DISSERTATIONES BIOLOGICAE UNIVERSITATIS TARTUENSIS
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FUNGUS GNATS IN ESTONIA
(DIPTERA: BOLITOPHILIDAE, KEROPLATIDAE, MACROCERIDAE, DITOMYIIDAE, DIADOCIDIIDAE, MYCETOPHILIDAE)

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ABSTRACT

The thesis deals with the faunistic aspects of the Estonian fauna of fungus gnats (Diptera, Nematocera: Bolitophilidae, Keroplatidae, Macroceridae, Ditomyiidae, Diadocidiidae, Mycetophilidae). A list of 444 recorded species is given: Bolitophilidae — 20 species, Keroplatidae — 14 species, Macroceridae — 18 species, Ditomyiidae — 2 species, Diadocidiidae — 3 species and Mycetophilidae — 387 species. The studies included contain a record of 270 species found to be new to Estonia: Bolitophilidae — 16 species, Keroplatidae — 5 species, Macroceridae — 6 species, Ditomyiidae — 1 species, Diadocidiidae — 2 species and Mycetophilidae — 240 species. The study is based on the material including 16 991 specimens, 13 013 of which have been identified to species level. Three new species — *Sciophila pseudoflexuosa* Kurina, 1991, *Mycetophila estonica* Kurina, 1992 and *Allodia (Allodia) zaitzevi* Kurina, 1997 — are described. The description of the first two species is based on Estonian material only. *A.(A.) zaitzevi* is described after the revision of type series of *Allodia (Allodia) pyxidiiformis* A. Zaitzev, 1983 and it is also recorded in Russia: the Leningrad and Amur Districts. Eight species — *Neuratelia subulata* A. Zaitzev, 1994, *Syntemna stylatoides* A. Zaitzev, 1994, *Boletina gusakovae* A. Zaitzev, 1994, *Allodia (Brachycampta) vernalis* Polevoi, 1995, *Anatella crispa* A. Zaitzev, 1994, *Exechia repandoides* Caspers, 1984, *Pseudexechia hamulata* (Lackschewitz, 1937), *Zygomyia jakovlevi* A. Zaitzev, 1989 — are recorded for the first time after their original descriptions. For fungus gnats registered in Estonia three basic distribution types can be described: the Holarctic type (115 species), the Transpalaearctic type (178 species) and the European type (117 species).

Nine Bolitophilid and 68 Mycetophilid species have been recorded as mycetophagous. Three species — *Boletina gripha* Dziedzicki, 1885, *Allodia (Allodia) lundstroemi* Edwards, 1921 and *Phthinia winnertzi* Mik, 1869 — were found from macrofungi for the first time. A new genus of host macrofungi was reported for 22 Mycetophilid species. *Mycomya (Mycomya) cinerascens* (Macquart, 1826) and *Sciophila modesta* A. Zaitzev, 1982 were reared from Agaricales s. l. for the first time. For 15 species of fungus gnats probable larval host use preference was observed.

The hibernation as imagos was recorded for 30 species of fungus gnats: 28 species of them were hibernating in caves and two species in broken umbelliferous stems. The prevalence of genus *Exechiopsis* Tuomikoski, 1966 is reported among Mycetophilids, hibernating in caves. Two species — *Exechia parva* Lundström, 1909 and *E. repanda* Johannsen, 1912 — overwintered in broken umbelliferous stems.

LIST OF ORIGINAL PAPERS

The papers are referred to in the text by their Roman numerals.

I. **Kurina, O.** 1991. Mycetophilidae (Diptera) reared from macrofungi in Estonia. *Proc. Estonian Acad. Sci. Biol.*, 40, N 2, 84–90.

II. **Kurina, O.** 1992. A new species of the genus *Mycetophila* Meigen (Diptera, Mycetophilidae) found in Estonia. *Proc. Estonian Acad. Sci. Biol.*, 41, N 3, 127–130.

III. **Kurina, O.** 1994. New records of Mycetophilidae (Diptera) reared from macrofungi in Estonia. *Proc. Estonian Acad. Sci. Biol.*, 43, 4, 216–220.

IV. **Kurina, O.** 1996. Hibernation of fungus gnats (Diptera, Mycetophilidae) in Estonian caves. *Studia Dipterologica (Halle, Saale)*, 3, 2, 221–229.

V. **Kurina, O.** 1996. On the Estonian Brevicornu Marshall (Diptera, Mycetophilidae). *International Dipterological Research (St.-Peterburg, Helsinki)*, 7, 2, 71–73.

VI. **Kurina, O.** 1997. Fungus gnats (Diptera, Mycetophiloidae) collected by Aleksander Stackelberg in Estonia. *International Dipterological Research (St.-Peterburg, Helsinki)*, 8, 1, 3–8.

VII. **Kurina, O.** 1997. A review of the Estonian Ditomyiidae, Keroplatidae and Diadocidiidae (Diptera, Nematocera). *Proc. Estonian Acad. Sci. Biol.*, 46, 1/2, 80–87.

VIII. **Kurina, O.** 1997. *Greenomyia mongolica* Laštovka et Matile, 1974 (Diptera, Mycetophilidae) found in Estonia. *International Dipterological Research (St.-Peterburg, Helsinki)*, 8, 2, 69–71.

IX. **Kurina, O.** 1997. Мицетофилоидные грибные комары (Diptera: Mycetophilidae, Bolitophilidae) лесах Эстонии. В кн: *Место и роль двукрыльных насекомых в экосистемах. Санкт-Петербург*, 70–71.

X. **Kurina, O.** 1997. A new species of fungus gnats from the genus *Allodia* Winnertz, 1863 (Diptera Mycetophilidae) found in Estonia. *Studia Dipterologica (Halle, Saale)*, 4, 2, 275–279.

XI. **Kurina, O.** 1997. Two species from the genus *Exechia* Winn. (Diptera, Mycetophilidae) new to Estonia. *Proc. Estonian Acad. Sci. Biol.*, 46, 4, 256–259.

XII. **Kurina, O.** Notes on fungus gnats (Diptera, Mycetophilidae) reared from macrofungi in Estonia. *Lepid. Inform., accepted.*

1. INTRODUCTION

1.1. Objectives of study and structure of thesis

Taking into account the limited scope of previous fungus gnats studies in Estonia the primary aim of this work was to revise the Estonian fauna of fungus gnats. Following the traditions of earlier investigations (see 1.2.) nine out of ten families were considered, the family Sciaridae was omitted intentionally. Another goal was to improve of the knowledge of the biology of Mycetophiloids. Specifically, possible hibernating as imagoes and larval host use were put forward in the studies of Mycetophiloids biology. Through the study of the Estonian fauna it was planned to complete the picture of the general aspects of the distribution of Mycetophiloids.

The thesis begins with general characteristics of Mycetophiloids and a review of the previously published data on the Estonian fauna follows. The annotated list of species includes all the 444 species of fungus gnats recorded in Estonia so far. In the discussion the species diversity is compared with the faunistic data from Finland and Latvia, the distribution of species, the larval host use and probable preference patterns in the latter are discussed. Finally, the original papers are added.

1.2. General characterization and classification of fungus gnats

Fungus gnats as a dendrophilious insect group are typical of forest ecosystems (Zaitzev, 1994a; Økland, 1994). Only a few species have been recorded in open landscapes (Matile, 1996). The majority of the species feed, characteristically of their biology, on fruit bodies and mycelium of different fungi at their larval stage. Only very few species were recorded to have no relation with fungi, as they occurred in nonfungal habitats (Yakovlev, 1994).

Fungus gnats are small to medium size gnats with highly characteristic morphology (Fig. 1.). Only some species from genera *Keroplatus* Bosc. (Keroplatidae), *Macrocera* Meig. (Macroceridae) and *Leptomorphus* Walk. (Mycetophilidae) exceed 15 mm in size, whereas the smallest gnats (up to 2 mm) belong to genera *Zygomyia* Winn., *Sceptonia* Winn., *Cordyla* Meig. and *Anatella* Winn. (Mycetophilidae) (Zaitzev, 1994a).

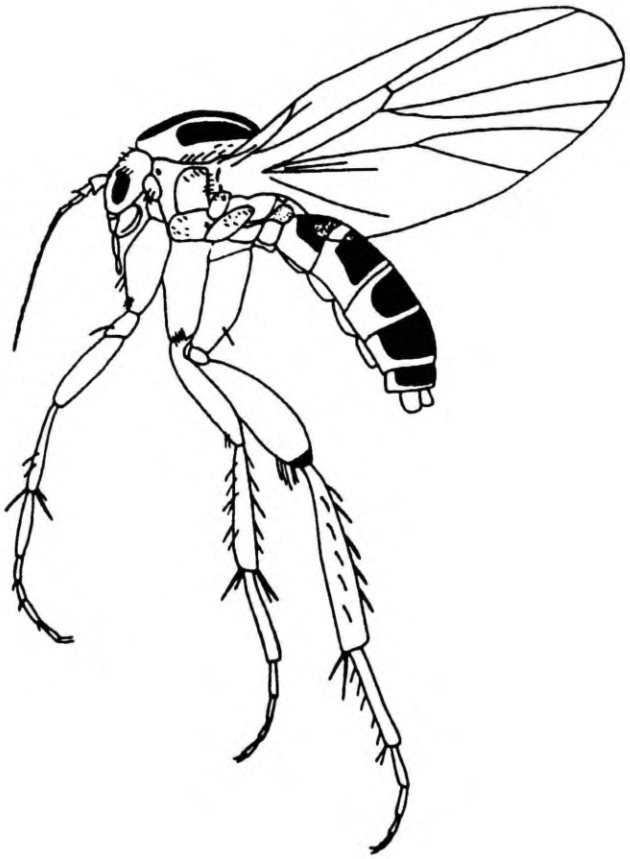

Figure 1. *Myceyophila fungorum* (De Geer, 1776), ♂, from Plassmann (1988b).

The head of Mycetophiloids is round or prolongated in shape, shoved against the thorax. The compound eyes are round, oval or kidney-shape. They have two or three ocelli, the location of which varies with different genera. The number of antennal segments varies from 2+9 to 2+14. The mouthparts are usually well developed rarely reduced (e. g. *Paratina* spp.). The thorax is usually well developed while chaetotaxy of its different parts, particularly pleural segments, serves as an important characteristic for species determination. Wings are mostly well developed, venation well expressed (except *Azana* spp. and *Manota* spp.). Legs are with characteristic elongated coxae and large femora in most of the species. Family Bolitophilidae and genus *Phthinia* Winn. have long and slim legs. All species have relatively well developed spurs on tibiae. The abdomen has 6–9 segments, mostly slightly compressed on sides or lower side, rarely cylindrical.

According to Edwards (1925) characteristic morphological features distinguishing Mycetophiloidea from other Nematocera are: absence of vein R_{2+3};

presence of ocelli; well developed tibial spurs; absence of the suture dividing the mesonotum into praescutum and scutum and an incomplete axillary vein.

According to Rohdendorf (1977) fungus gnats belong to Bibionomorpha — an infraorder of Diptera. Edwards (1925) has distinguished ten subfamilies of Mycetophilidae: Ditomyiinae, Bolitophilinae, Diadocidiidae, Macrocerinae, Ceroplatinae, Lygistorrhininae, Sciarinae, Manotinae, Sciophilinae and Mycetophilinae. In Edwards (1941), subfamily Macrocerinae has been merged in subfamily Ceroplatinae. Hennig (1973) having renamed six subfamilies given in Edwards (1925, 1941) presented the following families: Diadomyiidae, Bolitophilidae, Diadocidiidae, Keroplatidae (including subfamily Lygistorrhininae), Sciadidae and Mycetophilidae (including subfamilies Manotinae and Sciophilinae). Rohdendorf (1977) divided the superfamily Mycetophiloidea into the following nine families: Bolitophilidae, Ditomyiidae, Diadocidiidae, Ceroplatidae, Macroceridae, Mycetobiidae, Mycetophilidae (+ Manotidae), Lygistorrhinidae and Sciaridae.

According to the Catalogue of Palaearctic Diptera (Soós & Papp, 1988) the following families are distinguished: Sciaridae, Bolitophilidae, Ditomyiidae, Keroplatidae, Diadocidiidae, Macroceridae, Manotidae, Mycetobiidae, Lygistorrhinidae and Mycetophilidae. By Matile (1989, 1990) and Søli (1997a), the following seven families are given in superfamily Sciaroidea (=Mycetophiloidea): Ditomyiidae, Diadocidiidae, Bolitophilidae, Keroplatidae, Lygistorrhinidae, Mycetophilidae and Sciaridae. Up to the present, no complete agreement has been achieved and additional phylogenetic analyses are necessary.

Scientists who have studied fungus gnats can be divided into two main groups: those who have studied all the families except Sciaridea (e.g. Matile, 1980; Plassmann, 1989; Zaitzev, 1994a; Søli, 1997a) and those who have studied only the family Sciaridae (e.g. Vilkamaa & Hippa, 1994; 1996). Few, mainly earlier studies (e. g. Edwards, 1925), include all the families of Mycetophiolidea. I have followed this tradition: all the families except Sciaridae have been studied.

In the thesis fungus gnats (Mycetophiloidea excl. Siaridae) are presented according to the Catalogue of Palaearctic Diptera by Soos & Papp (1988). Accordingly, the following taxa have been recorded in the Palaearctic region: family Bolitophilidae, one genus with 35 species (Plassmann,1988a); family Ditomyiidae, three genera with 15 species (Mamaev & Krivosheina, 1988a); family Keroplatidae, 14 genera with 59 species (Krivosheina & Mamaev, 1988a); family Diadocidiidae, one genus with 4 species (Krivosheina, 1988); family Macroceridae, 1 genus with 59 species (Krivosheina & Mamaev, 1988b); families Manotidae, Mycetobiidae and Lygistorrhinidae, all with 1 genus with 1, 7 and 1 species, respectively (Krivosheina & Mamaev, 1988c; Mamaev & Krivosheina, 1988b; Matile, 1988).

In the family Mycetophilidae in Palaearctics, two subfamilies and 7 tribes have been identified: Sciophilinae — Mycomyini, 2 genera with 121 species;

Scophilini, 17 genera with 83 species; Gnoristini, 13 genera with 93 species; Allactoneurini, 1 genus with 1species; Leiini, 10 genera with 71 species; Mycetophilinae — Mycetophilini, 9 genera with 329 species; Exechiini, 13 genera with 295 species (Hackman *et al.*, 1988).

1.3. Earlier studies in Estonia and in neighbouring areas

The first data on the fungus gnats of Estonia can be associated with A. Dampf, who gathered material from Estonian raised bogs in 1922. The material was determined by the famous German dipterologist C. Landrock and two papers were published: Dampf (1924) and Landrock (1924). The included data contain 46 species while Landrock (1924) includes 5 species, three of them are original descriptions. *Phronia palustris* Landrock, 1924, as proved later by Hackman *et al.* (1988) is synonym of *P. nigripalpis* Lundström, 1909. The validity of *Macrocera estonica* Landrock, 1924 and *Anatella dampfi* Landrock, 1924 has been confirmed by later publications (e. g. Chandler, 1977; Zaitzev, 1994).

The richest in data on Estonian fungus gnats is "Die Fungivoriden des Ostbaltischen Gebites" by P. Lackschewitz, 1937. Lackschewitz mainly determined the material collected by F. Sintenis, but also a few specimens collected by J. Kennel (*Ceroplatus testaceus* Dal., Tartu) and G. Flor (*Sceptonia nigra* Meig. 1 male, 09. 1860, Tartu). The specimen of G. Flor represents the oldest known record of Estonian fungus gnats. Lackschewitz (1937) describes three species from the material collected by F. Sintenis as new to science: *Neuratelia sintenisi* Lackschewitz, 1937, *Allodiopsis (G.) sintenisi* (Lackschewitz, 1937) and *Exechia sororcula* Lackschewitz, 1937. The two latter species have also been fixed by other authors: e. g. Hackman, 1980; Krivosheina *et al*, 1986. *N. sintenisi* has not been registered since the original description (Zaitzev 1994a). In his publication P. Lackschewitz also cites the work of Dampf (1924) and data on altogether 167 species are presented.

H. Remm (1959) presents a list of Diptera for Avaste bog where 8 species of fungus gnats have been determined by him. In addition, two species have been marked with a question mark in the list. Out of the eight given species, four are new to Estonia and have been added to the list given by Lackschewitz in 1937. In 1948 and 1951 the known Russian dipterologist A. A. Stackelberg collected material at Koeru and Peedu (near Elva). His material has partially been determined by R. Väisanen (1984) — 11 species from genus *Mycomya* Rondani and A. Zaitzev (1985) — one species from genus *Brevicornu* Marshall. Three *Mycomya* species are new to the Estonian species list. In addition, Väisänen presents data on the species *Mycomya marginata* (Meigen, 1818) (1 female, 07.07.1982, Lahemaa Nõmmeveski, K. Mikkola leg.).

Not all the other authors (e. g. Stackelberg, 1945), who have published data on Estonian fungus gnats, present original data. Altogether 174 species of fungus gnats had been mentioned in different sources before I started my studies.

Ostroverkhova (1979) has apparently erroneously indicated *Anatella umbraculiforma* Ostroverkhova, 1974, a species described from West Siberia, as occurring in Estonia. According to Krivosheina and Mamaev (1988a) *Keroplatus tipuloides* Bosc, 1792 (Keroplatidae) has also been recorded in Estonia, while in the literature about Estonian fungus gnats the species is not mentioned and, thus, this record should be considered an error.

As concerns the neighbouring areas, the material from Finland is the largest. According to Hackman (1980) and Väisänen (1984), 491 species of fungus gnats (Mycetophiloidea excl. Sciaridae) have been recorded there. The Latvian list includes 310 species (Lackschewitz, 1937, Spuris, 1996) and Leningrad District around St. Petersburg ca 380 species (e. g. Ostroverkhova & Stackelberg, 1969; Krivosheina *et al.*, 1986). 451 species have been recorded in Kivach Nature Reserve (Russian Karelia) and Kaltsijoki area (Finland) (A. Polevoi, pers. comm.) and 326 species from Messaure area in Sweden (Plassmann, 1978a, 1979, 1980). The ecology of this insect group has also been studied in Finland and especially in Russian Karelia (Hackman & Meinander, 1979, Yakovlev, 1995, 1997).

1.4. Material and methods

Major part of the material used in this study was reared from macrofungi by me. In the studies on larval host use, imagos were reared from macrofungi mainly using the method described by Hackman and Meinander (1979). The fruit bodies of macrofungi were isolated in glass or plastic containers of 0.2, 0.5 or one litre in volume (Fig. 2, 1). The containers were covered with nylon gauze (Fig. 2, a) to enable sufficient ventilation and prevent the escaping of imagos. For isolating wood habitat fungi containers were covered with PVC foil, to maintain humidity in containers. When the fruit bodies of fungi had decomposed, the larvae entered peat for pupation (Fig. 2, b). Imagos emerged (Fig. 2, 3) were caught with an exhauster (Fig. 2, 4) and pinned on micro pins or preserved in 70% alcohol (Fig. 2, 5). 1450 ♂♂ and 1359 ♀♀ Bolitophilid specimens (see ANNOTATED LIST OF SPECIES) and 2332 ♂♂ and 1159 ♀♀ Mycetophilid specimens identified to species level, were reared from macrofungi (**I, II, III, X, XII**). Part of the emerged female specimens (about 1200) were identified to the genus level.

For hibernation studies imagos of fungus gnats were collected from caves and broken umbelliferous stems by making use of an exhauster. The material

collected from caves included 2671 ♂♂ specimens identified to species level and 2673 ♀♀ specimens identified to genus level (**IV**). 421 ♂♂ specimens from broken umbelliferous stems were identified to species level (**XI**).

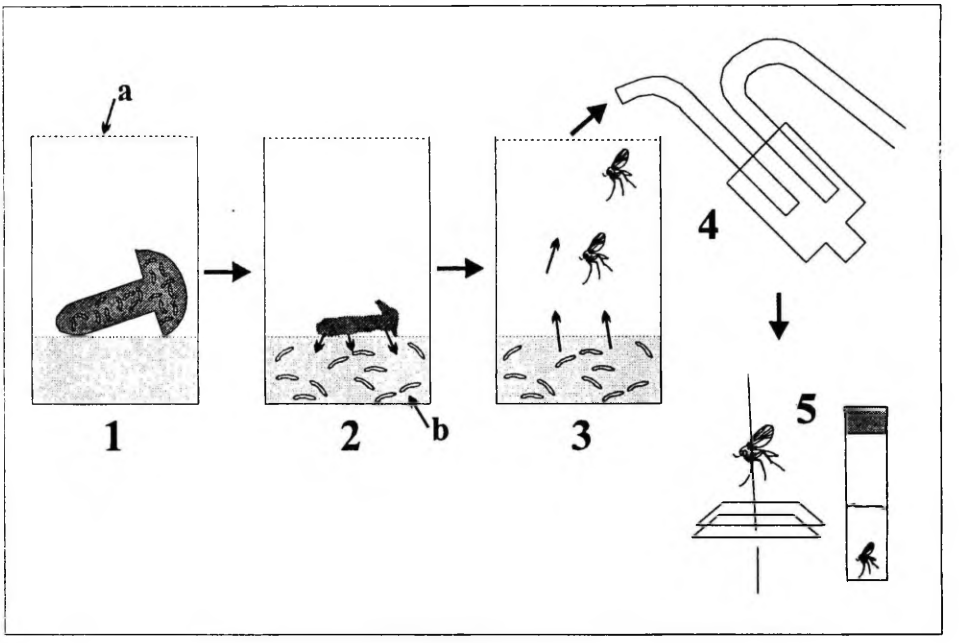

Figure 2. Method for rearing of fungus gnats from macrofungi. See for detailed description in text.

In addition, extensive material was collected by sweep-netting, most of it by me personally, and also by A. Stackelberg (314 specimens) (**V, VI, VII, VIII, X, XI**, see also ANNOTATED LIST OF SPECIES). Few specimens were collected by K. Elberg, H. Remm, Ü. Jäe and A. Baburin. Part of the material was collected by J. Viidalepp, K. Remm, K. Kimmel and R. Aalde from the light-traps set up in the framework of the International Moth Monitoring Scheme (**V, VII**, see also ANNOTATED LIST OF SPECIES). The material collected by sweep-netting and by light traps included 3176 ♂♂ and 443 ♀♀ specimens, identified to species level. 100 ♀♀ specimens collected by A. Stackelberg were identified to genus level (**VI**). As five Stackelberg's specimens were spoilt the species could not be properly identified. Two specimens of *Mycetophila fungorum* collected by A. Stackelberg had been destroyed and it was impossible to determine their sex (**VI**).

The material collected by exhauster, sweep-netting or light traps was also pinned on micro-pins or preserved in 70% alcohol. The total of the Estonian material studied included 16 991 specimens, of which 13 013 were identified to species level. In addition, the comparison material, about 1400 specimens,

deposited at the Zoological Museum in Helsinki, Finland and at the Zoological Institute of the Academy of Sciences, St. Petersburg, Russia were also studied.

Usually only male specimens of fungus gnats can be identified to species level. Females are mostly undescribed. In some cases females can be distinguished by comparing their terminals. Males are mainly identified by genitals. Other morphological aspects allow to determine genus, or in few cases belonging to a generic sub-group. Male genitals were separated from abdomens and boiled in 15% KOH for identification. The boiling removed membranous parts, that make identification difficult. The remaining chitinous parts were washed with destilled water and inserted into glycerin for observation. Genitals are preserved as glycerin preparations. Stereomicroscope МБС-9 (3.6–98 X) and microscope АУ-9 (100–375 X) were used.

The material is deposited in the Institute of Zoology and Botany, Tartu. Material collected in Estonia by A. Stackelberg (**VI**) is deposited in the Zoological Institute of the Russian Academy of Sciences, St. Petersburg.

