

Fungus gnats (Diptera: Bolitophilidae, Diadocidiidae, Keroplatidae, Mycetophilidae) of the lower course of Anadyr River, Chukotskii Autonomous Okrug, Russia

Грибные комары (Diptera, Syrphidae) низовой реки Анадырь (Чукотский автономный округ, Россия)

A.V. Polevoi*, A.V. Barkalov**
А.В. Полевой*, А.В. Баркалов**

* Forest Research Institute, Karelian Research Centre of the Russian Academy of Sciences, Pushkinskaya Str. 11, Petrozavodsk 185910 Russia. E-mail: alexei.polevoi@krc.karelia.ru.

** Институт леса КарНЦ РАН, ул. Пушкинская 11, Петрозаводск, 185910, Россия. E-mail: alexei.polevoi@krc.karelia.ru

** Institute of Systematics and Ecology of Animals, Russian Academy of Sciences, Siberian Branch, Frunze Str. 11, Novosibirsk 630091 Russia. E-mail: bark@eco.nsc.ru.

** Институт систематики и экологии животных СО РАН, ул. Фрунзе 11, Новосибирск 630091 Россия.

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Abstract. The first data on the Fungus gnats fauna of Chukotka are presented. 170 species belonging to the families Bolitophilidae, Diadocidiidae, Keroplatidae and Mycetophilidae were reported during two field seasons in 2013 and 2014 in the lower course of the Anadyr River. Eight species are reported from Russia for the first time, two species are new for the Palaearctic and 27 species were previously unknown in the eastern part of the Palaearctic; 28 species are most probably undescribed taxa. Widely distributed circumpolar and transpalaearctic species dominate the fauna, but there is also considerable number of species previously known only from northern Europe. Sixteen presumably undescribed species of the subfamilies Sciophilinae, Gnoristinae and Mycetophilinae may be tentatively considered as Chukotka endemics.

Резюме. Впервые приводятся данные по фауне грибных комаров Чукотки. За два полевых сезона (2013–2014 гг.) в низовье реки Анадырь зарегистрировано 170 видов из семейств Bolitophilidae, Diadocidiidae, Keroplatidae и Mycetophilidae. Восемь видов впервые указаны для фауны России. Два вида впервые зарегистрированы в Палеарктике, а 27 видов ранее не были указаны для её восточной части. Двадцать восемь видов предположительно являются новыми для науки. Основу фауны составляют широко распространённые виды с циркулярным и транспалеарктическим типами ареалов. В то же время, отмечается присутствие значительного числа видов, ранее известных исключительно из северной Европы. К условным эндемикам Чукотки можно отнести 16 предположительно неописанных видов из подсемейств Sciophilinae, Gnoristinae и Mycetophilinae.

Introduction

Fungus gnats — informal name applied by most European authors for the group of families: Bolitophilidae,

Diadocidiidae, Ditomyiidae, Keroplatidae and Mycetophilidae, belonging to the superfamily Sciaroidea (Diptera, Nematocera, Bibionomorpha). This is highly diverse group with estimated number of species around 4500 in the world fauna and more than 1450 in Palaearctic [Søli et al., 2000]. In the latter region, they seem to display an increasing diversity towards the North, with most species-rich fauna found in Scandinavia [Kjærandsen et al., 2007; Søli, Rindal, 2012, Jakovlev et al., 2014b].

The fungus gnats fauna of Russia and some adjacent territories are rather well documented [Zaitzev, 1994, 2003], however many regions still remain only superficially studied. Northern and north-eastern Russia are of special concern. Though first data were published as early as the end of 19th beginning of 20th century [Holmgren, 1883; Lundström, 1915] just a few more or less detailed local studies are known up to now [Blagoderov, 1992; Polevoi, 2010; Krzemińska, Klimont, 2011]. The latest compilation on the fungus gnats of Russian Far East [Zaitzev, 1999] provides no data from the areas north of Kamtschatka peninsula. The present paper provides first species list of fungus gnats of Chukotka, and addresses biogeographic peculiarities of the fauna.

Study area, material and methods

The paper is based on the material collected by second author during two expeditions to Chukotka. In 2013 fungus gnats were collected on the right bank of the river Anadyr between the mouth of river Omochi and the mountain Amochi. In 2014 collecting sites were located near the northern part of the ridge Rarytkin, about 30 km east of the lake Krasnoe.

Study area lies in the limits of lower Anadyr plane and belongs to the subzone of larger dwarf-scrubs [Yurtsev et al., 1978]. Biotopes are mostly represented by hummocky tundra with *Eriophorum vaginatum* and *Carex lugens* dominating in the grass layer. Siberian dwarf-pine — *Pinus pumila* (usually not reaching height more than 2 m.) is abundant all over the area. More detailed description of collecting localities is given in the recent paper [Barkalov, Mutin, 2015].

Material was collected from 18 July to 7 August (in 2013) and from 22 June to 17 July (in 2014). We used sweep netting, Malaise traps and Merike traps (water filled yellow plastic plates with few drops of detergent).

