском заповеднике с 1993 г. по настоящее время. Обновленный список грибных комаров основан на оригинальных материалах и включает 177 видов, принадлежащих к семействам Bolitophilidae, Diadocidiidae, Keroplatidae и Mycetophilidae. Было добавлено 85 видов к фауне ООПТ, и восемь видов было исключено из этого списка. Выявленное разнообразие сравнительно невелико. Большинство зарегистрированных таксонов широко распространены в Фенноскандии. Тем не менее, обнаружен ряд редких и примечательных видов, что может указывать на потенциально богатую фауну. Пять видов (*Mycomya obliqua*, *Sciophila krysheni*, *Syntemna morosa*, *Mycetophila devioides*, *Mycetophila haruspica*) впервые зарегистрированы в Карелии и в России. *Mycomya obliqua* впервые указан для Палеарктики. Наиболее интересные находки сопровождены комментариями. Для малоизвестных видов приведены фотографии гениталий самцов. Два вида, предположительного западного происхождения (*Sciophila krysheni* и *Mycetophila devioides*), и один неарктический вид (*Mycomya oblique*) были обсуждены более подробно. Относительно невысокое разнообразие видов объясняется недостаточным количеством сборов в предыдущие годы и концентрацией недавних исследований с использованием ловушек Малеза на небольших островах, где фауна может быть изначально обеднена. Констатируется необходимость дальнейших исследований в Костомукшском заповеднике с более широким охватом разнообразия местообитаний и использованием дополнительных методов сбора.

Ключевые слова: Sciaroidea, редкие виды, Республика Карелия, список видов, фауна