2. ABSTRACTS OF THE PAPERS INCLUDED

I. Mycetophilidae (Diptera) reared from macrofungi in Estonia — *Proc. Estonian Acad. Sci. Biol.*, 1991, 40, N 2, 84–90.

The paper is based on the studies carried out in eight different sites in 1988 – 1990 and includes fungus gnats reared from macrofungi in Estonia. The method of rearing Diptera is discussed. 101 species of macrofungi have been studied, fungus gnats were reared from 84 of them. Forty species of fungus gnats were determined, 17 of which were new to the Estonian fauna. Three species — *Boletina gripha* Dziedzicki, 1885, *Allodia (Allodia) lundstroemi* Edwards, 1921, *Exechiopsis (Exechiopsis) fimbriata* (Lundström, 1909) were reared from macrofungi for the first time. *Mycetophila fungorum* (De Geer, 1776) appeared to be a very abundant species and formed 41% of the total number of the fungus gnats that were reared. A new species to science, *Sciophila pseudoflexuosa* Kurina, 1991 is described and a detailed figure of the genital is included. The species is similar to the Russian Far-East species *Sciophila flexuosa* A. Zaitzev, 1982, differing only by the constitution of the IX tergit.

II. A new species of the genus *Mycetophila* Meigen (Diptera, Mycetophilidae) found in Estonia. — *Proc. Estonian Acad. Sci. Biol.*, 1992, 41, N 3, 127–130.

A new species of Mycetophilids — *Mycetophila estonica* Kurina, 1992 — is described. The species is close to *Mycetophila blanda* Winnertz, 1863 and *Mycetophila signatoides* Dziedzicki, 1884. These three species form a small morphologically distinct group in the genus *Mycetophila* Meigen, 1803, differing from the other species by the presence of a long inner appendage of the ventral part of the gonostylus. Drawings of the dorsal parts of gonostylus, gonocoxites and mesonotums are presented for all the three species and the rearing of the specimens of the three species from macrofungi is described.

III. New records of Mycetophilidae (Diptera) reared from macrofungi in Estonia. — *Proc. Estonian Acad. Sei. Biol.*, 1994, 43, 4, 216–220.

This article is a sequel of paper **I**. The material was reared from macrofungi and collected in 1988–1993 from 18 sites. Material on 20 species of fungus gnats, 11 of which are new to Estonia, is presented. Two species, *Phthinia winnertzi* Mik, 1869 and *Leia bilineata* (Winnertz, 1863), were found feeding on fungi for the first time.

IV. Hibernation of fungus gnats (Diptera, Mycetophilidae) in Estonian caves. — *Studia Dipterologica (Halle, Saale).* 1996, 3, 2, 221–229.

The hibernation of fungus gnats in a castle vault and in eight caves or cave systems was studied. Six genera and 28 species were found to hibernate in the studied sites. The richest in species and specimens appeared to be genus *Exechiopsis* Tuomikoski, 1966. This phenomenon is explained by the peculiarity of their hibernation strategy. The second record of *Pseudexechia hamulata* (Lackschewitz, 1937) and the third record of species *Exechiopsis (Exechiopsis) januarii* (Lundström, 1913) after the original description were reported. 18 species were new to the Estonian fauna.

V. On the Estonian Brevicornu Marshall (Diptera, Mycetophilidae). — *International Dipterological Research (St.-Petersburg, Helsinki).* 1996, 7, 2, 71–73.

Species belonging to genus *Brevicornu* Marshall, 1896, found in Estonia, were studied. The material was collected in 18 sites, data are presented on 14 species, nine of which are new to Estonia. The species composition of Estonia, Latvia, Finland and Leningrad Region is comparatively analyzed.

VI. Fungus gnats (Diptera, Mycetophiloidae) collected by Aleksander Stackelberg in Estonia. — *International Dipterological Research (St.-Petersburg, Helsinki).* 1997, 8, 1, 3–8.

The material, collected by the famous Russian dipterologist Aleksander Stackelberg in Estonia: Koeru (1948) and Peedu (1951), is presented. 77 species from five families have been determined: Bolitophilidae — 7 species, Keroplatidae — 4 species, Diadocidiidae — 1 species, Macroceridae — 3 species and Mycetophilidae — 62 species. From the 77 species recorded 28 appeared to be new to the Estonian fauna. Unpublished determinations by A. Zaitzev based on A. Stackelberg material, are presented, including six species of genus *Allodia* Winnertz, 1863. Three of these are new to Estonia.

VII. A review of the Estonian Ditomyiidae, Keroplatidae and Diadocidiidae (Diptera, Nematocera). — *Proc. Estonian Acad. Sci. Biol.,* 1997, 46, 1/2, 80–87.

A review of three families: Ditomyiidae, Keroplatidae and Diadocidiidae. Data on 19 species is presented, 8 of them are new to the Estonian fauna. Previously published data are also reviewed. The Estonian fauna is compared with that of the neighbouring areas and the northernmost record of species *Summerus nobilis* Lackschewitz, 1937 is given.

VIII. Greenomyia mongolica Laštovka et Matile, 1974 (Diptera, Mycetophilidae) found in Estonia. — *International Dipterological Research (St.-Petersburg, Helsinki).* 1997, 8, 2, 69–71.

A paper on the distribution of *Greenomyia mongolica*. The record in Estonia is the westernmost in the known range of the species. The Balto-Eurasian distribution type, associated with the spruce and fir forests of Southern taiga is described with adjacent maps. Terminal and wing drawings are given.

IX. Мицетофилоидные грибные комары (Diptera: Mycetophilidae, Bolitophilidae) в лесах Эстонии. В кн: *Место и роль двукрыльных насекомых в экосисемах. Санкт-Петербург,* 1997, 70–71.

This paper deals with Diptera reared from macrofungi in the years 1988–1993. Special attention is paid to fungus gnats. The material includes 20 families of Diptera. The likely larval host preference of carpoforophagous species among fungus gnats is discussed

X. A new species of fungus gnats from the genus *Allodia* Winnertz, 1863 (Diptera Mycetophilidae) found in Estonia. — *Studia Dipterologica (Halle, Saale).* 1997, 4, 2, 275–279.

The paper includes the description of a new species — *Allodia (Allodia) zaitzevi* Kurina, 1997. The species appeared to be morphologically very close to *A. (A.) pyxidiiformis* A. Zaitzev, 1983, differing mainly by the structure of male genitalia. For both species, drawings of gonostylus and medioventral appendages of gonocoxides are presented. Scanning electron micrographs of male genitalia for both species are also given. Paper presents results of the examination of the type series of species *A. (A.) pyxidiiformis*.

XI. Two species from the genus *Exechia* Winn. (Diptera, Mycetophilidae) new to Estonia. — *Proc. Estonian Acad. Sci. Biol.*, 1997, 46, 4, 256–259.

Genus *Exechia* Winnertz, 1863 includes a morphologically distinct group of three species — *E. parva* Lundström, 1909, *E. repanda* Johannsen, 1912 and *E. repandoides* Caspers, 1984. For all the three drawings of dorsal and ventral parts of gonocoxid and gonostylus are presented. *E. repanda* and *E. repandoides* are reported as new species to the Estonian fauna. For *E. repandoides* this is the first record after the original description by Caspers in 1984.

XII. Notes on fungus gnats (Diptera, Mycetophilidae) reared from macrofungi in Estonia. — *Lepid. Inform. 1998, accepted.*

The sequel of papers **I** and **III**. Six species, of which five are new to the Estonian fauna, were reared from macrofungi.

3. ANNOTATED LIST OF SPECIES

A complete list of Estonian fungus gnats (Mycetophiloidea excl. Sciaridae) includes 444 species belonging to 6 families: Bolitophilidae — 20 species, Keroplatidae — 14 species, Macroceridae — 18 species, Ditomyiidae — 2 species, Diadocidiidae — 3 species, Mycetophilidae — 387 species. For all the species, the distribution and available information on their biology, particularly on the feeding of larvae is given on the basis of published data. The host specificity has, in general, been treated on the genus level of host macrofungus, but in some exceptional cases, when the material about mycetophagy was not sufficient, host macrofungi were given on species level.

For the species that were known in Estonia before this research relevant literature sources are cited, indicating collection sites and synonymics. The species recorded by me as new for Estonia, are marked by an asterisk in front of the species name. Roman numbers indicate the publication in the thesis, where data on a particular species were first published. If a species is found to be new to the Estonian fauna, but the find is not reflected in the enclosed papers, the occurrence of the species is reported as the first in Estonia. New original data on mycetophagous Bolitophilid species are presented. For the mycetophagous Mycetophilid species, original publications have been cited and some possible host preferences are reported. The material in the list has not been published earlier. Figure 3 indicates the sampling sites given in the original papers and earlier papers by other authors, while Figure 4 presents the collection sites for the material given in this list for the first time.

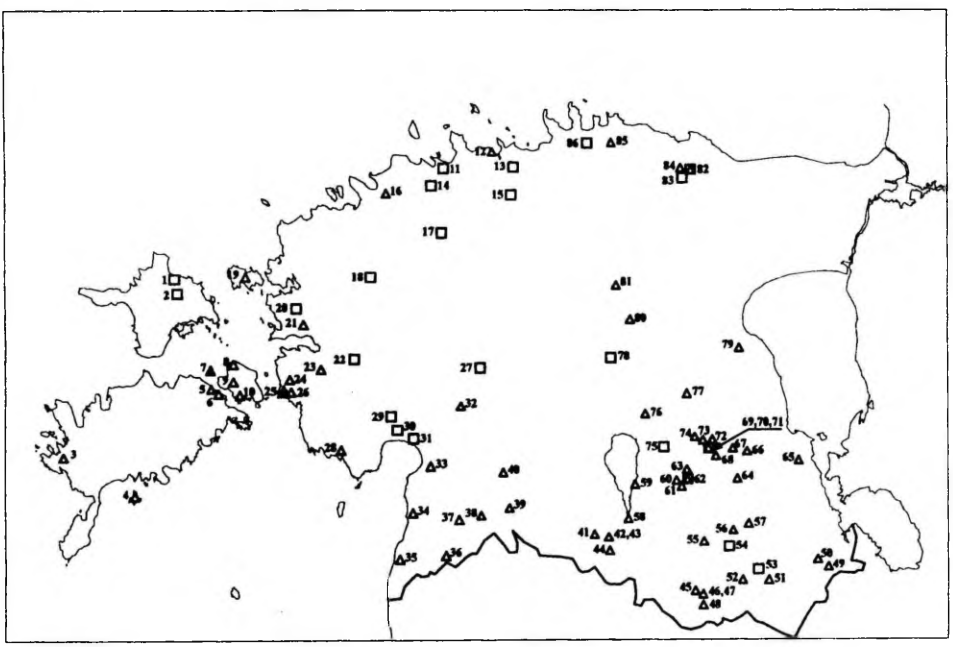

Figure 3. Sampling localities according to literature. □ data by other authors, Δ data published by me.

1, Kärdla on Hiiumaa Island (Dampf, 1924); Määvli bog on Hiiumaa Island (Dampf, 1924); 3, Viidumäe Nature Reserve (**I, II, III, VII**); 4, Islet of Abruka, near Saaremaa Island (**II, III**); 5, Maasi Castle Vault on Saaremaa Island (**IV**); 6, Orissaare on Saaremaa Island (**III, V**); 7, Islet of Kõinastu near Muhu Island (**VII**); 8, Pallasmaa on Muhu Island (**III**); 9, Piiri on Muhu Island (**V, VII**); 10, Suuremõisa on Muhu Island (**VII**); 11, Tallinn (Lackschewitz, 1937); 12, Ülgase cave, on north coast of Estonia (**IV**), 13, Raasiku, east of Tallinn (Lackschewitz, 1937); 14, Pääsküla bog, near Tallinn (Dampf, 1924; Landrock, 1924); 15, Kose, southeast of Tallinn (Lackschewitz, 1937); 16, Klooga, northwest of Keila (**VII**); 17, Hageri, west of Kohila (Lackschewitz, 1937); 18, Ellamaa bog, northeast of Risti (Dampf, 1924); 19, Hullo on Vormsi Island (**II, III**); 20, Ridala, southeast of Haapsalu (Lackschewitz, 1937); 21, Oonga, southeast of Haapsalu (**I, III, V, VII, X, XI**); 22, Avaste bog, east of Lihula (Remm, 1959); 23, Kunila, south of Lihula (**VII**); 24, Virtsu 7km northeast (**III, V**); 25, Puhtu, near Virtsu (**III, V, VII**); 26, Laelatu, near Virtsu (**III, XII**); 27, Vändra (Lackschewitz, 1937); 28, Tõstamaa (**XII, VII**); 29, Jõõpre bog, near Pärnu (Dampf, 1924; Landrock, 1924); 30, Audru (Lackschewitz, 1937); 31, Pärnu (Lackschewitz, 1937); 32, Jõesuu, northeast of Pärnu (**VII**); 33, Uulu, south of Pärnu (**VII, X**); 34, Rannametsa, south of Pärnu (**I, VII, XII**); 35, Kabli, south of Pärnu (**I, III, VII**); 36, Nigula Nature Reserve (**I, II, III, V, VII, X, XI, XII**); 37, northeast coast of Lake Rae, southwest of Kilingi-Nõmme (**VII**); 38, Allikukivi cave, east of Kilingi-Nõmme (**IV**); 39, Vana-Kariste cave, southwest of Abja-Paluoja (**IV**); 40, Kanaküla, northwest of Kilingi-Nõmme (**V**); 41, Ala, west of Tõrva (**VII**); 42, Helme cave, near Tõrva (**IV**); 43, Tõrva (**VII**); 44, Koorküla cave, southwest of Tõrva (**IV**); 45, west coast of Lake Aheru, southeast of Valga (**VII**); 46, southwest coast of Lake Apja-Suurjärv (= Lake Koobassaare), southeast of Valga (**V**); 47, Apja, southeast of Valga (**I**); 48, Hargla, southeast of Valga (**V, VII**); 49, Piusa caves in southeast Estonia, near the Võru-Petseri railway (**IV**); 50, Hanikase, west of Võru (**VII**); 51, Uue-Saaluse, southeast of Võru (**V, XII**); 52, west coast of Lake Kahrila, southwest of Võru (**VII**); 53, Kasaritsa, south of Võru (Lackschewitz, 1937); 54, Piigandi, northwest of Võru (Lackschewitz, 1937); 55, Kääriku, southwest of Otepää (**VIII**); 56, Kiuma, west of Põlva (**VII, X**); 57, Taevaskoja, north of Põlva (**V, VII, X**); 58, Pikasilla, northeast of Tõrva (**III**); 59, Rannaküla, east coast of Lake Võrtsjärv (**VII**); 60, Elva (**V**); 61, Tamsa-Altmäe, near Elva (**III**); 62, Peedu, near Elva (Väisänen, 1984; Zaitzev, 1985; **VI**); 63, Vapramäe, northeast of Elva (**III, VII, X**); 64, Kambja, south of Tartu (**V, VII**); 65, Järvselja Experimental Forestry Enterprise, southeast of Tartu (**I, III, V, VII**); 66, Melliste, southeast of Tartu (**V, VII, X**); 67, Luunja, east of Tartu (**VIII**); 68, Reola, near Tartu (**V**); 69, Tartu (Lackschewitz, 1937; **XI**); 70, Kalmistu cave in the northwest part of Tartu (**IV**); 71, Aruküla cave at the northwest boundary of Tartu (**IV**); 72, southwest coast of Lake Vasula, near Tartu (**VII**); 73, Tiksoja, near Tartu (**III, V, VII, X, XI**); 74, Rähni, near Tartu (**X, XI**); 75, Ulila bog, west of Tartu (Dampf, 1924; Landrock, 1924); 76, Jüriküla, southwest of Puurmani (**VII**); 77, Suuresöödi, southeast of Puurmani (**VII**); 78, Võisiku, near Põltsamaa (Lackschewitz, 1937); 79, Voore, east of Jõgeva (**VII**); 80, Endla Nature Reserve (**V, VII**); 81, Koeru (**VI**); 82, Varudi, northeast of Rakvere (Dampf, 1924; **III**); 83, Uhtna, northeast of Rakvere (Dampf, 1924); 84, Kohala, northeast of Rakvere (**III**); 85, Revoja, south of Võsu in the Lahemaa National Park (**I, VII**); 86, Nõmmeveski in the Lahemaa National Park (Väisänen, 1984).

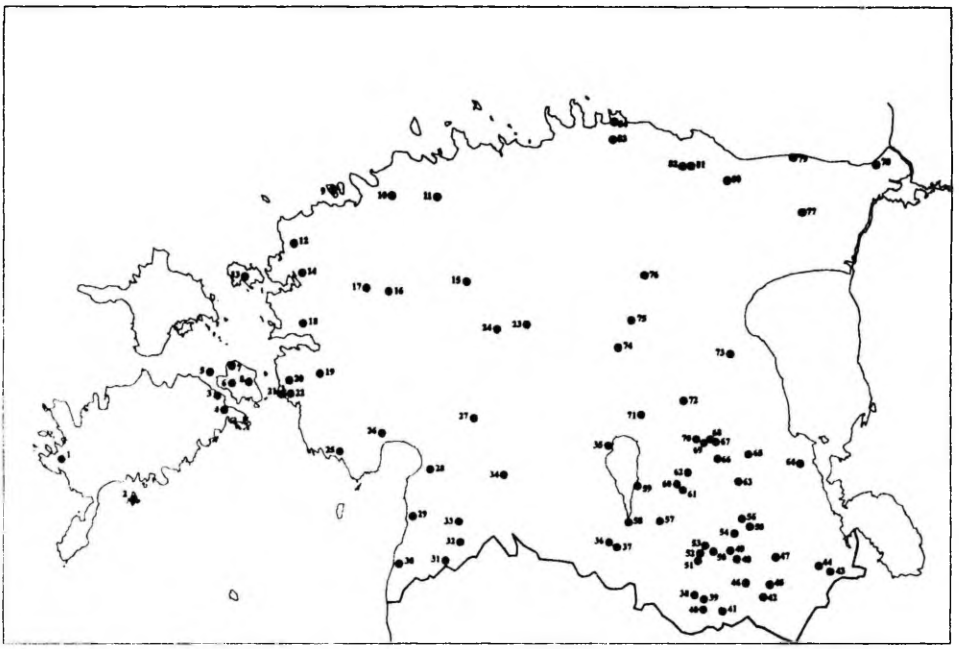

Figure 4. Sampling localities. • data not published earlier.
1, Viidumäe Nature Reserve; 2, Islet of Abruka; 3, Orissaare on Saaremaa Island; 4, Tornimäe on Saaremaa Island; 5, Islet of Kõinastu; 6, Piiri on Muhu Island; 7, Pallasmaa on Muhu Island; 8, Hellamaa on Muhu Island; 9, Islet of Suur-Pakri; 10, Klooga, northwest of Keila; 11, Kasemetsa south of Saku, near Tallinn; 12, Riguldi; 13, Hullo on Vormsi Island; 14, Linnamäe, northeast of Haapsalu; 15, Jalase, southwest of Rapla; 16, Teenuse, southwest of Märjamaa; 17, Kullamaa, southwest of Märjamaa; 18, Oonga, southeast of Haapsalu; 19, Kunila, south of Lihula; 20, Virtsu 7 km northeast; 21, Puhtu, near Virtsu; 22, Laelatu, near Virtsu; 23, Kirna, southwest of Paide; 24, Käru, west of Türi; 25, Tõstamaa; 26, Kärbu, west of Audru; 27, Jõesuu, northeast of Pärnu; 28, Uulu, south of Pärnu; 29, Rannametsa, south of Pärnu; 30, Kabli, south of Pärnu; 31, Nigula Nature Reserve; 32, Tali, southwest of Kilingi-Nõmme; 33, northeast coast of Lake Rae, southwest of Kilingi-Nõmme; 34, Kanaküla, northwest of Kilingi-Nõmme; 35, Valma on northwest coast of Lake Võrtsjärv; 36, Helme, near Tõrva; 37, Tõrva; 38, west coast of Lake Aheru, southeast of Valga; 39, southwest coast of Lake Apja-Suurjärv; 40, Hargla, southeast of Valga; 41, Mõniste, southwest of Võru; 42, Haanja, south of Võru; 43, Piusa, near the Võru-Petseri railway; 44, Hanikase, east of Võru; 45, Uue-Saaluse, southeast of Võru; 46, west coast of Lake Kahrila, southwest of Võru; 47, Reo, northeast of Võru; 48, Soodoma, northwest of Võru; 49, Piigandi, northwest of Võru; 50, Vidrike, south of Otepää; 51, Trommi, near Sangaste; 52, Sangaste; 53, Kääriku, southwest of Otepää; 54, Kiuma, southwest of Põlva; 55, Taevaskoja, north of Põlva; 56, Kiidjärve, north of Põlva; 57, Puka; 58, Pikasilla, northeast of Tõrva; 59, Rannaküla, east coast of Lake Võrtsjärv; 60, Elva; 61, Tamsa-Altmäe, near Elva; 62, Vapramäe, northeast of Elva; 63, Kambja, south of Tartu; 64, Järvselja Experimental Forestry Enterprise, southeast of Tartu; 65, Melliste, southeast of Tartu; 66, Reola, near Tartu; 67, southwest coast of Lake Vasula, near Tartu; 68, Vorbuse, near Tartu; 69, Tiksoja, near Tartu; 70, Rähni, near Tartu; 71, Jüriküla, southwest of Puurmani; 72,

Suuresöödi, northeast of Laeva; 73 Voore, east of Jõgeva; 74, Põltsamaa; 75, Endala Nature Reserve; 76, Rakke, south of Tamsalu; 77, Mäetaguse, south of Jõhvi; 78, Udria, east of Sillamäe; 79, Toila, west of Sillamäe; 80, Uljaste, west of Kiviõli; 81, Varudi, northeast of Rakvere; 82, Kohala, northeast of Rakvere; 83, Revoja, south of Võsu in the Lahemaa National Park; 84, Võsu.

Family BOLITOPHILIDAE

Genus *Bolitophila* Meigen, 1818
Subgenus *Bolitophila* Meigen, 1818

*** 1.** *B.* (*B.*) *austriaca* (Mayer, 1950)

Transpalaearctic species (Plassmann, 1988a; Zaitzev, 1994a). Feeding on *Tricholoma focale* (Yakovlev, 1994).

Material: 8♂♂ 3♀♀, Kasemetsa (1995), Käru (1996), Kanaküla (1995), Piigandi (1995), Taevaskoja (1995), Revoja (1996), O. Kurina leg.

*** 2.** *B.* (*B.*) *basicornis* (Mayer, 1951)

Transpalaearctic species (Plassmann, 1988a; Zaitzev, 1994a). Reared from *Collybia* sp., *Stropharia cyanea, S. thrausta, Rozites caperata, Cortinarius triumphans* (Hackman & Meinander, 1979; Ostroverkhova, 1979, Yakovlev, 1994).

Material: 4♂♂ 1♀, Viidumäe Nature Reserve (1988), Taevaskoja (1994), Piigandi (1995), Revoja (1996), O. Kurina leg.; 1♂, Jalase (1995, light trap), R. Aalde leg.; 3♂♂ 1♀, Endla Nature Reserve (1995, light trap), K. Kimmel leg. Total 8♂♂ 2♀♀.

3. *B.* (*B.*) *cinerea* Meigen, 1818 **[VI]**

Holarctic species (Plassmann, 1988a). According to Yakovlev (1994) the species has been previously reared from fruit bodies of *Suillus*, *Boletus*, *Collybia*, *Marasimus*, *Lacrymaria*, *Armilariella*, *Fammulina*, *Panellus*, *Melanoleuca*, *Tricholoma*, *Amanita*, *Pholiota*, *Naematoloma*, *Psathyrella*, *Rozites*, *Russula* and *Lactarius*.