Results

170 species belonging to the families Bolitophilidae, Diadocidiidae, Keroplatidae and Mycetophilidae were recorded with 8 species new for Russia, 2 species new for the Palaearctic region and 27 species not earlier known from its eastern part. Systematic order and nomenclature in the following species list are given according to Kjærandsen et al. [2007a]. Species new for the fauna of Russia marked with asterisk. Twenty eight species, presumably representing taxa new to science, are not included in the list. Following notations are used for collecting localities: **S1** — 64,83° N, 175,96° E, 90 km from Anadyr, upstream by the river Anadyr, 5–10 m above sea level; **S2** — 64,72° N, 175,21° E, 130 km from Anadyr, upstream by the river Anadyr, 15 m above sea level. Distribution, if not specially stated, is given according to Pape and Beuk [2013] and Kjærandsen et al. [2007a]. In the text it is given without taking into account new information of this paper.

The list of species

Bolitophilidae

Bolitophila rossica Landrock, 1912

Material. 2♀♀, S1, 27–30.07.2013.

Distribution. Palaearctic, widely distributed.

Diadocidiidae

Diadocidia ferruginosa (Meigen, 1830)

Material. 1♂, S2, 25.06–19.07.2014.

Distribution. Holarctic, widely distributed [Laštovka, Matile, 1972].

Keroplatidae

Keroplatinae

Orfeliini

**Urytalpa galdes* Hedmark et Kjærandsen, 2009

Material. 2♂♂, 3♀♀, S1, 27–30.07.2013.

Distribution. Europe: northern Sweden and Finland [Kjærandsen et al., 2009; Jakovlev et al., 2014b].

Remarks. Females were not previously known, but in this case can be safely associated with males.

Description. *Female.* Head dark brown with yellowish palpi and mouth parts. Antenna dark brown with basal part of first flagellomere pale. Sixth flagellomere 1.30–1.32 as long as wide.

Thorax mainly brown, anterior part of anepimeron yellowish, mesoscutum with pale humeral area and stripe extending laterally along entire of its length. Thoracic bristles black. Wing length 3.80–4.04. Wing clear, veins brownish. Halter pale yellow. Legs entirely yellow. Ratio of tibia to basitarsus for fore, mid and hind legs: 1.50–1.58; 1.65–1.73; 1.68–1.79. Fore tibia with one anteroventral spur, mid and hind tibia with two spurs (anteroventral spur approximately 2/3 of the length of *pv* spur).

Abdomen dark brown, tergites II–VI with pale apical bands. Abdominal bristles black. Terminalia (Fig. 1). Cercus one-segmented and sessile, slightly attenuated to apex. Sternite VIII with protruding dorsal and ventral parts in lateral view, ventrally with triangular apicomedial excavation.

Macrocerinae

? *Macrocera ezoensis* Okada, 1937

Material. 1♀, S2, 25.06–19.07.2014.

Distribution. Eastern Palaearctic: Japan (Hokkaido) and eastern Russia (Sakhalin) [Okada, 1939].

Remarks. This species fits rather well to the description by Okada [1937] except that is much smaller (body length – 3.5 mm vs. 6–7.5 mm in *M. ezoensis*). The study of additional material is desirable for reliable identification.

Macrocera parva Lundström, 1914

Material. 1♀, S1, 18–24.07.2013; 1♀, S2, 25.06–19.07.2014.

Distribution. Palaearctic, widely distributed.

Mycetophilidae

Mycomyinae

Mycomya altaica Väisänen, 1984

Material. 1♂, S1, 18–24.07.2013.

Distribution. Altai and Ural [Väisänen, 1984; Zaitzev, 1994].

Mycomya britteni Kidd, 1955

Material. 1♂, S1, 27–30.07.2013.

Distribution. Europe: Great Britain, Finland, Moscow Area in Russia [Zaitzev, 1994].

Mycomya cinerascens (Macquart, 1826)

Material. 1♂, S1, 27–30.07.2013.

Distribution. Holarctic, widely distributed [Väisänen, 1984].

Mycomya disa Väisänen, 1984

Material. 3♂♂, S2, 25.06–19.07.2014.

Distribution. Europe, widely distributed.

Mycomya festivalis Väisänen, 1984

Material. 3♂♂, S2, 25.06–19.07.2014.

Distribution. Palaearctic: Scandinavia, North-European Russia and Yakutia [Blagoderov, 1992].

Mycomya griseovittata (Zetterstedt, 1852)

Material. 1♂, S2, 25.06–19.07.2014.

Distribution. Holarctic, widely distributed [Väisänen, 1984].

Mycomya maculata (Meigen, 1804)

Material. 1♂, S1, 18–24.07.2013; 2♂♂, S1, 27–30.07.2013.

Distribution. Holarctic, widely distributed [Väisänen, 1984].

Mycomya nitida (Zetterstedt, 1852)**Material.** 1♂, S2, 25.06–19.07.2014.**Distribution.** Holarctic, widely distributed [Väisänen, 1984].*Mycomya sigma* Johansen, 1910**Material.** 1♂, S1, 27–30.07.2013.**Distribution.** Holarctic, widely distributed [Väisänen, 1984].*Mycomya trivittata* (Zetterstedt, 1838)**Material.** 1♂, S1, 27–30.07.2013.**Distribution.** Holarctic, widely distributed [Väisänen, 1984].*Mycomya wankowiczii* (Dziedzicki, 1885)**Material.** 1♂, S1, 18–24.07.2013; 1♂, S1, 27–30.07.2013.**Distribution.** Holarctic, widely distributed [Väisänen, 1984].*Mycomya woodi* Väisänen, 1984**Material.** 1♂, S1, 27–30.07.2013.**Distribution.** Holarctic: Main, USA [Väisänen, 1984] and Yakutia, Russia [Blagoderov, 1992].*Neompheria striata* (Meigen, 1818)**Material.** 1♀, S1, 27–30.07.2013.**Distribution.** Palaearctic, widely distributed.