Estonia. Dampf, 1924: 44 (from Pääsküla bog, Jõõpre bog and Uhtna); Lackschewitz, 1937: 4 (from Audru and Tartu). Registered by me earlier at Peedu (**VI**). The species is reared from *Cortinarius* sp. for the first time.

Material: 8♂♂ 2♀♀, Orissaare (1995), Oonga (1994), Uulu (1995), Nigula Nature Reserve (1992), Lake Vasula (1995), Tiksoja (1994, 1995), Rähni (1994), O. Kurina leg.; 1♂, Elva (1994, light trap), K. Remm leg.; 1♂, Endla Nature Reserve (1995, light trap), K. Kimmel leg. Total 10♂♂ 2♀♀.

Material reared from macrofungi: Orissaare (1993), ex *Pholiota* sp. and *Pholiota squarrosa*; Soodoma (1995), ex *Cortinarius* sp.; Varudi (1992), ex *Naematoloma capnoides* and *N. sublateritium*. Total 140♂♂ 181♀♀.

*** 4.** *B.* (*B.*) *saundersi* (Curtis, 1836)

Transpalaearctic species (Plassmann, 1988a; Zaitzev, 1994a). By Zaitzev (1994a) it is registered on many species of Agaricales s. l., frequently on *Naematolama* spp.

Material: 3♂♂, Lake Rae (1994), Taevaskoja (1995), O. Kurina leg.

*** 5.** *B.* (*B.*) *tenella* Winnertz, 1863

Transpalaearctic species (Plassmann, 1988a; Zaitzev, 1994a). Previously reared from fruit bodies of *Hygrophorus, Hygrocybe, Armilariella, Tricholoma, Fammulina, Pholiota, Naematoloma* and *Cortinarius* (Edwards, 1925; Hutson *et al.*, 1980; Krivosheina *et al.*, 1986; Yakovlev, 1994).

Material: 2♂♂, Tõrva (1995), Tiksoja (1994), O. Kurina leg.

Material reared from macrofungi: Tõstamaa (1994), ex *Cortinarius* sp., 73♂♂ 51♀♀.

Subgenus *Cliopisa* Enderlein, 1936

*** 6.** *B.* (*C.*) *aperata* Lundström, 1914

Transpalaearctic species (Plassmann, 1988a; Zaitzev, 1994a). Formerely recorded on *Tricholoma, Naematoloma* and *Cortinarius* (Hackman & Meinander, 1979; Krivosheina *et al.*, 1986; Yakovlev, 1994), by Zaitzev (1994a) usually on *Naematoloma*.

Material: 3♂♂, Kirna (1996), Käru (1996), Melliste (1995), O. Kurina leg.

*** 7.** *B.* (*C.*) *bimaculata* Zetterstedt, 1838 **[VI]**

Widely distributed in Europe (Plassmann, 1988a; Zaitzev, 1994a). Feeding on *Tricholoma, Lyophyllum, Lepiota* and *Cortinarius* (Yakovlev, 1994).

Estonia. Lackschewitz (1937) has interpreted the species as a synonym of *B.* (*C.*) *maculipennis* Walker, 1836. By Plassmann (1988) the both species are valid. Registered by me earlier at Peedu (**VI**).

*** 8.** *B.* (*C.*) *dubia* Siebke, 1861

Transpalaearctic species (Plassmann, 1988a; Zaitzev, 1994a). The species has been reared from *Leccinum, Armilariella, Panellus* and *Naematoloma* (Okada, 1939; Ostroverkhova, 1979; Yakovlev, 1994).

Material: 4♂♂ 3♀♀, Nigula Nature Reserve (1992), Haanja (1995); Taevaskoja (1995), Vapramäe (1995), Tiksoja (1994), O. Kurina leg.

*** 9.** *B.* (*C.*) *edwardsiana* Stackelberg, 1969

Known from Roumania, Ukraine, France, Germany, Poland, Sweden and Russia: Karelia, Leningrad District, Kostroma District, Krasnoyarsk Region (Plassmann, 1988a; Zaitzev, 1994a). By Yakovlev (1994) it is reared from *Pholiota alnicola*. According to Zaitzev (1994a) the species has been recorded from unknown species of Strophariaceae.

Material: 5♀♀, Lake Kahrila (1995), Kambja (1995), Lake Vasula (1995), Tiksoja (1995), Voore (1989), O. Kurina leg.; 2♂♂, Endla Nature Reserve (1995, light trap), K. Kimmel leg. Total 2♂♂ 5♀♀.

*** 10.** *B.* (*C.*) *fumida* Edwards, 1941 **[VI]**

Transpalaearctic species (Zaitzev, 1994a). By Halidov (1984) and Yakovlev (1994) recorded from *Paxillus, Tricholoma* and *Kuehneromyces*, according to Zaitzev (1994a) also from *Xeromphalina*.

Estonia. Registered by me earlier at Peedu **(VI)**.

Material: 1♀, Rannametsa (1995), O. Kurina leg.; 3♂♂, Endla Nature Reserve (1995, light trap), K. Kimmel leg. Total 3♂♂ 1♀.

*** 11.** *B.* (*C.*) *glabrata* Loew, 1869 **[VI]**

Transpalaearctic species (Ostroverkhova, 1979; Plassmann, 1988a). Earlier recorded on *Clitocybe, Lepista* and *Tricholoma* (Edwards, 1925; Halidov, 1984; Yakovlev, 1994).

Estonia. Registered by me earlier at Peedu **(VI)**. The species was reared from *Clitocybe metachroa* for the first time.

Material: 1♂, Tiksoja (1994), O. Kurina leg.; 3♂♂, Endla Nature Reserve (1995, light trap), K. Kimmel leg. Total 4♂♂.

Material reared from macrofungi: Kabli (1988), ex *Clitocybe metachroa*; Järvselja (1989), ex *Clitocybe odora*. Total 25♂♂ 17♀♀.

12. *B.* (*C.*) *hybrida* (Meigen, 1804) **[VI, IX]**

Holarctic species (Plassmann, 1988a; Zaitzev, 1994a). Feeding on many species of Agaricales s. l. (Yakovlev, 1994). By Hackman and Meinander (1979) it is regular on *Paxillus involutus*.

Estonia. Dampf, 1924: 44 (from Pääsküla bog and Jõõpre bog); Lackschewitz, 1937: 3 (from Kose and Tartu). Registered by me earlier at Peedu **(VI)**. Supposedly preferring the fruit bodies of *Paxillus involutus*. It was reared from 22 fruit bodies of *P. involutus* and only one fruit body of *Russula emetica*.

Material: 27♂♂ 7♀♀, Oonga (1989, 1994), Kunila (1995), Nigula Nature Reserve (1990, 1993, 1994), Lake Rae (1994), Hargla (1994), Taevaskoja (1994, 1995), Järvselja (1989), Rähni (1994), Rakke (1996), O. Kurina leg.; 1♂, Endla Nature Reserve (1995, light trap), K. Kimmel leg. Total 28♂♂ 7♀♀.

Material reared from macrofungi: Pallasmaa on Muhu Island (1993), Hullo (1991), Oonga (1991, 1993, 1994), Laelatu (1991), Rannametsa (1988), Nigula Nature Reserve (1990, 1993, 1994), Pikasilla (1993), Elva (1993), Melliste (1994), Järvselja (1989), Suuresöödi (1994), Kohala (1992), ex *Paxillus involutus*; Nigula Nature Reserve (1993), ex *Russula emetica emetica*. Total 446♂♂ 474♀♀.

*** 13.** *B.* (*C.*) *ingrica* Stackelberg, 1969

Earlier recorded from Germany and Russia: Leningrad District, Vologda District, Moscow District, Kostroma District and Altai (Plassmann, 1988a; Zaitzev, 1994a). Biology unknown.

Material: 2♂♂, Kasemetsa (1996), Nigula Nature Reserve (1994), O. Kurina leg.

14. *B.* (*C.*) *maculipennis* Walker, 1836 **[VI, IX]**

Transpalaearctic species (Ostroverkhova, 1979; Plassmann, 1988a; Zaitzev, 1994a). Formerly reared from *Boletus, Paxillus, Clitocybe, Panellus,*

Lyophyllum, Pheolepiota, Entoloma and *Pholiota* (Ostroverkhova, 1979; Hutson *et al.*, 1980; Yakovlev, 1994). By Eisfelder (1956) it is recorded on Tricholomataceae. According to Zaitzev (1994a) the species is recorded on Boletales.
Estonia. Lackschewitz, 1937: 2 (from Audru and Tartu). Registered by me earlier at Peedu **(VI)**. Reared from five fruit bodies of *Leucopaxillus giganteus* and from two fruit bodies of *Armilariella mellea*.
Material: 3♂♂, Taevaskoja (1995), Tiksoja (1994, 1995), O. Kurina leg.; 3♀♀, Helme (1957), Kääriku (1978), H. Remm leg. Total 3♂♂ 3♀♀.
Material reared from macrofungi: Viidumäe Nature Reserve (1992), Orissaare (1993), Kullamaa (1992), ex *Leucopaxillus giganteus*; Vapramäe (1992), ex *Armilariella mellea*. Total 593♂♂ 468♀♀.

*** 15.** *B.* (*C.*) *modesta* Lackschewitz, 1937 **[VI]**

Transpalaearctic species (Plassmann, 1988a; Zaitzev, 1994a). Earlier recorded on *Suillus, Clitocybe, Lepista, Melanoleuca, Collybia, Fayodia, Marasmius, Lepiota* and *Pholiota* (Hackman & Meinander, 1979; Yakovlev, 1994).
Estonia. Registered by me earlier at Peedu **(VI)**.
Material: 12♂♂ 5♀♀, Nigula Nature Reserve (1995), Kiuma (1995), Piigandi (1995), Taevaskoja (1995), Vapramäe (1995), Kambja (1995), Tiksoja (1994), Rähni (1994), Käru (1996), Kohala (1992), Revoja (1996), O. Kurina leg.; 2♂♂, Endla Nature Reserve (1995, light trap), K. Kimmel leg. Total 14♂♂ 5♀♀.
Material reared from macrofungi: Järvselja (1989), ex *Clitocybe clavipes* and *Pholiota spumosa*, 44♂♂ 48♀♀.

***16.** *B.* (*C.*) *nigrolineata* Landrock, 1912

Transpalaearctic species (Plassmann, 1988a; Zaitzev, 1994a). Feeding on *Leccinum, Paxillus, Lepista* and *Hypoloma* (Ostroverkhova, 1979; Halidov, 1984; Yakovlev, 1994).
Material: 1♂ 2♀♀, Oonga (1995), Lake Kahrila (1995), Tiksoja (1995), O. Kurina leg.; 1♀, Helme (1957), H. Remm leg.; 1♂, Endla Nature Reserve (1995, light trap), K. Kimmel leg. Total 2♂♂ 3♀♀.

*** 17.** *B.* (*C.*) *occlusa* Edwards, 1913

Transpalaearctic species (Plassmann, 1988a; Zaitzev, 1994a). Feeding on *Postia, Polyporus, Pleurotus* and *Hypoloma* (Chandler, 1978; Ostroverkhova, 1979; Yakovlev, 1994). By Zaitzev (1994a) it is usually recorded on *Polyporus* and *Tyromyces*.
Material: 4♂♂ 1♀, Piiri (1995), Oonga (1995), Lake Kahrila (1995), Melliste (1994), Suuresöödi (1994), O. Kurina leg.

18. *B.* (*C.*) *pseudohybrida* Landrock, 1912

Transpalaearctic species (Plassmann, 1988; Zaitzev, 1994a). According to Krivosheina *et al.* (1986) and Yakovlev (1994) feeding on many species of Agaricales s. l.
Estonia. Lackschewitz, 1937: 3 (from Pärnu and Tartu).
Material reared from macrofungi: Viidumäe Nature Reserve (1992), ex *Clitocybe odora*, 1♂ 7♀♀.

*** 19.** *B.* (*C.*) *retangulata* Lundström, 1913 **[IX]**

Transpalaearctic species (Plassmann, 1988a; Zaitzev, 1994a). By Yakovlev (1994) it is a monophagous species on *Laetiporus sulphureus*.

Estonia. The data support the position of Yakovlev (1994): the species has been reared from five fruit bodies of *L. sulphureus*.

Material: 1♂ 1♀, Oonga (1987), Puhtu (1991), O. Kurina leg.

Material reared from macrofungi: Oonga (1989, 1991, 1993) and Puhtu (1991), ex *Laetiporus sulphureus*, 101♂♂ 96♀♀.

*** 20.** *B.* (*C.*) *rossica* Landrock, 1912 **[IX]**

Transpalaearctic species (Plassmann, 1988a; Zaitzev, 1994a). Previously recorded on *Suillus, Xerocomus, Boletus, Laccinum, Paxillus* and *Lepista* (Hackman & Meinander, 1979; Halidov, 1984; Yakovlev, 1994). By Hackman and Meinander (1979) and Zaitzev (1994a) the species is regular on Boletales and *Suillus*, respectively.

Estonia. Reared from nine fruit bodies of *Suillus*.

Material: 3♂♂ 1♂, Hullo (1991), Nigula Nature Reserve (1994), Järvselja (1989), Kohala (1992), O. Kurina leg.

Material reared from macrofungi: Järvselja (1989), ex *Suillus grevillei*; Nigula Nature Reserve (1990, 1994), Järvselja (1989), ex *Suillus variegatus*; Hullo (1991), Oonga (1993), ex *Suillus bovinus*; Nigula Nature Reserve (1993), ex *Suillus granulatus*. Total 28♂♂ 24♀♀.

Family KEROPLATIDAE

Genus *Asindulum* Latreille, 1805

21. *A. nigrum* Latreille, 1805 **[VI, VII]**

Known from Great Britain, Belgium, France, Germany, Hungary, Poland, Sweden, Latvia and Russia: Leningrad District (Lackschewitz, 1937; Krivosheina & Mamaev, 1988a; Zaitzev, 1994). Biology unknown.

Estonia. Lackschewitz, 1937: 7 (from Kasaritsa). Registered by me at Oonga (**VII**) and Peedu (**VI**).

Genus *Cerotelion* Rondani, 1856

*** 22.** *C. humeralis* (Zetterstedt, 1850) **[VII]**

Previously recorded from Great Britain, Germany, former Czechoslovakia, Finland, Sweden, Norway, Latvia and Russia: Leningrad District, Vologda District (Lackschewitz, 1937; Hackman, 1980; Krivosheina *et al.*, 1986; Krivosheina & Mamaev, 1988a). By Zaitzev (1994a) the larvae from the genus *Cerotelion* are associated with wood fungus habitats, and are zoophagous and zoomycetophagous.

Estonia. Registered by me at Voore, Taevaskoja and Ala (**VII**).

Genus *Isoneuromyia* Brunetti, 1912

23. *I. semirufa* (Meigen, 1818) **[VII]**

Transpalaearctic species (Krivosheina & Mamaev, 1988a; Zaitzev, 1994a). Biology unknown.

Estonia. Lackschewitz, 1937: 7 (as *Zelmira semirufa* Meig. from Ridala). Registered by me at Nigula Nature Reserve **(VII)**.

Genus *Keroplatus* Bosc, 1792

24. *K. testaceus* (Dalman, 1818) **[VII]**

Transpalaearctic species (Krivosheina & Mamaev, 1988a). Recorded on *Sterenum, Trametes, Phellinus, Fomes, Fomitopsis* and *Russula* (Chandler, 1977, 1993; Yakovlev, 1994). By Hutson *et al.* (1980) it is common usually on Polyporaceous fungi. The species is also associated with dead wood habitats (Hutson *et al.*, 1980; Yakovlev, 1994).

Estonia. Lackschewitz, 1937: 7 (from Tartu, Kasaritsa, Piigandi, and Audru). Registered by me at Sangaste, Puhtu, Hargla and Tõrva **(VII)**.

Genus *Macrorryncha* Winnertz, 1846

25. *M. flava* Winnertz, 1846 **[VII]**

Widely distributed in Europe (Krivosheina & Mamaev, 1988a). According to Hutson *et al.* (1980) adults can be found at umbellifer flowers and have been bred on rotten wood.

Estonia. Dampf, 1924: 44 (as *Asindulum flavum* Winn. from Määvli bog on Hiiumaa Island). Registered by me at Nigula Nature Reserve **(VII)**.

Genus *Monocentrota* Edwards, 1925

*** 26.** *M. lundstroemi* Edwards, 1925 **[VII]**

Earlier records from Great Britain, Germany, France, Finland and Russia: Leningrad District (Krivosheina & Mamev, 1988a; Zaitzev, 1994a). Biology unknown.

Estonia. Registered by me at Hanikase and Jõesuu **(VII)**.

Genus *Neoplatyura* Malloch, 1928

27. *N. flava* (Macquart, 1826) **[VI, VII]**

Known from West and Central Europe and also from Russia: Karelia and Altai (Krivosheina & Mamaev, 1988a; Zaitzev, 1994a; Yakovlev, 1995). Biology unknown.

Estonia. Lackschewitz, 1937: 7 (as *Zelmira flava* Macq. from Audru and Ridala). Registered by me at Peedu **(VI)**, Piiri on Muhu Island, Oonga, Nigula Nature Reserve, Kiuma and Tiksoja **(VII)**.

Genus *Orfelia* A. Costa, 1857

28. *O. discoloria* (Meigen, 1818)

Transpalaearctic species (Krivosheina & Mamaev, 1988a; Zaitzev, 1994a). Recorded on *Gyromitra, Trametes* and also on mycelium of fungi in rotten wood (Yakovlev, 1994).

Estonia. Lackschewitz, 1937: 8 (as *Zelmira discoloria* Meig. from Tartu, Kasaritsa, Audru and Raasiku).

29. *O. fasciata* (Meigen, 1804) **[VI, VII]**

Widely distributed in Europe (Krivosheina & Mamaev, 1988a; Zaitzev, 1994a). According to Edwards (1925) the larvae feeding on moulds under loose but wet bark.

Estonia. Lackschewitz, 1937: 7 (as *Zelmira fasciata* Meig. from Tartu, Audru and Kose). Registered by me at Koeru **(VI)**, Rannaküla, Sangaste, Voore and Suuremõisa **(VII)**.

30. *O. nemoralis* (Meigen, 1818) **[VII]**

Widely distributed in Europe (Krivosheina & Mamaev, 1988a; Zaitzev, 1994a). Nothing is known about biology of the species.

Estonia. Lackschewitz, 1937: 8 (as *Zelmira nemoralis* Meig. from Tartu).

31. *O. nigricornis* (Fabricius, 1805) **[VII]**

Transpalaearctic species (Krivosheina & Mamaev, 1988a; Zaitzev, 1994a). The larvae of the species have been found on mycelium in rotten wood (Zaitzev, 1994a)

Estonia. Lackschewitz, 1937: 7 (as *Zelmira nigricornis* Fabr. from Audru and Vändra).

*** 32.** *O. pallida* (Staeger, 1840) **[VII]**

Earlier records from Great Britain, Ireland, Netherlands, Denmark, Germany and Finland (Hackman, 1980; Krivosheina & Mamaev, 1988a). Biology unknown.

Estonia. Registered by me at Nigula Nature Reserve **(VII)**.

*** 33.** *O. unicolor* (Staeger, 1840) **[VII]**

Transpalaearctic species (Zaitzev, 1994a). Recorded on *Trametes* (Chandler, 1978) and on mycelium in rotten wood (Zaitzev, 1994a).

Estonia. Registered by me at Nigula Nature Reserve **(VII)**.

Genus *Pyratula* Edwards, 1929

*** 34.** *P. zonata* (Zetterstedt, 1855) **[VI, VII]**

Widely distributed in Europe. Also found in Caucasus (Krivosheina & Mamaev, 1988a). Biology unknown.

Estonia. Registered by me at Peedu **(VI)**, Viidumäe Nature Reserve, Taevaskoja, Nigula Nature Reserve and coast of Lake Rae **(VII)**.

Family MACROCERIDAE

Genus *Macrocera* Meigen, 1803

According to Hutson *et al.* (1980) the adults may occur at flowers, the larvae are scavengerous or predaceous. The biology of the species level (except *M. fasciata* Meig.) is poorly known.

35. *M. angulata* Meigen, 1818 **[VI]**

Widely distributed in Europe. Found also from Caucasus (Krivosheina & Mamaev, 1988b; Zaitzev, 1994a). Biology unknown.

Estonia. Lackschewitz, 1937: 6 (from Audru, Vändra, Piigandi and Tartu). Registered by me earlier at Peedu **(VI)**.

Material: 17♂♂, Oonga (1990, 1993), Nigula Nature Reserve (1993, 1994), Hargla (1994), Vapramäe (1989), Voore (1989), O. Kurina leg.; 2♂♂, Trommi (1973), Toila (1973), K. Elberg leg. Total 19 ♂♂.

*** 36.** *M. aquilonia* Stackelberg, 1945

Transpalaearctic species (Krivosheina & Mamaev, 1988b; Zaitzev, 1994a). Biology unknown.

Material: 5♂♂, Nigula Nature Reserve (1993, 1994, 1995), O. Kurina, leg.

37. *M. centralis* Meigen, 1818

Transpalaearctic species (Krivosheina & Mamaev, 1988b; Zaitzev, 1994a). Biology unknown.

Estonia. Lackschewitz, 1937: 5 (from Audru).

38. *M. estonica* Landrock, 1924

Transpalaearctic species (Krivosheina & Mamaev, 1988b; Zaitzev, 1994a). Biology unknown.

Estonia. Landrock, 1924: 80 (from Ulila bog), typus; Remm, 1959: 107 (from Avaste bog).

39. *M. fasciata* Meigen, 1804 **[VI]**

Transpalaearctic species (Krivosheina & Mamaev, 1988b; Zaitzev, 1994a). The larvae recorded on mycelium in rotten wood (Landrock, 1940).

Estonia. Lackschewitz, 1937: 5 (from Audru). Registered by me earlier at Peedu **(VI)**.

Material: 4♂♂, Nigula Nature Reserve, Kiuma (1995), Jüriküla (1995), O. Kurina, leg.

40. *M. fascipennis* Staeger, 1840

Widely distributed in Europe (Krivosheina & Mamaev, 1988b; Zaitzev, 1994a). Biology unknown.

Estonia. Lackschewitz, 1937: 6 (from Ridala and Audru).

*** 41.** *M. fastuosa* Loew, 1869

Known from Great Britain, France, former Czechoslovakia and Latvia (Krivosheina & Mamaev, 1988a). Biology unknown.

Material: 1♂, Nigula Nature Reserve (1994), O. Kurina, leg.

*** 42.** *M. grandis* Lundström, 1912

Earlier known from Great Britain, Finland, Latvia and Russia: Altai (Krivosheina & Mamaev, 1988b; Zaitzev, 1994a). Biology unknown.

Material: 1♂, Mõniste (1970), H. Remm, leg.

*** 43.** *M. longibrachiata* Landrock, 1917

Known from Great Britain, France and Germany (Krivosheina & Mamaev, 1988b). Biology unknown.

Material: 1♂, Rannametsa (1995), O. Kurina, leg.

44. *M. lutea* Meigen, 1804

Transpalaearctic species (Krivosheina & Mamaev, 1988b; Zaitzev, 1994a). Biology unknown.

Estonia. Dampf, 1924: 44 (from Määvli bog on Hiiumaa Island); Lackschewitz, 1937: 5 (from Audru, Vändra, Tartu and Raasiku).

Material: 7♂♂, Nigula Nature Reserve (1993, 1994), Hargla (1994), O. Kurina leg.

45. *M. maculata* Meigen, 1818

Known only from Europe (Krivosheina & Mamaev, 1988b; Zaitzev, 1994a). Biology unknown.

Estonia. Lackschewitz, 1937: 6 (from Audru and Tartu).

Material: 3♂♂, Oonga (1993, 1994), Nigula Nature Reserve (1991), O. Kurina, leg.