Sciophilinae

Anaclileia dispar (Winnertz, 1863)**Material.** 2♂♂, 1♀, S2, 25.06–19.07.2014.**Distribution.** Europe, northern and central parts.*Polylepta borealis* Lundström, 1912**Material.** 14♂♂, 3♀♀, S2, 25.06–19.07.2014.**Distribution.** Holarctic, widely distributed in the Palaearctic region.*Polylepta guttiventris* (Zetterstedt, 1852)**Material.** 2♂♂, S2, 25.06–19.07.2014.**Distribution.** Holarctic, widely distributed in the Palaearctic region.*Sciophila karelica* Zaitzev, 1982**Material.** 1♂, S2, 25.06–19.07.2014.**Distribution.** Holarctic, only was known from Fennoscandia in the Palaearctic region and Canada in North America [Zaitzev, 1982].*Sciophila plurisetosa* Edwards, 1921**Material.** 1♂, S2, 25.06–19.07.2014.**Distribution.** Holarctic: scattered records from Europe and North America [Zaitzev, 1982].

Gnoristinae

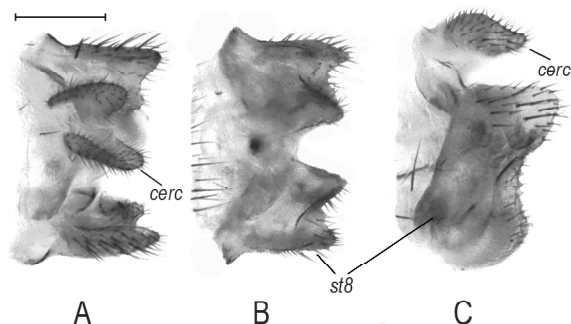
? *Aglaomyia ingrlica* (Stackelberg, 1948)**Material.** 36♂♂, 8♀♀, S2, 25.06–19.07.2014.**Distribution.** Palaearctic, in Europe known from Estonia and North-Western Russia.**Remarks.** Specimens from Chukotka have minor differences in male terminalia structure, especially gonostylus, which is relatively narrower than in the specimen, collected in Russian Karelia: ratio of gonostylus height (h) to width (w) — 1.83 vs. 1.58 (Fig. 2). In fact these specimens may

Fig. 1. *Urytalpa galdes*, female terminalia. A: dorsal view, B: ventral view, C: lateral view. Scale bar: 0.2 mm. *st8* — sternite 8, *cerc* — cercus.

Рис. 1. *Urytalpa galdes*, терминальные сегменты брюшка самки. А: с дорсальной стороны, В: с вентральной стороны, С: сбоку. Масштаб: 0,2 мм. Сокращения: *st8* — стернит 8, *cerc* — церк.

belong to *A. gatineau* Vockeroth, 1980, described from Canada [Vockeroth, 1980] or represent another unknown species. As *A. gatineau* has been described by single female and terminalia figures were not given, it's not possible to associate species reliably without examination of type material. It should be noted that A. Zaitzev [1994], is judging from listed material, bases his description and figures of *A. ingrlica* on the specimens from eastern Palaearctic (Altai, Primorje, Kuril islands), which actually also may belong to other species.

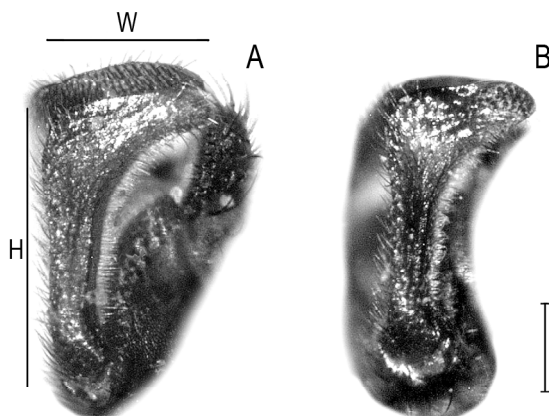
Boletina borealis Zetterstedt, 1852**Material.** 1♂, S1, 18–24.07.2013; 47♂♂, S2, 25.06–19.07.2014.**Distribution.** Palaearctic, widely distributed (possibly arcto-boreo-mountainous).

Fig. 2. *Aglaomyia ingrlica*, male gonostylus. A: specimen from Karelia, B: specimen from Chukotka. Scale bar: 0.2 mm. W — width, H — height.

Рис. 2. *Aglaomyia ingrlica*, гоностиль самца. А: экземпляр из Карелии, В: экземпляр с Чукотки. Масштаб: 0,2 мм. W — ширина, H — высота.

- Boletina cordata* Polevoi et Hedmark, 2004
Material. 4♂♂, S2, 25.06–19.07.2014.
Distribution. Europe, only was known from Fennoscandia.
- Boletina groenlandica* Staeger, 1840
Material. 4♂♂, S2, 25.06–19.07.2014.
Distribution. Holarctic, widely distributed in Palaearctic region.
- Boletina nigricans* Dziedzicki, 1885
Material. 1♂, S2, 25.06–19.07.2014.
Distribution. Palaearctic, widely distributed.
- Boletina nitiduloides* Zaitzev, 1994
Material. 11♂♂, S2, 25.06–19.07.2014.
Distribution. Palaearctic, in Europe was known only from Fennoscandia.
- Boletina palmata* Polevoi, 2013
Material. 2♂♂, S1, 27–30.07.2013.
Distribution. Europe, was known only from Fennoscandia [Polevoi, 2013].
- Boletina pectinungris* Edwards, 1932
Material. 1♂, S2, 25.06–19.07.2014.
Distribution. Europe, was known from northwestern parts.
- Boletina pinusia* Maximova, 2001
Material. 8♂♂, S2, 25.06–19.07.2014.
Distribution. Palaearctic, was known from Fennoscandia, Italy and Western Siberia [Polevoi, 2013], possibly boreo-mountainous.
- Boletina plana* (Walker, 1856)
Material. 1♂, S2, 25.06–19.07.2014.
Distribution. Palaearctic, widely distributed.
- Boletina pseudonitida* Zaitzev, 1994
Material. 1♂, S2, 25.06–19.07.2014.
Distribution. Palaearctic: was known from Western Siberia (Altai) and northern Scandinavia [Jakovlev et al., 2014b].
- **Impleta consorta* Plassmann, 1978
Material. 1♂, S1, 27–30.07.2013.
Distribution. Was known from Europe: Sweden, Finland and Poland.
- Katatopygia erythropya* (Holmgren, 1883)
Material. 1♂1♀, S2, 25.06–19.07.2014.
Distribution. Holarctic: northern Palaearctic and North-Western USA [Martinsson, Kjærandsen, 2012].
- Katatopygia sahlbergi* (Lundström, 1906)
Material. 3♂♂, S1, 18–24.07.2013; 3♂♂, 6♀♀, S2, 25.06–19.07.2014.
Distribution. Holarctic, widely distributed in Palaearctic region [Martinsson, Kjærandsen, 2012], possibly boreo-mountainous.
- Coelosia tenella* (Zetterstedt, 1852)
Material. 1♂, S1, 27–30.07.2013; 2♂♂, S2, 25.06–19.07.2014.
Distribution. Holarctic, widely distributed [Søli, 1997].
- Grzegorzekia collaris* (Meigen, 1818)
Material. 2♂♂, S2, 25.06–19.07.2014.
Distribution. Palaearctic, widely distributed.
- **Ectrepesthoneura canadensis* A. Zaitzev, 1993
Material. 1♂, S2, 25.06–19.07.2014.
Distribution. Was known from Known only by holotype from British Columbia, Canada [Zaitzev, 1993].
- Leiinae
Docosia muelleri Plassmann, 1986
Material. 5♂♂, S1, 27–30.07.2013; 1♂, S1, 18–24.07.2013.
Distribution. Was known from Palaearctic: Sweden, Finland, Murmansk Area and Western Siberia [Polevoi, 2010; Jakovlev et al., 2014b].
- Rondaniella dimidiata* (Meigen, 1804)
Material. 1♂, S1, 27–30.07.2013.
Distribution. Holarctic, widely distributed in the Palaearctic region.
- Mycetophilinae
 Exechiini
Allodia barbata (Lundström, 1909)
Material. 1♂, S2, 25.06–19.07.2014.
Distribution. Holarctic, widely distributed in the Palaearctic region.
- Allodia embla* Hackman, 1971
Material. 12♂♂, S1, 27–30.07.2013; 4♂♂, S1, 18–24.07.2013; 3♂♂, S2, 25.06–19.07.2014.
Distribution. Holarctic: was known from North-Western Europe, Western North America [Zaitzev, 1983].
- Allodia lundstroemi* Edwards, 1921
Material. 1♂, S2, 25.06–19.07.2014.
Distribution. Palaearctic, widely distributed.
- Allodia pyxidiiformis* A. Zaitzev, 1983
Material. 1♂, S1, 18–24.07.2013; 1♂, S2, 25.06–19.07.2014.
Distribution. Holarctic, widely distributed in the Palaearctic region.
- Allodia septentrionalis* Hackman, 1971
Material. 8♂♂, S2, 25.06–19.07.2014.
Distribution. Holarctic, widely distributed [Zaitzev, 1983].
- Allodia truncata* Edwards, 1921
Material. 1♂, S2, 25.06–19.07.2014.
Distribution. Holarctic, widely distributed in the Palaearctic region.
- Allodia tuomikoskii* Hackman, 1971
Material. 1♂, S1, 18–24.07.2013; 1♂, S1, 27–30.07.2013; 15♂♂, S2, 25.06–19.07.2014.
Distribution. Holarctic, widely distributed in the Palaearctic region, Alaska in North America [Zaitzev, 1983].
- Allodia zaitzevi* Kurina, 1997
Material. 1♂, S1, 27–30.07.2013; 6♂♂, S2, 25.06–19.07.2014.
Distribution. Holarctic, widely distributed in the Palaearctic region.