*** 46.** *M. nana* Macquart, 1826

Transpalaearctic species (Krivosheina & Mamaev, 1988b; Zaitzev, 1994a). Biology unknown.

Material: 1♂, Nigula Nature Reserve (1993), O. Kurina, leg.

*** 47.** *M. parva* Lundström, 1914

Transpalaearctic species (Krivosheina & Mamaev, 1988b; Zaitzev, 1994a). Biology unknown.

Material: 1♂, Oonga (1993), O. Kurina leg.

48. *M. pilosa* Landrock, 1917

Transpalaearctic species (Krivosheina & Mamaev, 1988b; Zaitzev, 1994a). Biology unknown.

Estonia. Lackschewitz, 1937: 6 (from Võisiku).

Material: 6♂♂ 2♀♀, Kunila (1995), Nigula Nature Reserve (1994), Taevaskoja (1995), Tiksoja (1995), O. Kurina, leg.

49. *M. stigma* Curtis, 1837

Transpalaearctic species (Krivosheina & Mamaev, 1988b; Zaitzev, 1994a). Biology unknown.

Estonia. Dampf, 1924: 44 (from Jõõpre bog and Pääsküla bog); Lackschewitz, 1937: 6 (from Audru).

Material: 2♂♂ 2♀♀, Nigula Nature Reserve (1993), Tiksoja (1995), Uulu (1995), O. Kurina, leg.

50. *M. stigmoides* Edwards, 1925

Widely distributed in Europe. Found also in Russia: Altai (Krivosheina & Mamaev, 1988b; Zaitzev, 1994a). Biology unknown.

Estonia. Lackschewitz, 1937: 6 (from Audru). Most common species of Macroceridae in Estonia.

Material: 24♂♂ 5♀♀, Viidumäe Nature Reserve (1991, 1993, 1994), Oonga (1992, 1993), Uulu (1995), Nigula Nature Reserve (1994), Rae, (1994), Hargla (1994), Vapramäe (1989), Kambja (1995), Tiksoja (1994), Jüriküla (1995), Voore (1989), Võsu (1988), Revoja (1988), O. Kurina, leg.

51. *M. vittata* Meigen, 1830 **[VI]**

Transpalaearctic species (Krivosheina & Mamaev, 1988b; Zaitzev, 1994a). Biology unknown.

Estonia. Lackschewitz, 1937: 5 (from Ridala, Audru, Vändra, Kose and Raasiku). Registered by me earlier at Peedu (**VI**).

Material: 10♂♂ 2♀♀, Oonga (1991, 1994), Kabli (1995), Nigula Nature Reserve (1994, 1995), Rae (1994), Hargla (1994), Vapramäe (1989), Tiksoja (1994), Voore (1989), O. Kurina leg.

52. *M. zetterstedti* Lundström, 1914

Previously recorded from Great Britain, Sweden, Finland, Latvia and Russia: surroundings of Murmansk, Karelia, Leningrad District. (Lackschewitz, 1937; Krivosheina & Mamaev, 1988b; Zaitzev, 1994a; Yakovlev, 1995). Biology unknown.

Estonia. Remm, 1959: 107 (from Avaste bog).

Family DITOMYIIDAE

Genus *Summerus* Walker, 1848

53. *S. annulatus* (Meigen, 1830) **[VII]**

Transpalaearctic species (Mamaev & Krivosheina, 1988a; Zaitzev, 1994a). The larvae recorded in rotten wood (Zaitzev, 1994a). The species is included in the Red Book of Russian Karelia (Ivanter & Kuznetzov, 1995).

Estonia. Lackschewitz, 1937: 1 (from Kasaritsa, Audru, Piigandi, and Tartu Tähtvere). Registered by me at Piiri and Melliste (**VII**). Rare species.

*** 54.** *S. nobilis* Lackschewitz, 1937 **[VII]**

European species. Known from Germany, Latvia, Ukraine, and Belarus (Lackschewitz, 1937; Stackelberg, 1969; Munroe, 1974; Zaitzev, 1994a).

Estonia. Registered by me at Nigula Nature Reserve (**VII**). This record is the northernmost so far.

Family DIADOCIDIIDAE

Genus *Diadocidia* Ruthe, 1831
Subgenus *Diadocidia* Ruthe, 1831

55. *D. (D.) ferruginosa* (Meigen, 1830) **[VI, VII]**

Holarctic species (Krivosheina, 1988). The larvae recorded on mycelium in rotten wood (Chandler, 1978, Yakovlev, 1994). By Edwards (1925) the larvae live in long dry silken tubes under bark or in rotten wood.

Estonia. Dampf, 1924: 44 (from Määvli bog on Hiiumaa Island); Lackschewitz, 1937: 6 (from Tartu, Audru and Kose). Registered by me at Peedu (**VI**), Viidumäe Nature Reserve, Kõinastu, Oonga, Klooga, coast of Lake Rae, Nigula Nature Reserve, Hargla, coast of Lake Aheru, coast of Lake Kahrila, Vapramäe, Kambja, Järvselja, Melliste, coast of Lake Vasula, Jüriküla, Suuresöödi, Voore and Endla Nature Reserve (**VII**). It is the most common Diadocidiid species in Estonia.

*** 56.** *D. (D.) spinosula* Tollet, 1948 **[VII]**

Transpalaearctic species (Krivosheina, 1988; Zaitzev, 1994a). Biology unknown.

Estonia. Registered by me at Piiri, Oonga, Klooga, Kunila, Tõstamaa, Uulu, Rannametsa, Kabli, Nigula Nature Reserve, Hargla, Vapramäe and Revoja (**VII**).

Subgenus *Adidocidia* Laštovka et Matile, 1972

*** 57.** *D. (A.) valida* Mik, 1874 **[VII]**

Known from Europe and Transcaucasus (Krivosheina, 1988; Zaitzev, 1994a). Recorded on mycelium in rotten wood (Yakovlev, 1994).

Estonia. Registered by me at Nigula Nature Reserve and Endla Nature Reserve (**VII**).

Family MYCETOPHILIDAE
Subfamily SCIOPHILINAE
Tribe Mycomyini

Genus *Mycomya* Rondani, 1856
Subgenus *Mycomya* Rondani, 1856

58. *M. (M.) annulata* (Meigen, 1918)

Transpalaearctic species (Väisänen, 1984; Zaitzev, 1994a). By Ostroverkhova (1979) this species has been reared on *Polyporus*. According to Yakovlev (1994) recorded also on *Discina gigas* and on mycelium in rotten wood.

Estonia. Dampf, 1924: 43 (as *M. incisurata* Zett. from Määvli bog on Hiiumaa Island, Pääsküla bog, Jõõpre bog, Ulila bog and Uhtna). It is the most common

Mycomya species. The univoltin fenodynamic (in autumn) is typical for the species.

Material: 136♂♂, Viidumäe Nature Reserve (1992), Hullo (1991), Oonga (1994), Tõstamaa (1994), Uulu (1995), Rannametsa (1995), Kabli (1995), Nigula Nature Reserve (1990, 1991, 1992, 1993, 1994, 1995), Tõrva (1995), Kiuma (1995), Järvselja (1989), Tiksoja (1994), Lake Vasula (1995), Suuresöödi (1994), Jüriküla (1995), O. Kurina leg.; 2♂♂, Nigula Nature Reserve (1989), K. Elberg leg. Total 138 ♂♂.

59. *M.* (*M.*) *bicolor* (Dziedzicki, 1885)

Holarctic species (Väisänen, 1984). Recorded on Polyporaceous fungi (Sakharova, 1977; Plassmann, 1971). By Plassmann (1971) the larvae of this species overwinter.

Estonia. Lackschewitz, 1937: 9 (from Audru); Väisänen, 1984: 229 (from Peedu).

Material: 1♂, Nigula Nature Reserve (1993), O. Kurina leg.

*** 60.** *M.* (*M.*) *bisulca* Lackschewitz, 1937

Transpalaearctic species (Lackschewitz,1937; Väisänen, 1984; Zaitzev, 1994a). Biology unknown.

Material: 2♂♂, Endla Nature Reserve (1995, light trap), K. Kimmel leg.

61. *M.* (*M.*) *brunnea* (Dziedzicki, 1885)

Transpalaearctic species (Väisänen, 1984; Zaitzev, 1994a). Biology unknown.

Estonia. Lackschewitz, 1937: 10 (from Tartu).

Material: 2 ♂♂, Nigula Nature Reserve (1993), Tõrva (1995), O. Kurina leg.; 2♂♂, Endla Nature Reserve (1995, light trap), K. Kimmel leg. Total 4♂♂.

62. *M.* (*M.*) *cinerascens* (Macquart, 1826) **[III]**

Holarctic species (Väisänen, 1984). Recorded on *Stereum* sp. and *Telephora terrestris* (Edwards, 1925; Yakovlev, 1994). Found also on mycelium in rotten wood (Yakovlev, 1994).

Estonia. Dampf, 1924: 43 (from Pääsküla bog and Uhtna); Lackschewitz, 1937: 9 (from Ridala and Tartu); Väisänen, 1984: 174 (from Peedu). Reared by me from *Cortinarius* sp., collected at Tiksoja (**III**). The species is reared from *Cortinarius* sp. for the first time. This record proved, that the larvae of the species can also feed on Agaricales s. l.

Material: 11♂♂, Nigula Nature Reserve (1994, 1995), Tõrva (1995), Taevaskoja (1994, 1995), Hargla (1994), Tiksoja (1994), O. Kurina leg.; 16♂♂, Endla Nature Reserve (1995, light trap), K. Kimmel leg. Total 27♂♂.

*** 63.** *M.* (*M.*) *collini* Edwards, 1941

Known from western Palaearctic: Great Britain, Finland, Germany (Plassmann, 1978b; Väisänen, 1984). Biology unknown.

Material: 1♂, Uulu (1995), O. Kurina leg.; 2♂♂, Endla Nature Reserve (1995, light trap), K. Kimmel leg. Total 3♂♂.

64. *M.* (*M.*) *disa* Väisänen, 1984

Previously recorded from northern Norway, northen Sweden, Finland and Russia: Leningrad District and Kola peninsula (Väisänen, 1984). Biology unknown.

Estonia. Väisänen, 1984: 121 (from Peedu). The Estonian record is the southernmost so far.

*** 65.** *M.* (*M.*) *dziedzickii* Väisänen, 1981 **[VI]**

Transpalaearctic species (Väisänen, 1984; Zaitzev, 1994a). Found on mycelium in rotten wood (Zaitzev, 1994a).

Estonia. Registered by me earlier at Peedu **(VI)**.

Material: 4♂♂, Rae (1994), Hargla (1994), Kambja (1995), O. Kurina leg.

*** 66.** *M.* (*M.*) *egregia* (Dziedzicki, 1885)

Transpalaearctic species (Lackschewitz, 1937; Plassmann, 1971; Väisänen, 1984; Zaitzev, 1994a). Biology unknown.

Material: 4♂♂, Oonga (1993), Nigula Nature Reserve (1995), Tõrva (1995), Hargla (1994), O. Kurina leg.; 1♂, Endla Nature Reserve (1995, light trap), K. Kimmel leg. Total 5♂♂.

*** 67.** *M.* (*M.*) *fasciata* (Zetterstedt, 1838)

Holarctic species (Väisänen, 1984; Zaitzev, 1994a). Yakovlev (1994) recorded it on *Ganoderma applanatum*.

Material: 1♂, Endla Nature Reserve (1995, light trap), K. Kimmel leg.

68. *M.* (*M.*) *flavicollis* (Zetterstedt, 1852)

Widely distributed in Europe. Known also in Transcaucasus (Palssmann & Joost, 1976; Väisänen, 1984; Zaitzev, 1994a). By Chandler (1974) the species feeding on *Hedera* flovers.

Estonia. Dampf, 1924: 43 (from Pääsküla bog).

Material: 2♂♂, Piiri (1995), O. Kurina leg.

*** 69.** *M.* (*M.*) *heydeni* Plassmann, 1970

Transpalaearctic species (Väisänen, 1984; Zaitzev, 1994a). Biology unknown.

Material: 1♂, Nigula Nature Reserve (1995), O. Kurina leg.; 2♂♂, Endla Nature Reserve (1995, light trap), K. Kimmel leg. Total 3♂♂.

*** 70.** *M.* (*M.*) *hians* (Lundström, 1912)

Previously recorded from Austria, Germany, Finland, Latvia, Russia: Leningrad District (Lackschewitz, 1937; Väisänen, 1984; Zaitzev, 1994a). Biology unknown.

Material: 1♂, Oonga (1993), O. Kurina leg.

*** 71.** *M.* (*M.*) *karelica* Väisänen, 1979

Known from Poland, Finland and Russia: Altai (Väisänen, 1984; Zaitzev, 1994a). Biology unknown.

Material: 2♂♂, Viidumäe Nature Reserve (1984), K. Elberg leg.

*** 72.** *M.* (*M.*) *kaurii* Väisänen, 1979

Holarctic species (Väisänen, 1984). Biology unknown.

Material: 1♂, Nigula Nature Reserve (1995), O. Kurina leg.

*** 73.** *M.* (*M.*) *levis* (Dziedzicki, 1885)

Holarctic species (Väisänen, 1984; Zaitzev, 1994a). Biology unknown.

Material: 5♂♂, Nigula Nature Reserve (1990, 1995), Apja-Suurjärv (1994), Taevaskoja (1994), Melliste (1994), O. Kurina leg.

74. *M.* (*M.*) *maculata* (Meigen, 1804)

Holarctic species (Väisänen, 1984). Recorded on *Boletus edulis* (Ostroverkhova, 1979).

Estonia. Lackschewitz, 1937: 8 (from Audru and Pärnu); Väisänen, 1984: 12 (from Peedu).

Material: 2♂♂, Nigula Nature Reserve (1990), O. Kurina leg.; 2♂♂, Kanaküla (1957), Rannaküla (1957), H. Remm leg.; 1♂, Endla Nature Reserve (1995, light trap), K. Kimmel leg. Total 5♂♂.

75. *M.* (*M.*) *marginata* (Meigen, 1818)

Transpalaearctic species (Väisänen, 1984; Zaitzev, 1994a). Feeding on many species of Aphyllophoraceous and Polyporaceous fungi (Edwards, 1925; Buxton, 1960; Hutson *et al.*, 1980; Yakovlev, 1994).

Estonia. Lackschewitz, 1937: 8 (from Ridala, Audru, Tartu and Raasiku); Väisänen, 1984: 235 (from Nõmmeveski in Lahemaa National Park).

Material: 2♂♂, Piiri (1995), Oonga (1995), O. Kurina leg.; 1♂, Endla Nature Reserve (1995, light trap), K. Kimmel leg. Total 3♂♂.

76. *M.* (*M.*) *neohyalinata* Väisänen, 1984

Holarctic species (Väisänen, 1984). Recorded on Polyporaceous fungi and on *Lactarius* (Ostroverkhova, 1979; Yakovlev, 1994).

Estonia. Lackschewitz, 1937: 9 (as *M. hyalinata* Meig. from Ridala, Audru and Tartu); Remm, 1959: 107 (as *M. hyalinata* Mg. from Avaste bog); Väisänen, 1984: 147 (from Peedu).

Material: 4♂♂, Nigula Nature Reserve (1992, 1993, 1995), Uue-Saaluse (1995), O. Kurina leg.; 1♂, Endla Nature Reserve (1995, light trap), K. Kimmel leg. Total 5♂♂.

77. *M.* (*M.*) *nitida* (Zetterstedt, 1852)

Holarctic species (Väisänen, 1984). According to Hackman (1963) some specimens have been found in burrows of rodents.

Estonia. Dampf, 1924: 43 (as *M. exigua* Winn. from Pääsküla bog).

Material: 9♂♂, Nigula Nature Reserve (1994, 1995) O. Kurina leg.

*** 78.** *M.* (*M.*) *occultans* (Winnertz, 1863)

Transpalaearctic species (Väisänen, 1984; Zaitzev, 1994a). By Winnertz (1863) the larvae live in *Daedalea quercina* and in *Polyporus*, and pupates in the fungus. Found also on *Inonutus radiatus, Lenzites betulina, Plicaturopsis crispa* (Landrock, 1940; Eisfelder, 1955; Väisänen, 1984).

Material: 1♂, Lake Vasula (1995), O. Kurina leg.

79. *M.* (*M.*) *ornata* (Meigen, 1818)

Holarctic species (Väisänen, 1984). North-American specimens reared by Väisänen (1984) from *Ramaria apiculata*.

Estonia. Lackschewitz, 1937: 11 (from Ridala and Audru).

*** 80.** *M.* (*M.*) *prominens* (Lundström, 1913)

Widely distributed in Europe (Väisänen, 1984; Zaitzev, 1994a). Edwards (1925) reared specimens of this species from larvae feeding on a fungus (*Corticium* ?) enerusting a fallen branch. By Hutson *et al.* (1980) recorded on Agaricaceae, *Telephora* and also on rotten wood.

Material: 2♂♂, Hargla (1994), O. Kurina leg.; 2♂♂, Endla Nature Reserve (1995, light trap), K. Kimmel leg. Total 4♂♂.

81. *M.* (*M.*) *ruficollis* (Zetterstedt, 1852)

Holarctic species (Väisänen (1984). Biology unknown.

Estonia. Lackschewitz, 1937: 9 (from Audru).

Material: 7♂♂, Nigula Nature Reserve (1995), Taevaskoja (1994), Tiksoja (1995), O. Kurina leg.

*** 82.** *M.* (*M.*) *shermani* Garrett, 1924

Holarctic species (Plassmann, 1980; Väisänen, 1984; Zaitzev, 1994a). Biology unknown.

Material: 2♂♂, Kohala (1992), Nigula Nature Reserve (1995), O. Kurina leg.

83. *M.* (*M.*) *siebecki* (Landrock, 1912)

Known from Slovenia, former Czechoslovakia, Finland, Latvia and Russia: Leningrad District and Altai (Väisänen, 1984; Zaitzev, 1994a). Biology unknown.

Estonia. Väisänen, 1984: 201 (from Peedu)

Material: 1♂, Suur-Pakri (1997), Ü. Jäe leg.; 1♂, Uue-Saaluse (1995), O. Kurina leg.; 4♂♂, Endla Nature Reserve (1995, light trap), K. Kimmel leg. Total 6♂♂.

84. *M.* (*M.*) *sigma* Johannsen, 1910

Holarctic species (Väisänen, 1984). According to Hutson *et al.* (1980) recorded on *Auricularia*.

Estonia. Väisänen, 1984: 112 (from Peedu).

Material: 1♂, Apja-Suurjärv (1994), O. Kurina leg.; 2♂♂, Endla Nature Reserve (1995, light trap), K. Kimmel leg. Total 3♂♂.

85. *M.* (*M.*) *tenuis* (Walker, 1856)

Transpalaearctic species (Väisänen, 1984; Zaitzev, 1994a). Reared from *Leccinum scabrum* (Väisänen, 1984).

Estonia. Dampf, 1924: 43 (from Jõõpre bog and Pääsküla bog); Väisänen, 1984: 117 (from Peedu).

Material: 3♂♂, Orissaare (1993), Taevaskoja (1995), Lake Vasula (1995), O. Kurina leg.; 3♂♂, Endla Nature Reserve (1995, light trap), K. Kimmel leg. Total 6♂♂.

*** 86.** *M. (M.) trivittata* (Zetterstedt, 1838)

Holarctic species (Väisänen, 1984; Zaitzev, 1994a). Biology unknown.

Material: 14♂♂, Oonga (1995), Nigula Nature Reserve (1992, 1994, 1995), Uulu, (1995), Hargla (1994), Aheru (1994), Apja-Suurjärv (1994), Tiksoja (1994), O. Kurina leg.

*** 87.** *M. (M.) tumida* (Winnertz, 1863)

Transpalaearctic species (Väisänen, 1984; Zaitzev, 1994a). The larvae have been found on the lower surface of *Trametes versicolor* (Plachter, 1979).

Material: 2♂♂, Taevaskoja (1995), O. Kurina leg.

88. *M. (M.) wankowiczii* (Dziedzicki, 1885)

Holarctic species (Väisänen, 1984). Recorded on *Stereum* sp., *Hypoloma* sp., *Phallus impudicus* (Chandler, 1978; Hutson *et al.*, 1980), by Eisfelder (1955) on *Naematoloma sublateritium*.

Estonia. Lackschewitz, 1937: 9 (from Kasaritsa).

Material: 6♂♂, Hargla (1994), Aheru (1994), Taevaskoja (1994), Melliste (1994), O. Kurina leg.; 1♂, Endla Nature Reserve (1995, light trap), K. Kimmel leg. Total 7♂♂.

*** 89.** *M. (M.) winnertzi* (Dziedzicki, 1885)

Holarctic species (Väisänen, 1984). According to Edwards (1925) one specimen was reared from a larva found on a fallen birch branch covered with *Poria*. Recorded on *Phellinus* sp. (Hutson *et al.*, 1980) and on mycelium in rotten wood (Yakovlev, 1994).

Material: 9♂♂, Nigula Nature Reserve (1993, 1995), Haanja (1995), Taevaskoja (1994), Lake Vasula (1995), Järvselja (1989), O. Kurina leg.; 1♂, Avaste (1952), H. Remm leg.; 7♂♂, Endla Nature Reserve (1995, light trap), K. Kimmel leg. Total 17♂♂.

Subgenus *Calomycomya* Väisänen, 1984

*** 90.** *M. (C.) avala* Väisänen, 1984

Earlier known from Denmark, Finland, Latvia and Russia: Karelia, Leningrad District (Väisänen, 1984; Zaitzev, 1994a). Biology unknown.

Material: 1♂, Nigula Nature Reserve (1994), O. Kurina leg.

*** 91.** *M. (C.) pulchella* (Dziedzicki, 1885)

Transpalaearctic species (Laštovka & Matile, 1974; Väisänen, 1984; Zaitzev, 1994a). Biology unknown.

Material: 10♂♂, Nigula Nature Reserve 1990, 1993, 1994, 1995), Apja-Suurjärv (1994), O. Kurina leg.

Subgenus *Cymomya* Väisänen, 1984

92. *M. (C.) circumdata* (Staeger, 1840)

Transpalaearctic species (Väisänen, 1984; Zaitzev, 1994a). By Väisänen (1981a) reared from a sporophore of *Leccinum scabrum*.

Estonia. Väisänen, 1984: 275 (from Peedu).

Material: 4♂♂, Kabli (1995), Nigula Nature Reserve (1993), Tiksoja (1994, 1995), O. Kurina leg.; 1♂, Endla Nature Reserve (1995, light trap), K. Kimmel leg. Total 5♂♂.

Subgenus *Neomycomya* Väisänen, 1984

*** 93.** *M.* (*N.*) fimbriata (Meigen, 1818)

Holarctic species (Väisänen, 1984; Zaitzev, 1994a). Biology unknown.

Material: 5♂♂, Viidumäe Nature Reserve (1992), Nigula Nature Reserve (1993), Tõrva (1995), Järvselja (1989), O. Kurina leg.

Subgenus *Mycomyopsis* Väisänen, 1984

94. *M.* (*M.*) *affinis* (Staeger, 1840)

Holarctic species (Väisänen, 1984). Biology unknown.

Estonia. Lackschewitz, 1937: 12 (as *M. flava* Stann. from Ridala, Audru and Tartu); Väisänen, 1984: 305 (from Peedu).

Material: 40♂♂, Viidumäe Nature Reserve (1988), Abruka (1991), Oonga (1994), Uulu (1995), Nigula Nature Reserve (1990, 1993, 1995), Tõrva (1995), Kiuma (1995), Vapramäe (1995), Kambja (1995), Melliste (1994, 1995), Järvselja (1989), Tiksoja (1994), Jüriküla (1995), O. Kurina leg.; 2♂♂, Endla Nature Reserve (1995, light trap), K. Kimmel leg. Total 42♂♂.