Allodiopsis domestica (Meigen, 1830)**Material.** 2♂♂, S2, 25.06–19.07.2014.**Distribution.** Holarctic, widely distributed in the Palaearctic region.*Anatella aquila* A. Zaitzev, 1989**Material.** 1♂, S1, 27–30.07.2013.**Distribution.** Palaearctic, in Europe was only known from Fennoscandia.*Anatella dampfi* Landrock, 1924**Material.** 10♂♂, S1, 27–30.07.2013; 4♂♂, S1, 18–24.07.2013.**Distribution.** Holarctic: was known from Europe and Western Siberia [Maximova, 2002] in the Palaearctic region, Alaska and British Columbia in North America [Zaitzev, 2000].**Anatella fungina* Plassmann, 1984**Material.** 1♂, S2, 25.06–19.07.2014.**Distribution.** Was known from Europe: Austria, Sweden and Norway, possibly boreo-mountainous.*Anatella setigera* Edwards, 1921**Material.** 1♂, S1, 27–30.07.2013; 1♂, S1, 18–24.07.2013.**Distribution.** Holarctic: was known from Europe and Western Siberia [Maximova, 2002] in the Palaearctic region, Yukon Territory in North America [Zaitzev, 2000].*Anatella simpatica* Dziedzicki, 1923**Material.** 1♂, S2, 25.06–19.07.2014.**Distribution.** Holarctic: was known from Europe and Western Siberia [Maksimova, 2002; Zaitzev, 2003] in the Palaearctic region, Alaska in North America [Zaitzev, 2000].*Brevicornu bipartitum* Laštovka et Matile, 1974**Material.** 2♂♂, S2, 25.06–19.07.2014.**Distribution.** Holarctic: was known from Scandinavia, North-Western Russia and Yakutia [Blagoderov, 1992] in the Palaearctic region, western parts of North America [Zaitzev, 1988].*Brevicornu cristatum* A. Zaitzev, 1985**Material.** 1♂, S1, 18–24.07.2013; 1♂, S2, 25.06–19.07.2014.**Distribution.** Holarctic: was known from Europe only known from Germany and North-Western Russia (Swedish record from Fauna Europaea is erroneous [Kjærandsen et al., 2007a]), western parts of North America [Zaitzev, 1985].*Brevicornu fennicum* (Landrock, 1927)**Material.** 1♂, S2, 25.06–19.07.2014.**Distribution.** Was known from Europe, possibly boreo-mountainous.*Brevicornu foliatum* (Edwards, 1925)**Material.** 1♂, S1, 27–30.07.2013; 3♂♂, S2, 25.06–19.07.2014.**Distribution.** Holarctic: widely distributed in the Palaearctic region, Alaska in North America [Zaitzev, 1992].*Brevicornu fuscipenne* (Staeger, 1840)**Material.** 1♂, S1, 18–24.07.2013.**Distribution.** Holarctic, widely distributed in the Palaearctic region.*Brevicornu griseicolle* (Staeger, 1840)**Material.** 2♂♂, S1, 27–30.07.2013; 3♂♂, S2, 25.06–19.07.2014.**Distribution.** Holarctic: widely distributed in the Palaearctic region, western parts of North America [Zaitzev, 1988].*Brevicornu kingi* (Edwards, 1925)**Material.** 2♂♂, S2, 25.06–19.07.2014.**Distribution.** Holarctic: was known from Europe and Western Siberia (Kemerovo Area) [Ostroverkhova, Maksimova, 2000] in the Palaearctic region, eastern parts of North America [Zaitzev, 1988].*Brevicornu occidentale* A. Zaitzev, 1988**Material.** 3♂♂, S2, 25.06–19.07.2014.**Distribution.** Holarctic: was known from Europe, only known from Norway [Gammelmo, Søli, 2006], North-Western Russia [Polevoi, 2000, 2010] and Finland [Jakovlev, 2014], western parts of North America [Zaitzev, 1988].*Brevicornu parafennicum* Zaitzev, 1995**Material.** 4♂♂, S2, 25.06–19.07.2014.**Distribution.** Was known from Europe, only known from Fennoscandia.*Cordyla brevicornis* (Staeger, 1840)**Material.** 2♂♂, S2, 25.06–19.07.2014.**Distribution.** Palaearctic, widely distributed.*Cordyla insons* Laštovka et Matile, 1974**Material.** 1♂, S2, 25.06–19.07.2014.**Distribution.** Palaearctic, widely distributed.*Cordyla parvipalpis* Edwards, 1925**Material.** 9♂♂, S2, 25.06–19.07.2014.**Distribution.** Palaearctic, widely distributed.*Exechia contaminata* Winnertz, 1863**Material.** 1♂, S2, 25.06–19.07.2014.**Distribution.** Holarctic, widely distributed in the Palaearctic region.*Exechia exigua* Lundström, 1909**Material.** 5♂♂, S2, 25.06–19.07.2014.**Distribution.** Palaearctic, widely distributed.*Exechia frigida* (Boheman, 1865)**Material.** 3♂♂, S1, 27–30.07.2013; 1♂, S2, 25.06–19.07.2014.**Distribution.** Holarctic, widely distributed (distribution needs clarification as this species earlier might be confused with *E. borealis* Lundström [Kjærandsen et al., 2007b]).*Exechia kunashirensis* A. Zaitzev, 1996**Material.** 1♂, S1, 18–24.07.2013.**Distribution.** Was known from Eastern Palaearctic, Kuril Islands [Zaitzev, 2003].*Exechia lundstroemi* Landrock, 1923**Material.** 1♂, S2, 25.06–19.07.2014.**Distribution.** Palaearctic, widely distributed.*Exechia micans* Laštovka et Matile, 1974**Material.** 1♂, S2, 25.06–19.07.2014.**Distribution.** Holarctic, widely distributed [Kjærandsen et al, 2007b].

Exechia nigra Edwards, 1925

Material. 6♂♂, S1, 27–30.07.2013; 1♂, S1, 18–24.07.2013; 1♂, S2, 25.06–19.07.2014.

Distribution. Was known from Palaearctic, Western Europe and Mongolia [Zaitzev, 2003]. Record from North-Western Russia [Ostroverkhova, Stackelberg, 1969] needs to be confirmed.

Exechia parva Lundström, 1909

Material. 1♂, S1, 18–24.07.2013; 1♂, S1, 27–30.07.2013; 1♂, S2, 25.06–19.07.2014.

Distribution. Palaearctic, widely distributed.

Exechia pectinivalva Stackelberg, 1948

Material. 1♂, S1, 18–24.07.2013; 3♂♂, S1, 27–30.07.2013; 1♂, S2, 25.06–19.07.2014.

Distribution. Palaearctic, widely distributed.

Exechia repanda Johansen, 1912

Material. 1♂, S1, 27–30.07.2013.

Distribution. Holarctic, widely distributed in the Palaearctic region.

Exechia separata Lundström, 1912

Material. 9♂♂, S1, 18–24.07.2013; 6♂♂, S1, 27–30.07.2013; 88♂♂, S2, 25.06–19.07.2014.

Distribution. Holarctic, widely distributed in the Palaearctic region.

Exechia similis Laštovka et Matile, 1974

Material. 1♂, S1, 27–30.07.2013; 3♂♂, S2, 25.06–19.07.2014.

Distribution. Palaearctic, widely distributed.

Exechia spinigera Winnertz, 1863

Material. 1♂, S1, 27–30.07.2013.

Distribution. Was known from Palaearctic (with many doubtful records).

Remarks. Species with questionable identity, as type specimens are lost [Kjærandsen et al., 2007a]. Here we follow Zaitzev's [2003] interpretation.

Exechia subfrigida Laštovka et Matile, 1974

Material. 1♂, S1, 27–30.07.2013.

Distribution. Was known from Palaearctic, in Europe only known from Fennoscandia.

Exechia unimaculata (Zetterstedt, 1860)

Material. 1♀, S1, 18–24.07.2013.

Distribution. Palaearctic, widely distributed.

Exechiopsis praedita (Plassmann, 1976)

Material. 1♂, S2, 25.06–19.07.2014.

Distribution. Was known from Europe: Finland, Sweden and Russian Karelia [Jakovlev et al., 2014a].

Exechiopsis sagittata

Laštovka et Matile, 1974

Material. 2♂♂, S2, 25.06–19.07.2014.

Distribution. Palaearctic, widely distributed.

Myrosia maculosa (Meigen, 1818)

Material. 1♂, S2, 25.06–19.07.2014.

Distribution. Was known from Europe, widely distributed.

Notolopha brachycera (Zetterstedt, 1852)

Material. 1♂, S1, 27–30.07.2013.

Distribution. Was known from Palaearctic, in Europe only known from Finland and Sweden, but might be largely overlooked.

Pseudexechia altaica A.Zaitzev, 1988

Material. 1♂, S2, 25.06–19.07.2014.

Distribution. Was known from Palaearctic, only known from Altai and Murmansk Area [Polevoi, 2010].

Rymosia guttata Lundström, 1912

Material. 1♂, S2, 25.06–19.07.2014.

Distribution. Was known from Europe: Fennoscandia, Germany and Austria, possibly boreo-mountainous.

**Rymosia thorneae* Chandler, 1994

Material. 1♂, S2, 25.06–19.07.2014.

Distribution. Was only known by holotype from Great Britain [Chandler, 1994].

Synplasta rufilatera Edwards, 1941

Material. 1♂, S2, 25.06–19.07.2014.

Distribution. Palaearctic, widely distributed.

Tarnania tarnanii (Dziedzicki, 1910)

Material. 4♂♂, S2, 25.06–19.07.2014.

Distribution. Holarctic, widely distributed [Kjærandsen, 2006].

Mycetophilini

Epicypa aterrima (Zetterstedt, 1852)

Material. 1♂, S2, 25.06–19.07.2014.

Distribution. Holarctic, widely distributed.

Mycetophila abiecta (Laštovka, 1963)

Material. 1♂, S1, 18–24.07.2013; 2♂♂, S1, 27–30.07.2013; 2♂♂, S2, 25.06–19.07.2014.

Distribution. Palaearctic, widely distributed [Zaitzev, 2003].

**Mycetophila alberta* Curran, 1927

Material. 2♂♂, S2, 25.06–19.07.2014.

Distribution. Was known from Western Nearctic [Laffoon, 1956]

Mycetophila blanda Winnertz, 1863

Material. 2♂♂, S2, 25.06–19.07.2014.

Distribution. Palaearctic, widely distributed.

Mycetophila brevitarsata (Laštovka, 1963)

Material. 12♂♂, S2, 25.06–19.07.2014.

Distribution. Palaearctic, widely distributed.

Mycetophila cingulum Meigen, 1830

Material. 2♂♂, S1, 27–30.07.2013.

Distribution. Holarctic: widely distributed in the Palaearctic region, Alaska and New Hampshire in North America [Laffoon, 1956].

Mycetophila confluens Dziedzicki, 1884

Material. 1♂, S1, 27–30.07.2013; 20♂♂, S2, 25.06–19.07.2014.