*** 95.** *M.* (*M.*) *confusa* Väisänen, 1979

Previously recorded from Norway, Sweden, Finland and Russia: Leningrad District (Väisänen, 1984; Zaitzev, 1994a). Biology unknown.

Material: 18♂♂, Oonga (1994), Nigula Nature Reserve (1990, 1993), Tõrva (1995), Järvselja (1989), Jüriküla (1995), O. Kurina leg.; 1♂, Endla Nature Reserve (1995, light trap), K. Kimmel leg. Total 19♂♂.

*** 96.** *M.* (*M.*) *fennica* Väisänen, 1979

Known from Finland and Russia: Leningrad District (Väisänen, 1984; Zaitzev, 1994a). Biology unknown.

Material: 1♂, Nigula Nature Reserve (1990), O. Kurina leg.

*** 97.** *M.* (*M.*) *paradentata* Väisänen, 1984

Earlier known from France, Poland, Denmark, Sweden, Finland, Ukraine and Russia: Leningrad District (Väisänen, 1984; Zaitzev, 1994a). Biology unknown.

Material: 6♂♂, Uulu (1995), Nigula Nature Reserve (1990, 1995), O. Kurina leg.; 1♂, Endla Nature Reserve (1995, light trap), K. Kimmel leg. Total 7♂♂.

98. *M.* (*M.*) *penicillata* (Dziedzicki, 1885)

Transpalaearctic species (Väisänen, 1984; Zaitzev, 1994a). Biology unknown.

Estonia. Dampf, 1924: 43 (from Jõõpre bog, Ulila bog, Varudi bog, and Ellamaa bog); Lackschewitz, 1937: 12 (from Ridala, Audru, Pärnu and Tartu).

Material: 4♂♂, Nigula Nature Reserve (1990, 1992), Tiksoja (1994), O. Kurina leg.

*** 99.** *M.* (*M.*) *permixta* Väisänen, 1984

Holarctic species are divided into two subspecies: *M. permixta permixta* in Palaearctic region and *M. permixta berviseta* in Nearctic region (Väisänen,

1984). Some specimens of Palaearctic subspecies have been reared from *Leccinum scabrum* (Väisänen, 1981a).

Material: 44♂♂, Abruka (1991), Nigula Nature Reserve (1991, 1993, 1994, 1995), Kanaküla (1995), Valma (1995), Vapramäe (1995), Kambja (1995), Melliste (1994, 1995), Järvselja (1989), Tiksoja (1995), O. Kurina leg.; 2♂♂, Viidumäe Nature Reserve (1984), K. Elberg leg. Total 46♂♂.

100. *M.* (*M.*) *trilineata* (Zetterstedt, 1838)

Transpalaearctic species (Väisänen, 1984; Zaitzev, 1994a). Reared from *Leccinum scabrum* (Väisänen, 1981a).

Estonia. Lackschewitz, 1937: 12 (from Audru); Väisänen, 1984: 309 (from Peedu).

Material: 16♂♂, Nigula Nature Reserve (1990, 1992, 1993, 1994, 1995), Tõrva (1995), Jüriküla (1995), O. Kurina leg.

Subgenus *Lycomya* Väisänen, 1984

*** 101.** *M. (L.) pectinifera* Edwards, 1924

Transpalaearctic species (Väisänen, 1984; Zaitzev, 1994a). Biology unknown.

Material: 1♂, Nigula Nature Reserve (1990), O. Kurina leg.

Genus *Neoempheria* Osten-Sacken, 1878

*** 102.** *N. bimaculata* (von Roser, 1840)

Previously recorded from Great Britain, Netherlands, Germany, Austria, Poland and Russia: Leningrad District (Hackman *et al.*, 1988; Zaitzev, 1994a). Biology unknown.

Material: 2♂♂, Nigula Nature Reserve (1990), O. Kurina leg.

103. *N. pictipennis* (Haliday, 1833)

Transpalaearctic species (Hackman et al., 1988). Biology unknown.

Estonia. Lackschewitz, 1937: 13 (from Piigandi)

Material: 3♂♂ 1♀, Uulu (1995), Kabli (1995), Nigula Nature Reserve (1994), Piigandi (1995), O. Kurina leg.

104. *N. striata* (Meigen, 1818) **[VI]**

Transpalaearctic species (Hackman *et al.*, 1988; Zaitzev, 1994a). Recorded on *Hirneola, Trametes, Telephora, Paxillus* (Halidov, 1984) and also on mycelium in rotten wood (Landrock, 1940; Zaitzev, 1994a).

Estonia. Lackschewitz, 1937: 12 (from Raasiku). Registered by me at Peedu **(VI)**.

105. *N. winnertzi* Edwards, 1913

Transpalaearctic species (Hackman *et al.*, 1988). Biology unknown.

Estonia. Lackschewitz, 1937: 13 (from Ridala)

Tribe Sciophilini

Genus *Acnemia* Winnertz, 1863

106. *A. longipes* Winnertz, 1863

Transpalaearctic species (Hackman et al., 1988). Biology unknown.

Estonia. Landrock, 1924: 79 (from Ulila bog).

Material: 4♂♂, Järvselja (1989), Nigula Nature Reserve (1995), O. Kurina leg.

107. *A. nitidicollis* (Meigen, 1818)

Transpalaearctic species (Hackman *et al.*, 1988; Zaitzev, 1994a). Recorded on *Leccinum scabrum*-group (Hackman & Meinander, 1979), *L. versipelle* (Yakovlev, 1994) and also in rotten wood (Lacndrock, 1940).

Estonia. Dampf, 1924: 44 (from Ulila bog); Lackschewitz, 1937: 16 (from Audru and Tartu); Remm, 1959: 107 (from Avaste bog), species has been denoted with a question mark.

Material: 8♂♂, Viidumäe Nature Reserve (1988), Nigula Nature Reserve (1990, 1992, 1993, 1994), O. Kurina leg.

Genus *Allocotocera* Mik, 1886

108. *A. pulchella* (Curtis, 1837)

Holarctic species (Hackman *et al.*, 1988). By Yakovlev (1994) recorded on *Daldinia concentrica* and on mycelium in rotten wood.

Estonia. Lackschewitz, 1937: 13 (from Audru, Kose and Tartu).

Material: 6♂♂, Nigula Nature Reserve (1994), Rae (1994), Hargla (1994), Apja-Suurjärv (1994), O. Kurina leg.; 1♂, Sangaste (1957), H. Remm leg. Total 7♂♂.

Genus *Eudricrana* Loew, 1869

109. *E. nigriceps* (Lundström, 1909)

Known from Great Britain and Finland (Hutson *et al.*, 1980; Hackman, 1980). The biology of the species is unknown.

Estonia. Lackschewitz, 1937: 13 (from Audru).

Genus *Megalopelma* Enderlein, 1911

110. *M. nigroclavatus* (Strobl, 1909)

Holarctic species (Zaitzev, 1994a). Biology unknown.

Estonia. Lackschewitz, 1937: 15 (from Kasaritsa,).

Genus *Monoclona* Mik, 1886

*** 111.** *M. rufilatera* (Walker, 1837)

Holarctic species (Hackman *et al.*, 1988; Zaitzev, 1994a; Zaitzev & Menzel, 1996). Edwards (1925) reared some of British specimens from rotten wood attacked by *Poria* (?).

Material: 2♂♂, Tiksoja (1995), Uue-Saaluse (1995), O. Kurina leg.; 1♂, Endla Nature Reserve (1995, light trap), K. Kimmel leg. Total 3♂♂.

Genus *Neuratelia* Rondani, 1856

112. *N. nemoralis* (Meigen, 1818)

Holarctic species (Hackman *et al.*, 1988). Biology unknown.

Estonia. Lackschewitz, 1937: 13 (from Tartu and Raasiku).

Material: 4♂♂ 3♀♀, Oonga (1993), Nigula Nature Reserve (1995), Taevaskoja (1994), Tiksoja (1994), Revoja (1988), O. Kurina leg.; 7♂♂, Endla Nature Reserve (1995, light trap), K. Kimmel leg.; 1♂, Jalase (1995, light trap), R. Aalde leg. Total 11♂♂ 3♀♀.

113. *N. sintenisi* Lackschewitz, 1937

Estonia. Lackschewitz, 1937: 14 (from Audru), typus. After the original description it has not been found.

*** 114.** *N. subulata* A. Zaitzev, 1994

Described by one male specimen from Russia: Moscow District (Zaitzev, 1994a). Biology unknown.

Estonia. The presented record is the first after the original description.

Material: 1♂, Hanikase (1985), H. Remm leg.

Genus *Paratina* Mik, 1874

*** 115.** *P. sciarina* Mik, 1874

Known from Great Britain, France, Germany, Austria, former Czechoslovakia, Norway and Russia: Vologda District, Tomsk District (Ostroverkhova, 1979; Hackman *et al.*, 1988; Zaitzev, 1994a; Søli, 1994). Biology unknown.

Material: 2♂♂, Endla Nature Reserve (1995, light trap), K. Kimmel leg.; 1♂, Puka (1995, light trap), J. Viidalepp leg. Total 3♂♂.

Genus *Phthinia* Winnertz, 1863

116. *P. humilis* Winnertz, 1863

Transpalaearctic species (Hackman *et al.*, 1988). By Landrock (1940) recorded in rotten wood.

Estonia. Lackschewitz, 1937: 14 (from Tartu).

Material: 3 ♂♂, Hullo (1991), Uulu (1995), Nigula Nature Reserve (1992), O. Kurina leg.

*** 117.** *P. winnertzi,* Mik, 1869 **[III]**

Widely distributed in Europe (Hackman *et al.*, 1988). Earlier records about feeding lacking.

Estonia. One female specimen was reared by me from macrofungi (***Russula flava***) for the first time (collected at Nigula Nature Reserve) **(III)**.

Material: 3♂♂, Nigula Nature Reserve (1995), Vapramäe (1995), O. Kurina leg.

Genus *Polylepta* Winnertz, 1863

*** 118.** *P. borealis* Lundström, 1912

Widely distributed in Europe (Hackman *et al.*, 1988; Søli, 1994, Yakovlev, 1995). According to Yakovlev (1994) recorded on *Gyromitra esculenta*.

Material: 16♂♂ 1♂, Nigula Nature Reserve (1994, 1995), Aheru (1994), Kiuma (1995), Jüriküla (1995), Revoja (1988), O. Kurina leg.

119. *P. guttiventris* (Zetterstedt, 1852)

Widely distributed in Europe (Hackman *et al.*, 1988; Zaitzev, 1994a). Biology unknown.

Estonia. Dampf, 1924: 44 (as *Polylepta undulata* Winn. from Jõõpre bog); Lackschewitz, 1937: 13 (from Audru and Tartu).

Material: 17♂♂ 2♀♀, Oonga (1994), Tõstamaa (1994), Nigula Nature Reserve (1993, 1994, 1995), Hargla (1994), Apja-Suurjärv (1994), Aheru (1994), Kiuma (1995), Taevaskoja (1994), Jüriküla (1995), O. Kurina leg.; 2♂♂, Endla Nature Reserve (1995, light trap), K. Kimmel leg. Total 19♂♂ 2♀♀.

Genus *Sciophila* Meigen, 1818

120. *S. fenestella* Curtis, 1837

Holarctic species (Zaitzev, 1982a). Biology unknown.

Estonia. Lackschewitz, 1937: 15 (from Audru).

121. *S. geniculata* Zetterstedt, 1838

Known from Great Britain, France, Norway, Sweden, Finland and Latvia (Hackman *et al.*, 1988; Zaitzev, 1982a). Biology unknown.

Estonia. Lackschewitz, 1937: 15 (from Audru).

122. *S. hirta* Meigen, 1818

Holarctic species (Zaitzev, 1982a). Feeding on many species of Basidiomycetes (e. g. Edwards, 1925; Chandler, 1978; Hutson *et al.*, 1980; Yakovlev, 1994).

Estonia. Lackschewitz, 1937: 15 (from Kasaritsa).

123. *S. limbatella* Zetterstedt, 1852

Transpalaearctic species (Zaitzev, 1994a). Recorded on *Fomes fomentarius*, *Phellinus* sp. (Yakovlev, 1994).

Estonia. Lackschewitz, 1937: 15 (from Audru).

124. *S. lutea* Macquart, 1826 **[III]**

Transpalaearctic species (Zaitzev, 1994a). Feeding on many species of Ascomycetes, Basidiomycetes and Gasteromycetes (Yakovlev, 1994). The larvae of *S. lutea* were recorded on the surface of the fruit bodies of Aphyllophorales by Zaitzev (1982a).

Estonia. Lackschewitz, 1937: 15 (from Ridala and Tartu). Reared by me from *Amanita porphyria, Russula paludosa, R. emetica, Lactarius torminosus,*

L. deliciosus and *L. deterrimus*. The fruit bodies were collected at Nigula Nature Reserve, Tamsa-Altmäe and Varudi **(III)**.
Material: 1♂, Uue-Saaluse (1995), O. Kurina leg.; 1♂, Hanikase (1985), H. Remm leg.; 2♂♂, Endla Nature Reserve (1995, light trap), K. Kimmel leg. Total 4♂♂.

*** 125.** *S. modesta* A. Zaitzev, 1982 **[III]**

Holarctic species (Zaitzev, 1982a, 1994a). Recorded on *Ptychoverpa bohemica* and *Gyromitra esculenta* (Yakovlev, 1994).
Estonia. Reared by me from *Lactarius helvus*, collected at Nigula Nature Reserve **(III)**. The species reared from *L. helvus* for the first time.

*** 126.** *S. nonnisilva* Hutson, 1979 **[XII]**

Holarctic species (Zaitzev, 1982a, 1994a). According to Zaitzev (1982a), the larvae of *S. nonnisilva* were recorded on the surface of rotting wood, on mycelium. By Chandler (1987) the species has been reared from *Hirneola auricula-judae*.
Estonia. Reared by me from *Phellinius igniarius*, collected at Laelatu **(XII)**. The species reared from *P. igniarius* for the first time.

*** 127.** *S. pseudoflexuosa* Kurina, 1991 **[I]**

Described by one male specimen from Nigula Nature Reserve. It was reared from fruit body of *Lactarius helvus* **(I)**.

128. *S. rufa* Meigen, 1830

Transpalaearctic species (Zaitzev, 1982a, 1994). Recorded on *Fomes fomentarius* (Chandler, 1978; Yakovlev, 1994).
Estonia. Lackschewitz, 1937: 15 (from Audru).

129. *S. thoracica* Staeger, 1840

Known from Austria, Germany, Denmark, Spain, Finland and Latvia (Lackschewitz, 1937; Hackman *et al.*, 1988). Biology unknown.
Estonia. Remm, 1959: 107 (from Avaste bog).

*** 130.** *S. varia* (Winnertz, 1863) **[III]**

Transpalaearctic species (Hackman *et al.*, 1988; Zaitzev, 1994a). Feeding on many species of Basidiomycetes (Zaitzev, 1982a; Yakovlev, 1994).
Estonia. Recorded by me on two fruit bodies of *Hydnum repandum*, at Abruka and Virtsu **(III)**.
Material: 1♂, Endla Nature Reserve (1995, light trap), K. Kimmel leg.

Genus *Syntemna* Winnertz, 1863

*** 131.** *S. stylatoides* A. Zaitzev, 1994

Described by three male specimens from Russia: Moscow District and Ukraine: Transcarpathian District (Zaitzev, 1994a). Biology unknown.
Estonia. This is the first record after the original description.
Material: 1♂, Nigula Nature Reserve (1994), O. Kurina leg.

Tribe Gnoristini

Genus *Aglaomyia* Vockeroth, 1980

*** 132.** *A. ingrica* (Stackelberg, 1948)

Transpalaearctic species (Hackman *et al.*, 1988; Zaitzev, 1994a). According to Zaitzev (1994a) the larvae of this species are xylomycetophagous.

Material: 1♂, Nigula Nature Reserve (1994), O. Kurina leg.

Genus *Apolephtisa* Grzegorzek, 1885

*** 133.** *A. subincana* (Curtis, 1837)

Widely distributed in Europe (Zaitzev, 1994a; Søli, 1994; Yakovlev, 1995), by Hackman *et al.* (1988) also known from Transcaucasus. Recorded on *Phlebia radiata, Schizophora paradoxa* and on mycelium in rotten wood (Edwards, 1925, Yakovlev, 1994).

Material: 1♂, Nigula Nature Reserve (1994), O. Kurina leg.

Genus *Boletina* Staeger, 1840

134. *B. basalis* (Meigen, 1818)

Widely distributed in Europe (Hackman *et al.*, 1988). Biology unknown.

Estonia. Lackschewitz, 1937: 18 (from Audru, Vändra, Piigandi, Tartu, Võisiku and Kose). For the species univoltin fenodynamic (spring) is typical.

Material: 41♂♂, Nigula Nature Reserve (1992, 1994, 1995), Oonga (1993, 1994), Jõesuu (1996), Rähni (1994), Taevaskoja (1994, 1995), Tiksoja (1994, 1995), Kunila (1995), Rakke (1996), Käru (1996), O. Kurina leg.; 4♂♂, Reo (1972), Vidrike (1973), Põltsamaa (1986), K. Elberg leg.; 4♂♂, Endla Nature Reserve (1995, light trap), K. Kimmel leg. Total 49♂♂.

*** 135.** *B. brevicornis* Zetterstedt, 1852

Widely distributed in Europe (Hackman *et al.*, 1988; Søli, 1994; Yakovlev, 1995). Biology unknown.

Material: 1♂, Taevaskoja (1994), O. Kurina leg.

136. *B. digitata* Lundström, 1914

Widely distributed in Europe (Hackman *et al.*, 1988; Zaitzev, 1994a). Biology unknown.

Estonia. Dampf, 1924: 44 (from Kärdla, Ellamaa bog, Jõõpre bog and Pääsküla bog).

*** 137.** *B. dispecta* Dziedzicki, 1885

Transpalaearctic species (Hackman *et al.*, 1988; Zaitzev, 1994a). Biology unknown.

Material: 4♂♂, Oonga (1993), Jüriküla (1995), O. Kurina leg., Kanaküla (1995), O. Kurina leg.

138. *B. dubia* (Meigen, 1804)

Widely distributed in Europe (Hackman *et al.*, 1988; Zaitzev, 1994a). Biology unknown.

Estonia. Remm, 1959: 107 (from Avaste bog).

Material: 1♂, Viidumäe Nature Reserve (1988), K. Elberg leg.

139. *B. gripha* Dziedzicki, 1885 **[I]**

Transpalaearctic species (Zaitzev, 1994a). Recorded on rotten wood (Yakovlev, 1994).

Estonia. Dampf, 1924: 44 (from Ellamaa bog, Varudi bog and Pääsküla bog); Remm, 1959: 107 (from Avaste bog). Recorded by me from *Suillus bovinus*, collected at Rannametsa (**I**). The Estonian record of the species on macrofungi is the first for genus *Boletina* from Agaricales s. l. For the species bivoltin fenodynamic with two peaks in spring and autumn is typical.

Material: 24♂♂, Järvselja (1989), Nigula Nature Reserve (1990, 1992, 1993, 1994), Taevaskoja (1994, 1995), Piiri (1995), Oonga (1995), Melliste (1995), O. Kurina leg.; 2♂♂, Viidumäe Nature Reserve (1988), K. Elberg leg.; 1♂, Endla Nature Reserve (1995, light trap), K. Kimmel leg.. Total 27♂♂.

*** 140.** *B. griphoides* Edwards, 1925

Known from North and Central Europe (Hackman *et al.*, 1988; Zaitzev, 1994a; Yakovlev, 1995). Biology unknown.

Material: 3♂♂, Nigula Nature Reserve (1992), Nigula Nature Reserve (1994), Taevaskoja (1995), O. Kurina leg.

*** 141.** *B. gusakovae* A. Zaitzev, 1994

Described by four male specimens from Russia: Khabarovsk Region (Zaitzev, 1994a). Biology unknown.

Estonia. This record is the first after the original description.

Material: 1♂, Jüriküla (1995), O. Kurina leg.

142. *B. landrocki* Edwards, 1924

Previously recorded from Finland, Latvia and Russia: Leningrad District (Lackschewitz, 1937; Hackman, 1980; Zaitzev, 1994a). Biology unknown.

Estonia. Lackschewitz, 1937: 17 (from Tartu).

Material: 2♂♂, Kohala (1992), O. Kurina leg.

*** 143.** *B. lundstroemi* Landrock, 1912

Distributed in North and Central Europe (Zaitzev, 1994a; Søli, 1994; Yakovlev, 1995), by Hackman *et al.* (1988) known also from Georgia. Biology unknown.

Material: 3♂♂, Nigula Nature Reserve (1994), Taevaskoja (1995), O. Kurina leg.

*** 144.** *B. moravica* Landrock, 1912

Known from North and Central Europe (Hackman *et al.*, 1988; Zaitzev, 1994a; Yakovlev, 1995). Biology unknown.

Material: 8♂♂, Nigula Nature Reserve (1992), Vapramäe (1992), Tiksoja (1994, 1995), Taevaskoja (1995), Kunila (1995), O. Kurina leg.; 19♂♂, Endla Nature Reserve (1995, light trap), K. Kimmel leg. Total 27♂♂.

145. *B. nigricans* Dziedzicki, 1885

Transpalaearctic species (Hackman *et al.*, 1988; Zaitzev, 1994a). Biology unknown.

Estonia. Dampf, 1924: 44 (from Jõõpre bog, Ulila bog, Uhtna and Pääsküla bog).

Material: 40♂♂, Taevaskoja (1994), Hargla (1994), Aheru (1994), Apja-Suurjärv (1994), Nigula Nature Reserve (1994, 1995), Rae (1994), O. Kurina leg.

*** 146.** *B. nigricoxa* Staeger, 1840

Transpalaearctic species (Hackman *et al.*, 1988; Zaitzev, 1994a). Biology unknown.

Material: 17♂♂, Rakke (1996), Nigula Nature Reserve (1994), Melliste (1995), Tiksoja (1994), Rähni (1994), O. Kurina leg.

*** 147.** *B. nigrofusca* Dziedzicki, 1885

Transpalaearctic species (Hackman *et al.*, 1988; Zaitzev, 1994a). Biology unknown.

Material: 2♂♂, Nigula Nature Reserve (1994), Suuresöödi (1994), O. Kurina leg.

*** 148.** *B. nitida* Grzegorzek, 1885

Transpalaearctic species (Hackman *et al.*, 1988; Zaitzev, 1994a). Biology unknown.

Material: 1♂, Tõrva (1995), O. Kurina leg.

*** 149.** *B. pallidula* Edwards, 1925

Previously known from Great Britain and Russia: Leningrad District, Karelia (Hackman *et al.*, 1988; Zaitzev, 1994a; Yakovlev, 1995). Biology unknown.

Material: 1♂, Nigula Nature Reserve (1990), O. Kurina leg.

*** 150.** *B. pectinunguis* Edwards, 1932

Known from Great Britain, Norway, Sweden, Finland and Russia: Kola Peninsula, Arkhangelsk District (Hackman *et al.*, 1988; Zaitzev, 1994a; Søli, 1994). Biology unknown.

Material: 1♂, Nigula Nature Reserve (1995), O. Kurina leg.

*** 151.** *B. plana* (Walker, 1856)

Transpalaearctic species (Hackman *et al.*, 1988; Zaitzev, 1994a; Søli, 1994; Yakovlev, 1995). Biology unknown.

Material: 4♂♂, Endla Nature Reserve (1995, light trap), K. Kimmel leg.

*** 152.** *B. rejecta* Edwards, 1941 **[VI]**

Transpalaearctic species (Zaitzev, 1994a). Biology unknown.

Estonia. Registered by me earlier at Peedu **(VI)**.