Distribution. Palaearctic, widely distributed.

Mycetophila fungorum (De Geer, 1776)

Material. 13♂♂, S1, 27–30.07.2013; 4♂♂, S1, 18–24.07.2013; 9♂♂, S2, 25.06–19.07.2014.

Distribution. Holarctic and Oriental: widely distributed in the Palaearctic region, Alaska and Canada in North America [Chandler, 1993].

Mycetophila gemerensis
Ševčík et Kurina, 2011

Material. 2♂♂, S1, 27–30.07.2013; 2♂♂, S2, 25.06–19.07.2014.

Distribution. Was known from Europe: Slovakia, Finland and Russian Karelia [Jakovlev et al., 2014a; Salmela, Kaunisto, 2015], possibly boreo-mountainous.

**Mycetophila haruspica*
Plassmann, 1990

Material. 1♂, S1, 18–24.07.2013.

Distribution. Was only known from Europe, Fennoscandia [Salmela, Kaunisto, 2015].

Mycetophila ichneumonea Say, 1823

Material. 4♂♂, S1, 18–24.07.2013; 11♂♂, S1, 27–30.07.2013; 7♂♂, S2, 25.06–19.07.2014.

Distribution. Holarctic, widely distributed [Laštovka, 1972].

Mycetophila luctuosa Meigen, 1830

Material. 2♂♂, S1, 27–30.07.2013; 29♂♂, S2, 25.06–19.07.2014.

Distribution. Holarctic, widely distributed [Laffoon, 1956].

Mycetophila ocellus Walker, 1848

Material. 7♂♂, S1, 27–30.07.2013; 5♂♂, S1, 18–24.07.2013; 3♂♂, S2, 25.06–19.07.2014.

Distribution. Holarctic, widely distributed [Laffoon, 1956].

Mycetophila pumila Winnertz, 1863

Material. 1♂, S1, 18–24.07.2013; 1♂, S1, 27–30.07.2013; 1♂, S2, 25.06–19.07.2014.

Distribution. Palaearctic, widely distributed.

Mycetophila riparia Chandler, 1993

Material. 4♂♂, S1, 18–24.07.2013; 11♂♂, S1, 27–30.07.2013; 42♂♂, S2, 25.06–19.07.2014.

Distribution. Holarctic: Western Siberia in the Palaearctic region [Ostroverkhova, Maximova, 2000], Alaska in North America [Chandler, 1993].

Mycetophila scotica Edwards, 1941

Material. 1♂, S2, 25.06–19.07.2014.

Distribution. Holarctic: widely distributed in the Palaearctic region [Zaitzev, 2003], Alaska and California in North America [Laffoon, 1956].

Mycetophila sepulta (Laffoon, 1957)

Material. 10♂♂, S1, 27–30.07.2013; 1♂, S1, 18–24.07.2013; 4♂♂, S2, 25.06–19.07.2014.

Distribution. Holarctic: scattered European records in the Palaearctic region [Jürgenstein et al., 2015], widely distributed in North America [Laffoon, 1956]. Reexamination of one specimen from Russian Karelia, published as questionable record [Polevoi, 2000], confirmed it's identity with *M. sepulta*.

Mycetophila signatoides Dziedzicki, 1884
(= *assimilis* Matile, 1967)

Material. 1♂, S1, 18–24.07.2013; 3♂♂, S2, 25.06–19.07.2014.

Distribution. Holarctic: was only known from Europe and Altai in the Palaearctic region [Zaitzev, 2003], widely distributed in North America [Laffoon, 1956].

Mycetophila strigatoides (Landrock, 1927)

Material. 1♂, S2, 25.06–19.07.2014.

Distribution. Palaearctic, widely distributed.

Mycetophila subsigillata A. Zaitzev, 1999

Material. 2♂♂, S1, 18–24.07.2013; 4♂♂, S2, 25.06–19.07.2014.

Distribution. Palaearctic, widely distributed.

Mycetophila uninotata Zetterstedt, 1852

Material. 5♂♂, S2, 25.06–19.07.2014.

Distribution. Palaearctic, widely distributed [Zaitzev, 2003].

Phronia aviculata Lundström, 1914

Material. 1♂, S1, 27–30.07.2013.

Distribution. Palaearctic: was only known from Fennoscandia, Germany and Western Siberia [Ostroverkhova, Maximova, 2000; Zaitzev, 2003].

Phronia biarquata (Becker, 1908)

Material. 2♂♂, S2, 25.06–19.07.2014.

Distribution. Holarctic, widely distributed in the Palaearctic region.

Phronia braueri Dziedzicki, 1889

Material. 2♂♂, S1, 27–30.07.2013.

Distribution. Holarctic, widely distributed [Gagné, 1975].

Platurocypta punctum (Stannius, 1831)

Material. 3♂♂, S2, 25.06–19.07.2014.

Distribution. Holarctic, widely distributed in the Palaearctic region.

Platurocypta testata (Edwards, 1925)

Material. 1♂, S1, 27–30.07.2013.

Distribution. Holarctic, widely distributed in the Palaearctic region.

Sceptonia fumipes Edwards, 1925

Material. 2♂♂, S2, 25.06–19.07.2014.

Distribution. Was only known from Europe, widely distributed.

Sceptonia membranacea Edwards, 1925

Material. 1♂, S2, 25.06–19.07.2014.

Distribution. Was only known from Europe, widely distributed.

Sceptonia nigra (Meigen, 1804)

Material. 1♂, S1, 18–24.07.2013; 1♂, S2, 25.06–19.07.2014.

Distribution. Palaearctic, widely distributed.

? *Trichonta amica* Gagné, 1981

Material. 11♂♂, S2, 25.06–19.07.2014.

Distribution. Holarctic: in the Palaearctic region recorded from Fennoscandia.

Remarks. This species fits rather well with *T. amica*, but has additional distinctive structure on male gonostylus, which is not figured by Gagné [1981] and Zaitzev [2003]. The study of type material is desirable for reliable identification.

Trichonta brevicauda Lundström, 1906

Material. 1♂, S1, 27–30.07.2013.

Distribution. Holarctic, widely distributed [Gagné, 1981].

**Trichonta delicata* Gagné, 1981

Material. 1♂, S2, 25.06–19.07.2014.

Distribution. Holarctic: in Europe only known from Finland and Norway, widely distributed in North America [Gagné, 1981].

Trichonta patens Johansen, 1912

Material. 1♂, S2, 25.06–19.07.2014.

Distribution. Holarctic: in the Palaearctic region only known from Finland, Norway, and Altai [Zaitzev, 2003; Søli, Rindal, 2012], widely distributed in North America [Gagné, 1981].

Trichonta subfusca Lundström, 1909

Material. 17♂♂, S2, 25.06–19.07.2014.

Distribution. Holarctic, widely distributed [Gagné, 1981].

Trichonta vitta (Meigen, 1830)

Material. 1♂, S1, 18–24.07.2013; 1♂, S1, 27–30.07.2013.

Distribution. Holarctic: Europe and Western Siberia in the Palaearctic region [Ostroverkhova, Maximova, 2000; Zaitzev, 2003], widely distributed in North America [Gagné, 1981].

Trichonta vulgaris Loew, 1869

Material. 3♂♂, S1, 27–30.07.2013; 1♂, S2, 25.06–19.07.2014.

Distribution. Holarctic, widely distributed [Gagné, 1981].

Zygomyia pseudohumeralis Caspers, 1980

Material. 2♂♂, S2, 25.06–19.07.2014.

Distribution. Was known from Palaearctic, Europe and Altai [Zaitzev, 2003].

Zygomyia valida Winnertz, 1863

Material. 3♂♂, S2, 25.06–19.07.2014.

Distribution. Palaearctic, widely distributed.

Discussion

Taking into account relatively modest collecting efforts, the recording of 170 species may demonstrate high potential richness of fungus gnats in Chukotka. In Europe the number of species in local lists from the areas near the northern border of coniferous forests is rich 277–330 [Polevoi, 2010; Søli, Rindal, 2012], hence we may expect no less than 200 species to be discovered in the area, predicting slightly lower diversity in tundra habitats.

Widely distributed circumholarctic (37 %) and transeurasian (24.7 %) species prevail in the fungus gnats fauna of Chukotka (Table 1), which appears to be a typical pattern for local faunas of Sciaroidea [Polevoi, 2000; Kjærandsen et al., 2007a, b; Kurina, 2008]. Considerable percentage of these species (over 20 %) dem-

Table 1. Distribution patterns of fungus gnat species of Chukotka

Таблица 1. Ареалы грибных комаров Чукотки

Distribution	Number of species	%
Holarctic, including:	75	44.1
Circumholarctic	63	37.0
Europe, Chukotka and North America	8	4.7
East palaeartic and North America	2	1.2
Chukotka and North America	2	1.2
Palaearctic, including:	95	55.9
Transeurasian	42	24.7
Europe and Chukotka	13	7.6
Fennoscandia and Chukotka	16	9.4
Fennoscandia, Altai and Chukotka	2	1.8
Eastern Siberian	5	2.9
Chukotka endemics (tentative)	15	9.4
Total	170	100

onstrate disjunction in Palaearctic, being not known from its central regions. Among these, 16 species earlier recorded only from Fennoscandia are especially notable. Evidently, this fact rather indicates insufficient knowledge than true disjunctive distribution. Considering practical absence of data from the northern Russia (east of Murmansk area and Karelia) we may expect future discovery of these species in the intermediate territories. A curious pattern is shown by three species (*Boletina pseudonitida*, *Exechia altaica* and undescribed species of subfamily Gnoristinae) recorded from northern Scandinavia (Russian and Finnish Lapland), Chukotka and Altai, representing an example of arcto-mountainous distribution and providing an evidence of faunistic connections between Arctic and mountains of Siberia.

Eastern Palaearctic species make up near 12 % of Chukotka fauna. They are represented by eastern Siberian group and tentative Chukotka endemics (16 undescribed species). It should be noted that all these species may be in fact more widely distributed, as numerous discoveries of former «eastern» species in the Western Palaearctic are known [Polevoi, 2003; Kjærandsen et al., 2007a].

Recent works give us an evidence of highly diverse and peculiar fauna of fungus gnats in the mainland north Europe [Kjærandsen et al., 2007a; Søli, Rindal, 2012; Jakovlev, 2014; Jakovlev et al., 2014b]. Our study, being only a small step in extending our knowledge on this Diptera group in the north Russia, shows crucial

importance of these areas to understand distribution patterns and faunogenesis in the Holarctic region. Growing interest to the insect fauna of high latitude regions promises numerous remarkable findings in the future.

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