Material: 2♂♂, Nigula Nature Reserve (1993), Hargla (1994), O. Kurina leg.

*** 153.** *B. sciarina* Staeger, 1840

Holarctic species (Hackman *et al.*, 1988). Biology unknown.

Material: 7♂♂, Oonga (1993), Nigula Nature Reserve (1992, 1994), Tiksoja (1994, 1995), O. Kurina leg.; 3♂♂, Endla Nature Reserve (1995, light trap), K. Kimmel leg. Total 10♂♂.

*** 154.** *B. silvatica* Dziedzicki, 1885

Transpalaearctic species (Hackman *et al.*, 1988; Zaitzev, 1994a). Biology unknown.

Material: 2♂♂, Nigula Nature Reserve (1994), Taevaskoja (1994), O. Kurina leg.

155. *B. trispinosa* Edwards, 1913

Known from Great Britain, Ireland, Germany and Ukraine (Hackman *et al.*, 1988; Zaitzev, 1994a). Biology unknown.

Estonia. Lackschewitz, 1937: 18 (from Audru).

156. *B. trivittata* (Meigen, 1818)

Transpalaearctic species (Hackman *et al.*, 1988). Biology unknown.

Estonia. Lackschewitz, 1937: 17 (from Audru, Piigandi, and Tartu).

Material: 31♂♂, Järvselja (1989), Tartu (1989), Nigula Nature Reserve (1990, 1992, 1994), Kohala (1992), Oonga (1991, 1994, 1995), Orissaare (1993, 1995), Taevaskoja (1994), Vapramäe (1995), Kanaküla (1995), Haanja (1995), Valma (1995), Kambja (1995), Rakke (1996), O. Kurina leg.; 2♂♂, Viidumäe Nature Reserve (1988), K. Elberg leg.; 1♂, Vorbuse (1957), H. Remm leg. Total 34♂♂.

157. *B. villosa* Landrock, 1912

Recorded from Great Britain, Finland, Latvia and Russia: Karelia, Leningrad District, Kostroma District (Hackman *et al.*, 1988; Zaitzev, 1994a). Biology unknown.

Estonia. Dampf, 1924: 44 (from Määvli bog on Hiiumaa Island, Jõõpre bog, Ulila bog and Pääsküla bog; Lackschewitz, 1937: 17 (from Tartu).

Material: 3♂♂, Oonga (1995), Nigula Nature Reserve (1995), Kanaküla (1995), O. Kurina leg.

Genus *Coelophthinia* Edwards, 1941

*** 158.** *C. thoracica* (Winnertz, 1863) **[VI]**

Widely distributed in Europe (Hackman *et al.*, 1988; Zaitzev, 1994a). Recorded on *Hydnum repandum, Leccinum scabrum, Boletus* spp. (Chandler, 1978; Hutson *et al.*, 1980).

Estonia. Registered by me at Peedu **(VI)**.

Genus *Coelosia* Winnertz, 1863

159. *C. flava* (Staeger, 1840)

Widely distributed in Europe (Hackman *et al.*, 1988; Søli, 1997b). Biology unknown.

Estonia. Lackschewitz, 1937: 16 (from Kasaritsa and Tartu).

160. *C. fusca* Bezzi, 1892

Widely distributed in Europe (Søli, 1997b). Recorded on *Cortinarius trivialis, Omphalotus olearius* and *Lepista nuda* (Ribeiro, 1990).

Estonia. Dampf, 1924: 44 (as *Coelosia silvatica* Landr. from Jõõpre bog).

Material: 3♂♂, Kohala (1992), Rae (1994), Tiksoja (1994), O. Kurina leg.; 2♂♂, Endla Nature Reserve (1995, light trap), K. Kimmel leg. Total 5 ♂♂.

161. *C. tenella* (Zetterstedt, 1853) **[III]**

Holarctic species (Søli, 1997b). The species has been reared from several species of Basidiomycetes (e. g. Chandler, 1978; Yakovlev & Osipova, 1985; Yakovlev, 1994).

Estonia. Lackschewitz, 1937: 16 (from Ridala). Reared by me from fruit bodies of *Russula paludosa, R. emetica, R. decolorans* and *Suillus granulatus*, all collected at Nigula Nature Reserve (**III**). This is the most common species of genus *Coelosia* in Estonia

Material: 45♂♂, Viidumäe Nature Reserve (1988), Abruka (1991), Tornimäe (1996), Piiri (1995), Hullo (1991), Oonga (1993, 1994, 1995), Uulu (1995), Nigula Nature Reserve (1990, 1993, 1994, 1995), Apja-Suurjärv (1994), Hargla (1994), Aheru (1994), Taevaskoja (1994), Tiksoja (1994), Kohala (1992), O. Kurina leg.; 1♂, Endla Nature Reserve (1995, light trap), K. Kimmel leg. Total 46♂♂.

*** 162.** *C. truncata* Lundström, 1909

Holarctic species (Søli, 1997b). Biology unknown.

Material: 6♂♂, Nigula Nature Reserve (1994), Tõrva (1995), Hargla (1994), O. Kurina leg.; 3♂♂, Endla Nature Reserve (1995, light trap), K. Kimmel leg. Total 9 ♂♂.

Genus *Dziedzickia* Johannsen, 1909

*** 163.** *D. marginata* (Dziedzicki, 1885)

Widely distributed in Europe (Zaitzev, 1994a; Søli, 1994; Yakovlev, 1995). Also known in Transcaucasus (Hackman *et al.*, 1988). Biology unknown.

Material: 1♂, Tõrva (1995), O. Kurina leg.

Genus *Gnoriste* Meigen, 1818

164. *G. apicalis* Meigen, 1818

Transpalaearctic species (Zaitzev, 1994a). Biology unknown.

Estonia. Lackschewitz, 1937: 16 (from Tartu).

Material: 3♂♂, Oonga (1993), O. Kurina leg.

*** 165.** *G. bilineata* Zetterstedt, 1852

Widely distributed in Europe (Hackman *et al.*, 1988; Zaitzev, 1994a). Biology unknown.

Material: 3♂♂, Oonga (1993), O. Kurina leg.

Genus *Grzegorzekia* Edwards, 1941

166. *G. collaris* (Meigen, 1818)

Widely distributed in Europe (Hackman *et al.*, 1988; Zaitzev, 1994a; Søli, 1994; Yakovlev, 1995). Recorded on rotten wood (Hutson *et al.*, 1980).

Estonia. Lackschewitz, 1937: 17 (as *Palaeoempalia collaris* Meig. from Vändra).

Material: 1 ♂, Endla Nature Reserve (1995, light trap), K. Kimmel leg.

Genus *Palaeodocosia* Meunier, 1904

*** 167.** *P. janckii* (Dziedzicki, 1923)

Widely distributed in Europe (Hackman *et al.*, 1988; Zaitzev, 1994a). Biology unknown.

Material: 2 ♂♂, Nigula Nature Reserve (1994, 1995), O. Kurina leg.; 1 ♂, Endla Nature Reserve (1995, light trap), K. Kimmel leg. Total 3 ♂♂.

Genus *Saigusaia* Vockeroth, 1980

168. *S. flaviventris* (Strobl, 1894)

Transpalaearctic species (Hackman *et al.*, 1988). Recorded on mycelium in rotten wood (Chandler, 1978; Hutson *et al.*, 1980).

Estonia. Landrock, 1924: 78 (as *Boletina flaviventris* Strobl. from Pääsküla bog).

Material: 2 ♂♂, Nigula Nature Reserve (1994, 1995), O. Kurina leg.

Genus *Synapha* Meigen, 1818

*** 169.** *S. fasciata* Meigen, 1818

Known from North and Central Europe (Hackman *et al.*, 1988; Zaitzev, 1994a). Biology unknown.

Material: 1 ♂, Viidumäe Nature Reserve (1993), O. Kurina leg.

*** 170.** *S. vitripennis* (Meigen, 1818)

Known from North and Central Europe (Hackman *et al.*, 1988; Zaitzev, 1994a; Søli, 1994; Yakovlev, 1995). Biology unknown.

Material: 3 ♂♂, Hargla (1994), Piiri (1995), O. Kurina leg.

Tribe LEIINI

Genus *Docosia* Winnertz, 1863

*** 171.** *D. flavicoxa* Strobl, 1900

Former records from Spain, France, former Czechoslovakia, Roumania, Austria, Finland and Russia: Tomsk District (Ostroverkhova, 1979; Hackman *et al.*, 1988). Biology unknown.

Material: 1 ♂, Hargla (1994), K. Elberg leg.

*** 172.** *D. gilvipes* (Walker, 1856) **[III]**

Transpalaearctic species (Hackman *et al.*, 1988). Formerly registered on many species of Ascomycetes and Basidiomycetes (Yakovlev, 1994)

Estonia. Reared by me from twelve species of Agaricales s. l., collected at Orissaare, Nigula Nature Reserve, Järvselja and Tamsa-Altmäe **(III)**.

173. *D. sciarina* (Meigen, 1830)

Widely distributed in Europe (Hackman *et al.*, 1988). Biology unknown.

Estonia. Lackschewitz, 1937: 20 (from Tartu).

Genus Ectrepesthoneura Enderlein, 1911

*** 174.** *E. colyeri* Chandler, 1980

Known from Great Britain, France, Finland and Russia: Karelia (Hackman *et al.*, 1988; Zaitzev, 1994a; Yakovlev, 1995). Biology unknown.

Material: 4♂♂, Nigula Nature Reserve (1994), Rae (1994), Hargla (1994), Aheru (1994), O. Kurina leg.

175. *E. hirta* (Winnertz, 1846)

Widely distributed in Europe (Hackman *et al.*, 1988). Recorded on *Trametes versicolor* and on rotten wood (Chandler, 1978).

Estonia. Lackschewitz, 1937: 20 (from Ridala, Audru, Vändra and Kasaritsa).

Genus *Greenomyia* Brunetti, 1912

*** 176.** *G. mongolica* Laštovka & Matile, 1974 **[VIII]**

Former records from Mongolia, Kazakhstan and Russia: Moscow District, Far East (Laštovka & Matile, 1974; Zaitzev, 1982b, 1994). The species is of Balto-Eurasian distribution type, connected to spruce and fir forest of South-Taiga **(VIII)**. Biology unknown.

Estonia. Registered by me at Luunja and Kääriku **(VIII)**.

Genus *Leia* Winnertz, 1818

177. *L. bilineata* (Winnertz, 1863) **[III]**

Transpalaearctic species (Hackman *et al.*, 1988). Recorded on Stereaceae and on mycelium in rotten wood (Yakovlev, 1994). By Hutson *et al.* (1980) the species has been found in a nest of *Sciurus vulgaris* and also under the bark of an oak.

Estonia. Lackschewitz, 1937: 20 (from Audru and Tartu). Reared by me from *Piptoporus betulinus* and *Phellinus igniarius*, collected at Laelatu **(III)**. These are the first records on *Piptoporus* and *Phellinus*.

Material: 1♀, Nigula Nature Reserve (1994), O. Kurina leg.

*** 178.** *L. bimaculata* (Meigen, 1804) **[III]**

Transpalaearctic species (Hackman *et al.*, 1988; Zaitzev, 1994a). Recorded on *Cantharellus, Craterellus, Hydnum, Sprassis* and on many species of

Agaricales s. l. (Hutson *et al.*, 1980; Halidov, 1984; Yakovlev, 1994). It is the most common mycetophagous *Leia* species.
Estonia. Reared by me from *Polyporus squamosus*, collected at Puhtu (**III**).

*** 179.** *L. cylindrica* (Winnertz, 1863)

Known from Great Britain, France, Germany, Austria, Poland, Ukraine: Transcarpathian District and Russia: Moscow District (Hackman *et al.*, 1988; Zaitzev, 1994a). Biology unknown.
Material: 1♂, Viidumäe Nature Reserve (1992), O. Kurina leg.

180. *L. fascipennis* Meigen, 1818 **[VI]**

Transpalaearctic species (Hackman *et al.*, 1988). Biology unknown.
Estonia. Lackschewitz, 1937: 19 (from Ridala, Audru, Tartu, Kose and Raasiku). Registered by me earlier at Peedu (**VI**).
Material: 1♂, Rannaküla (1957), H. Remm leg.

181. *L. picta* Meigen, 1830 **[VI]**

Widely distributed in Europe (Hackman *et al.*, 1988). Biology unknown.
Estonia. Lackschewitz, 1937: 20 (from Audru). Registered by me at Peedu (**VI**).

182. *L. subfasciata* (Meigen, 1818)

Transpalaearctic species (Hackman *et al.*, 1988). Biology unknown.
Estonia. Lackschewitz, 1937: 19 (from Audru and Raasiku).
Material: 3♂♂, Taevaskoja (1994), Nigula Nature Reserve (1995), O. Kurina leg.

183. *L. wintheimi* Lehman, 1822 **[VI]**

Known in Palaearctic, Nearctic and Oriental regions (Hackman *et al.*, 1988). Recorded on *Peziza* sp, *Pleurotus pulmonarius, Paxillus involutus* and *Lactarius torminosus* (Halidov, 1984; Yakovlev, 1994). According to Zaitzev (1994a) found on mycelium under the bark of an aspen.
Estonia. Lackschewitz, 1937: 19 (from Ridala, Audru, Pärnu, Kasaritsa and Tartu). Registered by me earlier at Peedu (**VI**).
Material: 6♂♂ 1♀, Piiri (1995), Nigula Nature Reserve (1994), Rae (1994), Apja-Suurjärv (1994), O. Kurina leg.; 3♂♂ 2♀♀, Endla Nature Reserve (1995, light trap), K. Kimmel leg. Total 9♂♂ 3♀♀.

Genus *Rondaniella* Johannsen, 1909

184. *R. dimidiata* (Meigen, 1804) **[I]**

Holarctic species (Hackman *et al.*, 1988). The species has been bred frequently from different fungi (Yakovlev, 1994).
Estonia. Lackschewitz, 1937: 19 (from Audru). Reared by me from *Boletus edulis* and *Lactarius helvus*, collected at Nigula Nature Reserve (**I**).
Material: 10♂♂, Nigula Nature Reserve (1993, 1994, 1995), Tõrva (1995) and Apja-Suurjärv (1994), O. Kurina leg.

Subfamily MYCETOPHILINAE
Tribe Mycetophilini

Genus *Dynatosoma* Winnertz, 1863

*** 185.** *D. cochleare* Strobl, 1895 **[VI]**

Transpalaearctic species (Hackman *et al.*, 1988). Biology unknown.

Estonia. Registered by me earlier at Peedu **(VI)**.

Material: 1♂, Tiksoja (1994), O. Kurina leg.

186. *D. fuscicorne* (Meigen, 1818)

Holarctic species (Hackman *et al.*, 1988; Zaitzev, 1988a). Recorded on several species of Aphyllophorales and Polyporales (Edwards, 1925; Buxton, 1960; Zaitzev, 1986; Yakovlev, 1994).

Estonia. Lackschewitz, 1937: 42 (from Ridala, Audru, Vändra, Kasaritsa, Piigandi, Tartu and Kose).

Material: 1♂, Islet of Kõinastu (1994), O. Kurina leg.

187. *D. nigromaculatum* Lundström, 1913

Transpalaearctic species (Hackman *et al.*, 1988). Recorded on *Fomes fomentarius* and *Panellus serotinus* (Okada, 1939; Zaitzev, 1986).

Estonia. Lackschewitz, 1937: 42 (as *Dynatosoma nigromaculata* Lundst. from Audru and Tartu).

*** 188.** *D. nobile* Loew, 1873 **[VI]**

Transpalaearcric species (Hackman *et al.*, 1988; Krivosheina *et al*, 1986). Biology unknown.

Estonia. Registered by me at Peedu **(VI)**.

189. *D. reciprocum* (Walker, 1848)

Transpalaearctic species (Hackman *et al.*, 1988). Recorded on mycelium in rotten wood (Yakovlev, 1995).

Estonia. Lackschewitz, 1937: 42 (from Audru).

Material: 5♂♂, Nigula Nature Reserve (1990, 1992), Lake Apja-Suurjärv (1994), Lake Aheru (1994), O. Kurina leg.

190. *D. thoracicum* (Zetterstedt, 1836)

Transpalaearctic species (Krivosheina *et al.*, 1986). Biology unknown.

Estonia. Lackschewitz, 1937: 42 (from Audru and Tartu).

Genus *Epicypta* Winnertz, 1863

*** 191.** *E. aterrima* (Zetterstedt, 1852) **[VI]**

Transpalaearctic species (Hackman *et al.*, 1988). Recorded on mycelium of *Agaricus* spp. (Eisfelder, 1955).

Estonia. Registered by me earlier at Peedu **(VI)**.

Material: 2♂♂, Tiksoja (1994), O. Kurina leg.

Genus *Mycetophila* Meigen, 1803

192. *M. abbrevitata* Landrock, 1914

Transpalaearctic species (Hackman *et al.*, 1988). Biology unknown.

Estonia. Lackschewitz, 1937: 43 (from Audru).

Material: 2♂♂, Tõrva (1995), Tiksoja (1994), O. Kurina leg.

*** 193.** *M. abiecta* (Laštovka, 1963)

Known from France, Germany, former Czechoslovakia, Poland and Russia: Karelia (Krivosheina *et al.*, 1986; Hackman *et al.*, 1988). Biology unknown.

Material: 7♂♂, Puhtu (1991), Nigula Nature Reserve (1991, 1994),Tiksoja (1994) and Rähni (1994), O. Kurina leg.

*** 194.** *M. adumbrata* Mik, 1884

Widely distributed in Europe (Krivosheina *et al.*, 1986; Hackman *et al.*, 1988). Recorded on Mycomycetes (Krivosheina *et al.*, 1986).

Material: 12♂♂, Piiri (1995), Oonga (1994), Nigula Nature Reserve (1994, 1995), Tõrva (1995), Vapramäe (1993), Lake Vasula (1995) and Tiksoja (1994, 1995), O. Kurina leg.

195. *M. alea* Laffoon, 1965 **[I, VI, IX]**

Holarctic species (Laffoon, 1957; Hackman *et al.*, 1988). Formerly recorded on Ascomycetes and several species of Basidiomycetes (Yakovlev, 1994). According to Yakovlev (1994) the species is regular on *Russula*: *Compacta* group.

Estonia. Lackschewitz, 1937: 45 (as *Mycetophila guttata* Dzied. from Ridala and Tartu). Reared by me from *Russula densifolia* and *R. adusta*, collected at Viidumäe Nature Reserve and Järvselja **(I)**. Registered by me also at Peedu **(VI)**.

Material: 3♂♂, Kiuma (1995), Taevaskoja (1995), Rähni (1994), O. Kurina leg.

*** 196.** *M. assimilis* Matile, 1967 **[I]**

Widely distributed in Europe (Krivosheina *et al.*, 1986; Hackman *et al.*, 1988; Yakovlev, 1995). Recorded on *Boletus, Xerocomus, Leccinum, Paxillus, Russula* and *Lactarius* (Halidov, 1984; Yakovlev, 1994).

Estonia. Reared by me from *Leccinum scabrum, L. aurantiacum, Boletus edulis, Xerocomus subtomentosus* and *Paxillus involutus*, collected at Oonga, Nigula Nature Reserve and Järvselja **(I)**.

*** 197.** *M. attonsa* (Laffoon, 1957)

Holarctic species (Laffoon, 1957; Hackman *et al.*, 1988). Biology unknown.

Material: 1♂, Tõrva (1995), O. Kurina leg.

198. *M. bialorussica* Dziedzicki, 1884

Transpalaearctic species (Hackman *et al.*, 1988). Biology unknown.

Estonia. Lackschewitz, 1937: 44 (from Tartu).

199. *M. blanda* Winnertz, 1863 **[I, II, VI, IX]**

Transpalaearctic species (Krivosheina *et al.*, 1986; Hackman *et al.*, 1988). Recorded on *Panus tigrinus, Russula delica, Hygrophoropsis aurantiaca* and on several species of *Lactarius* (Hackman & Meinander, 1979; Yakovlev, 1994). According to literature (e. g. Edwards, 1925; Eisfelder, 1955; Hackman & Meinander, 1979; Yakovlev, 1994) the species is regular on *Lactarius deliciosus* group (*L. deliciosus, L. deterrimus*).

Estonia. Dampf, 1924: 43 (from Määvli bog on Hiiumaa Island, Kärdla, Jõõpre bog, Uhtna, and Pääsküla bog); Lackschewitz, 1937: 46 (from Ridala, Audru, Vändra, Kasaritsa and Tartu). Reared by me from *Lactarius deliciosus* and *L. deterrimus*, collected at Viidumäe Nature Reserve, Nigula Nature Reserve and Järvselja **(I)**. Ten specimens of the material **(I)** were identified incorrectly by me **(II)**. The species is registered by me earlier also at Koeru and Peedu **(VI)**.

Material: 13♂♂, Orissaare (1993), Oonga (1990, 1994), Uulu (1995), Kabli (1995), Nigula Nature Reserve (1991, 1994, 1995), Tõrva (1995), Tiksoja (1995), Jüriküla (1995), O. Kurina leg.; 1♂, Endla Nature Reserve (1995, light trap), K. Kimmel leg. Total 14♂♂.

*** 200.** *M. bohemica* (Laštovka, 1963)

Transpalaearctic species (Krivosheina *et al.*, 1986; Hackman *et al.*, 1988). Biology unknown.

Material: 4♂♂, Nigula Nature Reserve (1994), Tiksoja (1994), O. Kurina leg.

201. *M. caudata* Staeger, 1840 **[VI]**

Holarctic species (Hackman *et al.*, 1988). Biology unknown.

Estonia. Lackschewitz, 1937: 44 (from Ridala and Audru). Registered by me earlier at Peedu **(VI)**.

Material: 4♂♂, Nigula Nature Reserve (1994, 1995), Taevaskoja (1995), Rähni (1994), O. Kurina leg.

202. *M. confluens* Dziedzicki, 1884 **[I, VI, IX]**

Widely distributed in Europe (Krivosheina *et al.*, 1986; Hackman *et al.*, 1988). Former records on *Leccinum, Xerocomus* and *Lactarius* (Halidov, 1984; Krivosheina *et al.*, 1986; Yakovlev, 1994).

Estonia. Dampf, 1924: 43 (from Uhtna); Lackschewitz, 1937: 46 (from Ridala, Audru, Vändra and Kasaritsa). Reared by me from *Suillus granulatus* and *S. variegatus*, collected at Kabli, Nigula Nature Reserve and Järvselja **(I)**. The species was reared from *Suillus* for the first time. Registered by me earlier also at Peedu **(VI)**.

Material: 27♂♂, Orissaare (1995), Piiri (1995), Hullo (1991), Oonga (1994), Uulu (1995), Rannametsa (1995), Nigula Nature Reserve (1994, 1995), Tõrva (1995), Kiuma (1995), Taevaskoja (1995), Jüriküla (1995), Voore (1989), Kohala (1992), O. Kurina leg.

*** 203.** *M. confusa* Dziedzicki, 1884

Previously known from Great Britain, Germany, Finland, Byelorussia and Russia: Kostroma District (Krivosheina *et al.*, 1986; Hackman *et al.*, 1988). Biology unknown.

Material: 1♂, Nigula Nature Reserve (1990), O. Kurina leg.; 4♂♂, Endla Nature Reserve (1995, light trap), K. Kimmel leg. Total 5♂♂.

*** 204.** *M. curviseta* Lundström, 1911

Transpalaearctic species (Hackman *et al.*, 1988). Biology unknown.

Material: 2♂♂, Nigula Nature Reserve (1995), Tiksoja (1994), O. Kurina leg.

*** 205.** *M. dentata* Lundström, 1913

Holarctic species (Laffoon, 1957; Hackman *et al.*, 1988). Recorded on *Piptoporus betulinus*, *Leccinum scabrum* and *Mycena* sp. (Yakovlev, 1994).

Material: 1♂, Tiksoja (1994), O. Kurina leg.; 1♂, Endla Nature Reserve (1995, light trap), K. Kimmel leg. Total 2♂♂.

206. *M. dziedzickii* Chandler, 1977

Widely distributed in Europe (Krivosheina *et al.*, 1986; Hackman *et al.*, 1988). Biology unknown.

Estonia. Lackschewitz, 1937: 45 (as *Mycetophila obscura* Dziedz. from Ridala and Tartu).

Material: 1♂, Rannametsa (1995), O. Kurina leg.

*** 207.** *M. edwardsi* Lundström, 1913

Widely distributed in Europe (Hackman *et al.*, 1988). Biology unknown.

Material: 2♂♂, Orissaare (1995), Nigula Nature Reserve (1995), O. Kurina leg.

*** 208.** *M. estonica* Kurina, 1992 **[II, VI, IX]**

The species described by me on the basis of the material reared from fruit bodies of *Lactarius deterrimus*, collected at Nigula Nature Reserve, Viidumäe Nature Reserve and Abruka **(II)**. Registered also at Peedu **(VI)**.

Material: 3♂♂, Nigula Nature Reserve (1995), Lake Vasula (1995), O. Kurina leg.; 1♂, Endla Nature Reserve (1995, light trap), K. Kimmel leg. Total 4♂♂.

209. *M. finlandica* Edwards, 1913 **[I, VI,]**

Holarctic species (Hackman *et al.*, 1988). According to many authors (e. g. Buxton, 1960; Chandler, 1978; Hackman & Meinander, 1979) recorded on *Tricolomopsis rutilans*. By Yakovlev (1994) this species is monophagous on *Tricholomopsis rutilans*.

Estonia. Lackschewitz, 1937: 45 (from Audru and Kasaritsa). Reared by me from *Tricholomopsis rutilans*, collected at Kabli and Järvselja **(I)**. Registered by me also at Peedu **(VI)**.

Material: 18♂♂, Piiri (1995), Oonga (1988), Uulu (1995), Rannametsa (1995), Nigula Nature Reserve (1994, 1995), Kanaküla (1995), Tõrva (1995), Apja-Suurjärv (1994), Kiuma (1995), Jüriküla (1995), O. Kurina leg.

*** 210.** *M. flava* Winnertz, 1863 **[XII]**

Known from Germany, Netherlands, Sweden, Finland and Russia: Karelia, Leningrad District, Moscow District (Krivosheina *et al.*, 1986; Hackman *et al.*, 1988). Recorded on *Peziza*, *Lentinus*, *Leccinum, Amanita, Kuehneromyces* and *Inocybe* (Hackman & Meinander, 1979; Krivosheina *et al.*, 1986; Yakovlev, 1994).

Estonia. Reared by me from *Lentinus lepideus*, collected at Rannametsa (**XII**).

Material: 1♂, Taevaskoja (1995), O. Kurina leg.

*** 211.** *M. forcipata* Lundström, 1913 **[VI]**

Transpalaearctic species (Krivosheina *et al.*, 1986, Hackman *et al.*, 1988). Recorded on *Polyporus squamosus* and *Piptoporus betulinus* (Edwards, 1925; Chandler, 1977; Yakovlev, 1994).

Estonia. Registered by me at Peedu (**VI**).

Material: 1♂, Jüriküla (1995), O. Kurina leg.

*** 212.** *M. formosa* Lundström, 1911

Transpalaearctic species (Hackman *et al.*, 1988). Recorded on *Phlebia radiata* (Edwards, 1925).

Material: 2♂♂, Oonga (1995), Nigula Nature Reserve (1995), O. Kurina leg.; 2♂♂, Endla Nature Reserve (1995, light trap), K. Kimmel leg.

*** 213.** *M. freyi* Lundström, 1909

Known from Great Britain, Germany, Finland (Hackman *et al.*, 1988). Biology unknown.

Material: 3♂♂, Hargla (1994), Apja-Suurjärv (1994), Lake Kahrila (1995), O. Kurina leg.

214. *M. fungorum* (De Geer, 1776) **[I, VI]**

Known from Palaearctic, Nearctic and Oriental Regions (Hackman *et al.*, 1988). More than 120 species of Agaricales s. l. are registered as food substrate of this species. Known also from Ascomycetes, Aphyllophorales and Polyporales (Yakovlev, 1994). In accordance with Hackman and Meinander (1979) *M. fungorum* is a highly polyphagous fungus gnat.

Estonia. Dampf, 1924: 43 (as *Mycetophila punctata* Mg. from Määvli bog on Hiiumaa Island, Kärdla, Jõõpre bog, Pääsküla bog); Lackschewitz, 1937: 42 (from Audru, Vändra, Pärnu, Kasaritsa, and Kose). Reared by me from fruit bodies of 40 species of Agaricales s. str., collected at Viidumäe Nature Reserve, Oonga, Rannametsa, Kabli, Apja and Järvselja (**I**). Registered by me also at Peedu (**VI**). *M. fungorum* is the most common fungus gnat in Estonia.

Material: 300♂♂ 311♀♀, Viidumäe Nature Reserve (1988, 1992), Hullo (1991), Oonga (1988, 1989, 1990, 1991, 1992, 1993, 1994), Tõstamaa (1994), Uulu (1995), Rannametsa (1995), Kabli (1995), Nigula Nature Reserve (1990, 1991, 1992, 1993, 1994, 1995), Tõrva (1995), Kiuma (1995), Järvselja (1989), Tiksoja (1994, 1998), Lake Vasula (1995), Suuresöödi (1994), Jüriküla (1995), O. Kurina leg.;

215. *M. gibbula* Edwards, 1925

Transpalaearctic species (Hackman *et al.*, 1988). Biology unknown.

Estonia. Lackschewitz, 1937: 44 (from Tartu).

Material: 2♂♂, Nigula Nature Reserve (1994), Tiksoja (1995), O. Kurina leg.

*** 216.** *M. hetschkoi* Landrock, 1918

Transpalaearctic species (Krivosheina *et al.*, 1986; Hackman *et al.*, 1988). Biology unknown.

Material: 1♂, Taevaskoja (1995), O. Kurina leg.

*** 217.** *M. ichneumonea* Say, 1823 **[I, VI]**

Holarctic species (Hackman *et al.*, 1988). Formerly reared from fungi of 13 genera of Agaricales s. str. (Yakovlev, 1994).

Estonia. Reared by me from 11 species of different genera of Agaricales s. str., collected at Viidumäe Nature Reserve, Kabli, Nigula Nature Reserve and Järvselja (**I**). Registered by me also at Peedu (**VI**).

Material: 6♂♂, Endla Nature Reserve (1995, light trap), K. Kimmel leg.

*** 218.** *M. idonea* Laštovka, 1972 **[IV, VI]**

Transpalaearctic species (Hackman *et al.*, 1988). Recorded on fruit bodies of 66 species of Agaricales s. l. (Dely-Draskovitš & Babos, 1993).

Estonia. One specimen found by me hibernating in Piusa cave (**IV**). Registered by me earlier also at Peedu (**VI**).

Material: 3♂♂, Endla Nature Reserve (1995, light trap), K. Kimmel leg.

*** 219.** *M. immaculata* (Dziedzicki, 1884)

Transpalaearctic species (Hackman *et al.*, 1988). Biology unknown.

Material: 1♂, Orissaare (1993), O. Kurina leg.

*** 220.** *M. laeta* Walker, 1848 **[I]**

Holarctic species (Hackman *et al.*, 1988). By Yakovlev (1994), Laštovka (1966) and Krivosheina *et al.* (1986) recorded on *Fomitopsis pinicola*, *Polyporus* sp. and *Lactarius*.

Estonia. Reared by me from *Phellinus igniarius*, collected at Nigula Nature Reserve (**I**). The species recorded on *P. igniarius* for the first time.

Material: 6♂♂ 1♀, Nigula Nature Reserve (1990, 1995), Kiuma (1995), Taevaskoja (1995), Kambja (1995), Lake Vasula (1995), O. Kurina leg.

*** 221.** *M. lapponica* Lundström, 1906

Previously known from Sweden and Finland (Hackman *et al.*, 1988). Biology unknown.

Material: 1♂, Taevaskoja (1995), O. Kurina leg.

? *M. lineola* Meigen, 1818

According to Dampf (1924) and Lackschewitz (1937) the species has been recorded at Tartu, Audru, Vändra, Hageri, Jõõpre and Pääsküla. By (Hackman *et al.*, 1988) *M. lineola* is not a valid species.

*** 222.** *M. lubomirskii* Dziedzicki, 1884

Known from Great Britain, Germany, Finland, Byelorussia and Russia: Karelia, Vologda District, Kostroma District (Krivosheina *et al.*, 1986; Hackman *et al.*, 1988; Yakovlev, 1995). Biology unknown.

Material: 10♂♂, Uulu (1995), Apja-Suurjärv (1994), Taevaskoja (1995), Jüriküla (1995), O. Kurina leg.

223. *M. luctuosa* Meigen, 1830 **[I]**

Holarctic species (Hackman *et al.*, 1988). Formerly reared from Ascomycetes, Aphyllophorales and from many species of Agaricales s.l. (e. g. Barendrecht, 1938; Yakovlev, 1994).

Estonia. Lackschewitz, 1937: 45 (from Tartu). Reared by me from *Russula densifolia* and *Lactarius theiogalus*, collected at Viidumäe Nature Reserve and Oonga (**I**).

Material: 19♂♂, Viidumäe Nature Reserve (1988), Oonga (1993, 1994, 1995), Tõstamaa (1994), Nigula Nature Reserve (1990, 1993, 1994), Tõrva (1995), Taevaskoja (1995), Melliste (1995), Tiksoja (1994, 1995), Rähni (1994), O. Kurina leg.; 8♂♂, Endla Nature Reserve (1995, light trap), K. Kimmel leg. Total 27♂♂.

*** 224.** *M. lunata* Meigen, 1830 **[I, VI, IX]**

Transpalaearctic species (Hackman *et al.*, 1988). Recorded on *Coniophora puteana* (Chandler, 1978) and *Hygrophoropsis aurantiaca* (Halidov, 1984).

Estonia. Reared by me only from fruit bodies of *Hycrophoropsis aurantiaca*, collected at Nigula Nature Reserve and Järvselja (**I**). Registered by me also at Peedu (**VI**).

Material: 24♂♂, Piiri (1995), Nigula Nature Reserve (1990, 1995), Valma (1995), Tõrva (1995), Apja-Suurjärv (1994), Kiuma (1995), Taevaskoja (1994, 1995), Tiksoja (1995), O. Kurina leg.; 2♂♂, Endla Nature Reserve (1995, light trap), K. Kimmel leg. Total 26♂♂.

225. *M. marginata* Winnertz, 1863 **[VI]**

Widely distributed in Europe (Hackman *et al.*, 1988). Recorded on *Trametes Schizophora, Fistulina, Stereum, Paxillus, Tricholoma, Armilariella, Plicaturopsis* and *Pholiota* (Edwards, 1925; Eisfelder, 1955; Chandler, 1978; Yakovlev, 1994).

Estonia. Lackschewitz, 1937: 44 (from Tartu). Registered by me at Peedu (**VI**).

Material: 16♂♂, Piiri (1995), Oonga (1995), Nigula Nature Reserve (1995), Valma (1995), Uue-Saaluse (1995), Lake Vasula (1995), Jüriküla (1995), O. Kurina leg.

226. *M. mikii* Dziedzicki, 1884

Transpalaearctic species (Hackman *et al.*, 1988). Biology unknown.

Estonia. Dampf, 1924: 44 (as *Mycetophila longlamellata* Lundst. from Kärdla); Lackschewitz, 1937: 44 (as *Mycetophila longlamellata* Lundst. from Tartu).

*** 227.** *M. nigrofusca* Dziedzicki, 1884

Transpalaearctic species (Krivosheina *et al.*, 1986; Hackman *et al.*, 1988). Biology unknown.

Material: 2♂♂, Haanja (1995), Lake Vasula (1995), O. Kurina leg.

228. *M. ocellus* Walker, 1848 **[VI, XII]**

Holarctic species (Hackman *et al.*, 1988). According to literature (Edwards, 1925; Hackman & Meinander, 1979; Yakovlev, 1994) it feeds on *Hypoloma, Cylindrobasidium, Coniophora, Chondrosterenum, Schizophora, Panellus, Phlebia, Sprassis, Pleurotus* and *Pleurocybella*. By Chandler (1978) *M. ocellus* is polyphagous on lignicolous fungi.

Estonia. Lackschewitz, 1937: 43 (as *Mycetophila ocelus* Walk. from Tartu). Reared by me from *Cortinarius* sp., collected at Nigula Nature Reserve (**XII**). It is the first record on *Cortinarius*. Registered by me also at Peedu (**VI**).

Material: 33♂♂, Orissaare (1995), Oonga (1995), Uulu (1995), Nigula Nature Reserve (1993, 1994), Tõrva (1995), Piigandi (1995), Kiuma (1995), Taevaskoja (1994, 1995), Vapramäe (1995), Järvselja (1989), Melliste (1995), Tiksoja (1994), Rähni (1994), Voore (1989), O. Kurina leg.; 1♂, Endla Nature Reserve (1995, light trap), K. Kimmel leg. Total 34♂♂.

229. *M. ornata* Stephens, 1829

Transpalaearctic species (Hackman *et al.*, 1988). Recorded on *Stereum, Fistulina, Trametes, Bjerkandera, Inonotus, Meripilus* and *Pleurotus* (Edwards, 1925; Buxton, 1960; Yakovlev, 1994).

Estonia. Lackschewitz, 1937: 44 (from Tartu).

*** 230.** *M. paracruciator* Laštovka et Matile, 1974

Transpalaearctic species (Hackman *et al.*, 1988). Biology unknovn.

Material: 1♂, Kohala (1992), O. Kurina leg.

231. *M. pictula* Meigen, 1830

Holarctic species (Hackman *et al.*, 1988). Found on *Schizophora paradoxa* (Edwards, 1925; Chandler, 1978).

Estonia. Lackschewitz, 1937: 44 (as *Mycetophila bimaculata* Fbr. from Audru, Pärnu, Tartu and Kose).

232. *M. pumila* Winnertz, 1863

Transpalaearctic species (Hackman *et al.*, 1988). Recorded on Aphyllophoraceous fungi (Chandler, 1978).

Estonia. Dampf, 1924: 43 (from Jõõpre bog); Lackschewitz, 1937: 43 (from Ridala).

Material: 10♂♂, Piiri (1995), Oonga (1991, 1995), Nigula Nature Reserve (1993, 1994), Lake Kahrila (1995), O. Kurina leg.; 1♂, Endla Nature Reserve (1995, light trap), K. Kimmel leg. Total 11♂♂.

*** 233.** *M. ruficollis* Meigen, 1818 **[I]**

Holarctic species (Laffoon, 1957). According to literature (e. g. Ribeiro, 1990; Yakovlev, 1994) the species recorded on many species of Agaricales s. l.

Estonia. Reared by me from *Oudemansiella platyphylla, Entoloma* sp. and *Pholiota aurivella*, collected at Nigula Nature Reserve and Järvselja **(I)**.

Material: 6♂♂, Endla Nature Reserve (1995, light trap), K. Kimmel leg.

234. *M. schnablii* (Dziedzicki, 1884) **[VI]**

Transpalaearctic species (Hackman *et al.*, 1988). Biology unknown.

Estonia. Lackschewitz, 1937: 44 (as *Mycetophila schnabli* Dzied. from Audru). Registered by me earlier at Peedu **(VI)**.

Material: 1♂, Nigula Nature Reserve (1995), O. Kurina leg.; 1♂, Endla Nature Reserve (1995, light trap), K. Kimmel leg. Total 2♂♂.

235. *M. sigillata* Dziedzicki, 1884 **[I, VI]**

Holarctic species (Hackman *et al.*, 1988). Recorded on *Suillus, Xerocomus, Leccinum, Paxillus, Hygrophoropsis, Russula* and *Lactarius* (Landrock, 1940; Eisfelder, 1955; Ostroverkhova, 1979; Halidov, 1984; Yakovlev, 1995).

Estonia. Dampf, 1924: 43 (from Määvli bog on Hiiumaa Island, Jõõpre bog and Pääsküla bog); Lackschewitz, 1937: 45 (from Audru). Reared by me from *Laccaria laccata* and *Russula delica*, collected at Viidumäe Nature Reserve, Nigula Nature Reserve and Järvselja **(I)**. The species reared from *Laccaria* for the first time. Registered by me also at Peedu **(VI)**.

Material: 9♂♂, Piiri (1995), Oonga (1994, 1995), Nigula Nature Reserve (1995), Tõrva (1995), Vapramäe (1995), O. Kurina leg.

236. *M. signatoides* Dziedzicki, 1884 **[II, VI]**

Holarctic species (Krivosheina *et al.*, 1986). Feeding on *Fomitopsis, Lentinus, Suillus, Xerocomus, Leccinum, Boletus, Paxillus, Russula* and *Lactarius* (Yakovlev, 1994, 1995).

Estonia. Dampf, 1924: 43 (as *Mycetophila signata* Winn. from Jõõpre bog); Lackschewitz, 1937: 45 (from Audru and Tartu). Reared by me from *Leccinum scabrum* and *Boletus edulis*, collected at Hullo and Nigula Nature Reserve **(II)**. Registered by me also at Peedu **(VI)**.

Material: 23♂♂, Oonga (1990), Rannametsa (1995), Nigula Nature Reserve (1990, 1993, 1994), Apja-Suurjärv (1994), Taevaskoja (1995), Tiksoja (1994), Rähni (1994), O. Kurina leg.

*** 237.** *M. sordida* van der Wulp, 1874 **[VI]**

Holarctic species (Hackman *et al.*, 1988). Biology unknown.

Estonia. Registered by me earlier at Peedu **(VI)**.

Material: 25♂♂, Piiri (1995), Oonga (1994), Uulu (1995), Nigula Nature Reserve (1994, 1995), Kanaküla (1995), Apja-Suurjärv (1994), Taevaskoja (1995), Melliste (1995), Järvselja (1989), Tiksoja (1994, 1995), Kohala (1992), O. Kurina leg.; 2♂♂, Endla Nature Reserve (1995, light trap), K. Kimmel leg. Total 27♂♂.

*** 238.** *M. spectabilis* Winnertz, 1863

Widely distributed in Europe (Hackman *et al.*, 1988). According to literature (Dely-Draskovitš, 1974; Eisfelder, 1955; Yakovlev, 1994) recorded on *Pleurotus, Boletus, Armilariella, Tricholoma, Russula* and *Lactarius*.

Material: 3♂♂, Viidumäe Nature Reserve (1988), Piiri (1995), O. Kurina leg.

*** 239.** *M. stolida* Walker, 1856 **[VI]**

Holarctic species (Hackman *et al.*, 1988). Biology unknown.

Estonia. Registered by me at Peedu **(VI)**.

*** 240.** *M. strigata* Staeger, 1840

Holarctic species (Laffoon, 1957; Hackman *et al.*, 1988). Biology unknown.

Material: 2♂♂, Viidumäe Nature Reserve (1993), Oonga (1993), O. Kurina leg.

*** 241.** *M. strigatoides* (Landrock, 1927)

Holarctic species (Laffoon, 1957; Hackman *et al.*, 1988). Recorded on *Trametes, Polyporus* and *Russula* (Yakovlev, 1994).

Material: 3♂♂, Oonga (1995), Nigula Nature Reserve (1990, 1995), O. Kurina leg.

*** 242.** *M. strobli* Laštovka, 1972 **[III, VI]**

Transpalaearctic species (Hackman *et al.*, 1988). By Yakovlev (1994, 1995) feeding on *Suillus, Colybia, Armillaria, Kuechneromyces, Cortinarius, Russula* and *Lactarius*.

Estonia. Reared by me from *Russula delica* and *Lactarius torminosus*, collected at Viidumäe Nature Reserve and Virtsu **(III)**. Registered by me also at Peedu **(VI)**.

Material: 2♂♂, Endla Nature Reserve (1995, light trap), K. Kimmel leg.

*** 243.** *M. stylata* (Dziedzicki, 1884)

Transpalaearctic species (Hackman *et al.*, 1988). In accordance with Halidov (1984) the species found on fruit bodies of *Lactarius* sp.

Material: 43♂♂, Piiri (1995), Oonga (1994), Uulu (1995), Kabli (1995), Rae (1994), Nigula Nature Reserve (1990, 1994, 1995), Tõrva (1995), Hargla (1994), Apja-Suurjärv (1994), Kiuma (1995), Taevaskoja (1994, 1995), Vapramäe (1995), Lake Vasula (1995), Tiksoja (1994), Rähni (1994), Jüriküla (1995), O. Kurina leg.

*** 244.** *M. sumavica* (Laštovka, 1963)

Known from former Czechoslovakia, Sweden, Norway and Russia; Karelia, Vologda District, Kostroma District (Krivosheina *et al.*, 1986; Hackman *et al.*, 1988; Søli, 1994; Yakovlev, 1995). Biology unknown.

Material: 4♂♂, Tõstamaa (1995), Nigula Nature Reserve (1991, 1994), Tiksoja (1994), O. Kurina leg.

245. *M. trinotata* Staeger, 1840

Holarctic species (Hackman *et al.*, 1988). Recorded on *Trametes, Bjerkandera, Sterenum* and *Polyporus* (Edwards, 1925; Buxton, 1960; Chandler, 1978).

Estonia. Lackschewitz, 1937: 46 (from Tartu).

246. *M. unicolor* Stannius, 1831

Widely distributed in Europe (Hackman *et al.*, 1988). Biology unknown.

Estonia. Lackschewitz, 1937: 43 (from Tartu).

*** 247.** *M. uninotata* Zetterstedt, 1852 **[II, VI]**

Known from Austria, former Czechoslovakia, Germany, Great Britain, Norway, Sweden, Finland and Russia: Karelia (Hackman *et al.*, 1988; Yakovlev, 1995). Reared from *Collybia, Cortinarius* and *Lactarius* (Hackman & Meinander, 1979; Yakovlev, 1994).

Estonia. Reared by me from *Cortinarius* sp, collected at Nigula Nature Reserve **(II)**. Registered by me also at Peedu **(VI)**.

Material: 1♂, Endla Nature Reserve (1995, light trap), K. Kimmel leg.

248. *M. unipunctata* Meigen, 1818

Holarctic species (Hackman *et al.*, 1988). Biology unknown.

Estonia. Lackschewitz, 1937: 43 (from Audru and Tartu).

Material: 1♂, Endla Nature Reserve (1995, light trap), K. Kimmel leg.

249. *M. vittipes* Zetterstedt, 1852

Transpalaearctic species (Hackman *et al.*, 1988). According to Buxton (1954) recorded on *Arcyria incernata* and *A. dentata*.

Estonia. Lackschewitz, 1937: 44 (from Tartu).

*** 250.** *M. v-nigrum* Lundström, 1913

Previously known from former Czechoslovakia, Roumania, Poland and Russia: Leningrad District (Krivosheina *et al.*, 1986; Hackman *et al.*, 1988). Biology unknown.

Material: 4♂♂, Nigula Nature Reserve (1995), Uue-Saaluse (1995), Taevaskoja (1995), O. Kurina leg.

*** 251.** *M. zetterstedtii* Lundström, 1906

Transpalaearctic species (Hackman *et al.*, 1988). Biology unknown.

Material: 1♂, Apja-Suurjärv (1994), O. Kurina leg.

*** 252.** *M. xanthopyga* Winnertz, 1863

Widely distributed in Europe (Krivosheina *et al.*, 1986; Hackman *et al.*, 1988). Biology unknown.

Material: 1♂, Nigula Nature Reserve (1995), O. Kurina leg.

Genus *Prhonia* Winnertz, 1863

*** 253.** *P. austriaca* Winnertz, 1863

Transpalaearctic species (Hackman *et al.*, 1988). Biology unknown.

Material: 5♂♂, Nigula Nature Reserve (1994), Tõrva (1995), Tiksoja (1994), O. Kurina leg.; 1♂, Endla Nature Reserve (1995, light trap), K. Kimmel leg. Total 6♂♂.

*** 254.** *P. biarcuata* (Becker, 1908) **[VI]**

Transpalaearctic species (Hackman *et al.*, 1988). By Chandler (1978) known on fruit bodies of Aphyllophoraceous fungi.

Estonia. Registered by me at Peedu **(VI)**.

Material: 12♂♂, Rannametsa (1995), Nigula Nature Reserve (1990, 1991, 1994, 1995), Lake Kahrila (1995), Taevaskoja (1995), Kambja (1995), Vapramäe (1993, 1995) Kohala (1992), O. Kurina leg.; 1♂, Endla Nature Reserve (1995, light trap), K. Kimmel leg. Total 13♂♂.

*** 255.** *P. bicolor* Dziedzicki, 1889

Holarctic species (Hackman *et al.*, 1988). According to Økland (1994) the species is associated with dead-wood habitats.

Material: 1♂, Piiri (1995), O. Kurina leg.

*** 256.** *P. braueri* Dziedzicki, 1889

Holarctic species (Hackman *et al.*, 1988). Recorded on Aphyllophoraceous fungi (Chandler, 1978).

Material: 8♂♂, Nigula Nature Reserve (1994, 1995), Taevaskoja (1994), Tiksoja (1994), Jüriküla (1995), O. Kurina leg.

257. *P. cinerascens* Winnertz, 1863

Holarctic species (Gagné, 1975; Hackman *et al.*, 1988). By Økland (1994) this species is associated with dead-wood habitats.

Estonia. Dampf, 1924: 44 (from Jõõpre bog); Lackschewitz, 1937: 39 (from Tartu).

Material: 8♂♂, Orissaare (1993), Nigula Nature Reserve (1990, 1991, 1992, 1995), Taevaskoja (1994), Kambja (1995), O. Kurina leg.

*** 258.** *P. conformis* (Walker, 1856)

Holarctic species (Gagné, 1975; Hackman *et al.*, 1988). Accoding to Chandler (1978) recorded on Aphyllophoraceous fungi.

Material: 3♂♂, Islet of Abruka (1991), Puhtu (1991), O. Kurina leg.

259. *P. disgrega* Dziedzicki, 1889

Holarctic species (Gagné, 1975; Hackman *et al.*, 1988). Biology unknown.

Estonia. Dampf, 1924: 44 (from Pääsküla bog)

Material: 1♂, 22.08.1993, Nigula Nature Reserve, O. Kurina leg.; 1♂, 25.08.1995, Tõrva, O. Kurina leg.

*** 260.** *P. distincta* Hackman, 1970

Holarctic species (Hackman *et al.*, 1988). Biology unknown.

Material: 1♂, Nigula Nature Reserve (1991), O. Kurina leg.

*** 261.** *P. egregia* Dziedzicki, 1889

Holarctic species (Hackman *et al.*, 1988). Biology unknown.

Material: 1♂, Tiksoja (1994), O. Kurina leg.; 3♂♂, Endla Nature Reserve (1995, light trap), K. Kimmel leg. Total 4♂♂.

*** 262.** *P. elegans* Dziedzicki, 1889

Transpalaearctic species (Hackman *et al.*, 1988). Biology unknown.

Material: 1♂, Nigula Nature Reserve (1994), O. Kurina leg.

*** 263.** *P. exigua* (Zetterstedt, 1852) **[VI]**

Holarctic species (Gagné, 1975; Hackman *et al.*, 1988). Biology unknown.

Estonia. Registered by me at Peedu **(VI)**.

Material: 14♂♂, Orissaare (1995), Piiri (1995), Hellamaa (1996), Oonga (1994, 1995), Käru (1996), Taevaskoja (1995), Kambja (1995), Tiksoja (1994), Rähni (1994), O. Kurina leg.; 6♂♂, Endla Nature Reserve (1995, light trap), K. Kimmel leg. Total 20♂♂.

264. *P. flavicollis* Winnertz, 1889

Holarctic species (Hackman *et al.*, 1988). Associated with dead-wood habitats and with Aphyllophoraceous fungi (Chandler, 1978; Økland, 1994).

Estonia. Remm, 1959: 107 (from Avaste bog).

Material: 8♂♂, Nigula Nature Reserve (1995), Tõrva (1995), Taevaskoja (1995), Tiksoja (1994), Jüriküla (1995), Kohala (1992), O. Kurina leg.

*** 265.** *P. flavipes* Winnertz, 1889

Holarctic species (Hackman *et al.*, 1988). Biology unknown.

Material: 3♂♂, Nigula Nature Reserve (1994), Tiksoja (1994), Kohala (1992), O. Kurina leg.; 1♂, Vorbuse (1972), K. Elberg leg.; 2♂♂, Endla Nature Reserve (1995, light trap), K. Kimmel leg. Total 6♂♂.

*** 266.** *P. forcipata* Winnertz, 1889

Transpalaearctic species (Hackman *et al.*, 1988). Biology unknown.

Material: 25♂♂, Piiri (1995), Hellamaa (1996), Oonga (1995), Nigula Nature Reserve (1993, 1994, 1995), Lake Rae (1994), Kanaküla (1995), Tõrva (1995), Kiuma (1995), Taevaskoja (1994, 1995), Vapramäe (1989), Tiksoja (1994), Jüriküla (1995), O. Kurina leg.; 1♂, Jalase (1995, light trap). R. Aalde leg. Total 26♂♂.

*** 267.** *P. humeralis* Winnertz, 1889 **[VI]**

Transpalaearctic species (Hackman *et al.*, 1988). Recorded on *Corticium* ?*praetermissum* (Buxton, 1960).

Estonia. Registered by me earlier at Peedu **(VI)**.

Material: 23♂♂, Piiri (1995), Kunila (1995), Nigula Nature Reserve (1992, 1995), Tõrva (1995), Lake Kahrila (1995), Taevaskoja (1995), Lake Vasula (1995), O. Kurina leg.; 1♂, Endla Nature Reserve (1995, light trap), K. Kimmel leg. Total 24♂♂.

*** 268.** *P. minuta* Landrock, 1928 **[VI]**

Transpalaearctic species (Hackman *et al.*, 1988). Biology unknown.

Estonia. Registered by me earlier at Peedu **(VI)**.

Material: 1♂, Vapramäe (1989), O. Kurina leg.; 1♂, Vorbuse (1956), H. Remm leg. Total 2♂♂.

*** 269.** *P. mutabilis* Dziedzicki, 1889

Holarctic species (Hackman *et al.*, 1988). According to Økland (1994) found from dead wood.

Material: 1♂, Kambja (1995), O. Kurina leg.

270. *P. nigricornis* (Zetterstedt, 1852) **[VI]**

Holarctic species (Gagné, 1975; Hackman *et al.*, 1988). Biology unknown.

Estonia. Dampf, 1924: 44 (as *Phronia dubia* Dzied. from Kärdla, Jõõpre and Pääsküla bog). Registered by me earlier at Peedu **(VI)**.

Material: 20♂♂, Lake Rae (1994), Nigula Nature Reserve (1995), Tõrva (1995), Lake Kiuma (1995), Vasula (1995), O. Kurina leg.

271. *P. nigripalpis* Lundström, 1909

Holarctic species (Gagné, 1975; Hackman *et al.*, 1988). Biology unknown.

Estonia. Landrock, 1924: 80 (as *Phronia palustris* nov. spec., synonym by Hackman (1970), from Jõõpre bog); material cited also in Lackschewitz (1937, p. 39).

Material: 1♂, Kiuma (1995), O. Kurina leg.

*** 272.** *P. nitidiventris* (van der Wulp, 1858) **[VI]**

Transpalaearctic species (Hackman *et al.*, 1988). Biology unknown.

Estonia. Registered by me earlier at Peedu **(VI)**.

Material: 13♂♂, Laelatu (1991), Lake Rae (1994), Nigula Nature Reserve (1991, 1993, 1994, 1995), Tõrva (1995), Kiuma (1995), O. Kurina leg.

*** 273.** *P. notata* Dziedzicki, 1889

Transpalaearctic species (Hackman *et al.*, 1988). Biology unknown.

Material: 2♂♂, Nigula Nature Reserve (1992), Kiuma (1995), O. Kurina leg.

*** 274.** *P. obscura* Dziedzicki, 1889

Transpalaearctic species (Hackman *et al.*, 1988). Biology unknown.

Material: 1♂, Kambja (1995), O. Kurina leg.; 1♂, Endla Nature Reserve (1995, light trap), K. Kimmel leg. Total 2♂♂.

*** 275.** *P. obtusa* Winnertz, 1863 **[VI]**

Holarctic species (Gagné, 1975; Hackman *et al.*, 1988). By Økland (1994) found from dead-wood habitats.

Estonia. Registered by me earlier at Peedu **(VI)**.

Material: 2♂♂, Nigula Nature Reserve (1995), Tiksoja (1994), O. Kurina leg.

*** 276.** *P. persimilis* Hackman, 1970

Holarctic species (Hackman *et al.*, 1988). Recorded on dead wood (Økland, 1994).

Material: 6♂♂, Oonga (1994), Tõrva (1995), Tiksoja (1994, 1995), O. Kurina leg.

277. *P. petulans* Dziedzicki, 1889

Holarctic species (Gagné, 1975; Hackman *et al.*, 1988). Associated with dead-wood habitats (Økland, 1994).

Estonia. Lackschewitz, 1937: 40 (from Tartu).

Material: 2♂♂, Orissaare (1993), Tali (1993), O. Kurina leg.; 1♂, Endla Nature Reserve (1995, light trap), K. Kimmel leg. Total 3♂♂.

*** 278.** *P. siebeckii* Dziedzicki, 1889

Widely distributed in Europe (Hackman *et al.*, 1988). Recorded on *Calocera viscosa* and on Tremellales (Buxton, 1960; Yakovlev, 1994).

Material: 3♂♂, Virtsu (1991), Haanja (1995), Suuresöödi (1994), O. Kurina leg.

*** 279.** *P. strenua* Winnertz, 1863 **[VI]**

Holarctic species (Gagné, 1975). By Gagné (1975) the larvae were found on sodden, barkless logs.

Estonia. Registered by me at Peedu (**VI**).

Material: 1♂, Piiri (1995), O. Kurina leg.

*** 280.** *P. sudetica* Dziedzicki, 1889

Holarctic species (Hackman *et al.*, 1988). Biology unknown.

Material: 2♂♂, Nigula Nature Reserve (1994), Lake Vasula (1995), O. Kurina leg.

281. *P. sylvatica* Dziedzicki, 1889

Holarctic species (Gagné, 1975; Hackman *et al.*, 1988). Biology unknown.

Estonia. Dampf, 1924: 44 (from Jõõpre bog and Pääsküla bog).

282. *P. taczanowskyi* Dziedzicki, 1889 **[VI]**

Holarctic species (Gagné, 1975; Hackman *et al.*, 1988). Biology unknown.

Estonia. Dampf, 1924: 44 (from Jõõpre bog and Pääsküla bog). Registered by me at Peedu (**VI**).

Material: 1♂, Tiksoja (1994), O. Kurina leg.

283. *P. tenuis* Winnertz, 1863

Holarctic species (Gagné, 1975; Hackman *et al.*, 1988). Edwards (1925) reported rearings of the species from whitish larvae covered with a sticky coating.

Estonia. Lackschewitz, 1937: 40 (from Tartu).

Material: 10♂♂, Oonga (1995), Tõstamaa (1995), Nigula Nature Reserve (1995), Kambja (1995), Järvselja (1989), Tiksoja (1994, 1995), O. Kurina leg.

*** 284.** *P. tiefii* Dziedzicki, 1889

Holarctic species (Gagné, 1975; Hackman *et al.*, 1988). Biology unknown.

Material: 1♂, Revoja (1996), O. Kurina leg.

285. *P. willistoni* Dziedzicki, 1889

Holarctic species (Gagné, 1975; Hackman *et al.*, 1988). In accordance with Økland (1994) the species associated with dead wood.

Estonia. Dampf, 1924: 44 (from Ellamaa bog and Ulila bog).

Genus *Platurocypta* Enderline, 1910

286. *P. punctum* (Stannius, 1831) **[VI]**

Holarctic species (Hackman *et al.*, 1988). Recorded on Mycomycetes: *Lycogala epidendrum*, *Tubifera ferruginosa* and *Reticularia* sp. (Buxton, 1954; Chandler, 1978)

Estonia. Lackschewitz, 1937: 47 (as *Epicypta punctum* Stann. from Audru). Registered by me at Peedu **(VI)**.

Material: 4♂♂, Virtsu (1991), Nigula Nature Reserve (1991, 1992), Järvselja (1989), O. Kurina leg.

*** 287.** *P. testata* (Edwards, 1925)

Holarctic species (Hackman *et al.*, 1988). Recorded on Mycomycetes: *Reticularia lycoperdon, Tubifera ferruginosa, Lycogala epidendrum, L.* sp. and on undetermined genus (Buxton, 1954; Chandler, 1978; Yakovlev, 1994).

Material: 1♂, Nigula Nature Reserve (1991), O. Kurina leg.

Genus *Sceptonia* Winnertz, 1863

288. *S. concolor* Winnertz, 1863

Transpalaearctic species (Hackman *et al.*, 1988). Biology unknown.

Estonia. Dampf, 1924: 43 (from Ellamaa bog, Jõõpre bog and Pääsküla bog).

Material: 2♂♂, Järvselja (1989), O. Kurina leg.

*** 289.** *S. costata* (van der Wulp, 1858)

Transpalaearctic species (Hackman *et al.*, 1988). Biology unknown.

Material: 2♂♂, Tiksoja (1995), Rähni (1995), O. Kurina leg.

*** 290.** *S. flavipuncta* Edwards, 1925 **[VI]**

Known from Germany, France and Great Britain (Hackman *et al.*, 1988). Biology unknown.

Estonia. Registered by me at Peedu **(VI)**. This record is the easternmost so far.

*** 291.** *S. fumipes* Edwards, 1925 **[VI]**

Widely distributed in Europe (Hackman *et al.*, 1988; Søli, 1994; Yakovlev, 1995). Biology unknown.

Estonia. Registered by me at Peedu **(VI)**.

Material: 5♂♂, Abruka (1991), Hullo (1991), Nigula Nature Reserve (1993), O. Kurina leg.

292. *S. membranacea* Edwards, 1925 **[VI]**

Widely distributed in Europe (Hackman *et al.*, 1988; Yakovlev, 1995). Biology unknown.

Estonia. Lackschewitz, 1937: 46 (from Audru). Registered by me at Peedu. **(VI).**
Material: 2♂♂, Linnamäe (1996), O. Kurina leg.

293. *S. nigra* (Meigen, 1804)
Transpalaearctic species (Hackman *et al.*, 1988). By Økland (1994) the species is associated with habitats on the ground (fungi on the ground, mycelium in the earth, vole burrows etc.)
Estonia. Lackschewitz, 1937: 46 (from Ridala and Tartu).

Genus *Trichonta* Winnertz, 1863

*** 294.** *T. atricauda* (Zetterstedt, 1852)
Holarctic species (Gagné, 1981). Recorded on *Corticium* sp. (Edwards, 1925).
Material: 1♂, Rähni (1994), O. Kurina leg.

295. *T. brevicauda* Lundström, 1906
Holarctic species (Gagné, 1981). Found on Aphyllophoraceous fungi (Yakovlev, 1994).
Estonia. Dampf, 1924: 44 (from Määvli bog on Hiiumaa Island and Jõõpre bog).

*** 296.** *T. conjugens* Lundström, 1909
Widely distributed in Europe (Gagné, 1981; Hackman *et al.*, 1988). Biology unknown.
Material: 1♂, Melliste (1994), O. Kurina leg.

*** 297.** *T. flavicauda* Lundström, 1914
Holarctic species (Gagné, 1981). Biology unknown.
Material: 1♂, Melliste (1994), O. Kurina leg.

*** 298.** *T. girschneri* (Landrock, 1912)
Holarctic species (Gagné, 1981). Recorded on Aphyllophoraceous fungi (Yakovlev, 1994).
Material: 1♂, Nigula Nature Reserve (1994), O. Kurina leg.

*** 299.** *T. hamata* Mik, 1880
Holarctic species (Gagné, 1981). Found on the mycelium in rotten wood (Yakovlev, 1994)
Material: 3♂♂, Nigula Nature Reserve (1994), Lake Rae (1994), Suuresöödi (1994), O. Kurina leg.

*** 300.** *T. melanura* (Staeger, 1840) **[VI]**
Holarctic species (Gagné, 1981). Recorded on *Stereum hisutum* and *Kuehneromyces mutabilis* (Chandler, 1978; Yakovlev, 1994)
Estonia. Registered by me at Peedu **(VI).**

*** 301.** *T. subfusca* Lundström, 1909 **[VI]**

Holarctic species (Gagné, 1981). By Yakovlev (1994) recorded on mycelium in rotten wood.

Estonia. Registered by me at Peedu **(VI)**.

302. *T. submaculata* (Staeger, 1840)

Transpalaearctis species (Hackman *et al.*, 1988). Biology unknown.

Estonia. Dampf, 1924: 44 (from Ellamaa bog and Pääsküla bog).

303. *T. terminalis* (Walker, 1856)

Holarctic species (Gagné, 1981). Recorded on *Corticium* sp., *Peniophora cinerea* and *P. incarnata* (Edwards, 1925; Chandler, 1978).

Estonia. Lackschewitz, 1937: 37 (from Tartu).

Material: 2♂♂, Oonga (1994), Rähni (1994), O. Kurina leg.

304. *T. trivittata* Lundström, 1916

Known from Hungary, Austria, Roumania, Sweden, Norway and Finland (Gagné, 1981; Hackman *et al.*, 1988; Søli, 1994). Biology unknown.

Estonia. Lackschewitz, 1937: 39 (from Pärnu).

305. *T. venosa* (Meigen, 1830)

Holarctic species (Gagné, 1981). According to literature (Landrock, 1927) recorded on *Lycoperdon* sp.

Estonia. Lackschewitz, 1937: 37 (from Audru).

Material: 1♂, Kiidjärve (1980), K. Elberg leg.

*** 306.** *T. vitta* (Meigen, 1830)

Holarctic species (Gagné, 1981). By Edwards (1925) found on *Schizophora paradoxa*.

Material: 1♂, Nigula Nature Reserve (1993), O. Kurina leg.

*** 307.** *T. vulcani* (Dziedzicki, 1889)

Holarctic species (Gagné, 1981). Biology unknown.

Material: 1♂, Nigula Nature Reserve (1991), O. Kurina leg.

*** 308.** *T. vulgaris* Loew, 1869

Holarctic species (Gagné, 1981). Recorded on *Clavulina cristata* (Yakovlev, 1994).

Material: 1♂, Tõstamaa (1994), O. Kurina leg.

Genus *Zygomyia* Winnertz, 1863

*** 309.** *Z. angusta* Plassmann, 1977

Previously known from Germany and Russian Karelia (Zaitzev, 1989a). Biology unknown.

Material: 1♂, Oonga (1994), O. Kurina leg.

*** 310.** *Z. humeralis* (Wiedemann, 1817)

Widely distributed in Europe (Hackman *et al.*, 1988; Zaitzev, 1989a). Biology unknown.

Material: 3♂♂, Nigula Nature Reserve (1993, 1994), O. Kurina leg.

*** 311.** *Z. jakovlevi* A. Zaitzev, 1989

Described by two male specimens from Russian Karelia (Zaitzev, 1989a). Biology unknown.

Estonia. It is the first record after the original description.

Material: 3♂♂, Puhtu (1991), Nigula Nature Reserve (1993), Tali (1993), O. Kurina leg.

312. *Z. notata* (Stannius, 1831) **[VI]**

Transpalaearctic species (Zaitzev, 1989a). Biology unknown.

Estonia. Lackschewitz, 1937: 46 (from Kose). Registered by me at Peedu (**VI**).

Material: 2♂♂, Järvselja (1989), Voore (1989), O. Kurina leg.

313. *Z. pictipennis* (Staeger, 1840)

Widely distributed in Europe (Zaitzev, 1989a). Biology unknown.

Estonia. Lackschewitz, 1937: 46 (from Audru and Tartu).

Material: 5♂♂, Rae (1994), Nigula Nature Reserve (1991, 1994), Tiksoja (1994), Rähni (1994), O. Kurina leg.

*** 314.** *Z. pseudohumeralis* Caspers, 1980 **[VI]**

Former records from Germany (e. g. Plassmann, 1986, 1989), Austria (Caspers, 1984), Norway (Søli, 1994), from Mellum and Memmert (Islands of North Sea) (Plassmann, 1988b) and from Caucasus region (Joost & Plassmann, 1992). Biology unknown.

Estonia. Registered by me at Peedu (**VI**).

*** 315.** *Z. semifusca* (Meigen, 1818) **[VI]**

Holarctic species (Zaitzev, 1989a). Biology unknown.

Estonia. Registered by me at Peedu (**VI**).

*** 316.** *Z. valida* Winnertz, 1863 **[VI]**

Transpalaearctic species (Zaitzev, 1989a). Biology unknown.

Estonia. Registered by me at Peedu (**VI**).

Material: 3♂♂, Oonga (1991), Nigula Nature Reserve (1992, 1994), O. Kurina leg.; 1♂, Endla Nature Reserve (1995, light trap), K. Kimmel leg. Total 4♂♂.

*** 317.** *Z. vara* (Staeger, 1840)

Holarctic species (Laffoon, 1965; Zaitzev, 1989a). Biology unknown.

Material: 3♂♂, Orissaare (1993), Nigula Nature Reserve (1994), Tiksoja (1994), O. Kurina leg.

Tribe EXECHIINI

Genus *Allodia* Winnertz, 1863

Subgenus *Allodia* Winnertz, 1863

*** 318.** *A. (A.) anglofennica* Edwards, 1921 **[VI]**

Transpalaearctic species (Hackman *et al.*, 1988). According to literature (Plassmann, 1971; Yakovlev, 1994) recorded on *Peziza, Suillus, Collybia, Entoloma, Hebeloma* and *Inocybe*.

Estonia. Registered by A. Zaitzev at Peedu **(VI)**.

Material: 32♂♂, Orissaare (1995), Piiri (1995), Oonga (1995), Nigula Nature Reserve (1990, 1993, 1994, 1995), Hargla (1994), Apja-Suurjärv (1994), Taevaskoja (1994, 1995), Vapramäe (1993), Melliste (1995), Lake Vasula (1995), Tiksoja (1994), Rähni (1994), Voore (1989), O. Kurina leg.

*** 319.** *A. (A.) embla* Hackman, 1971 **[III]**

Holarctic species (Krivosheina *et al.*, 1986). Earlier recorded on *Inocybe lacera* (Krivosheina *et al.*, 1986; Yakovlev, 1995).

Estonia. Reared by me from *Laccaria laccata*, collected at Hullo **(III)**. The species reared from *Laccaria* for the first time.

Material: 2♂♂, Nigula Nature Reserve (1990, 1993), O. Kurina leg.

320. *A. (A.) lugens* (Wiedemann, 1817) **[III, VI]**

Holarctic species (Hackman *et al.*, 1988). Feeding on many species of the Agaricales s. l. (Hackman & Meinander, 1979; Halidov, 1984; Yakovlev, 1994). According to Krivosheina *et al.*, (1986) also on the Ascomycetes.

Estonia. Lackschewitz, 1937: 34 (from Tartu). Registered by A. Zaitzev at Peedu **(VI)**. Reared by me from 16 species of Agaricales s. l., collected at Viidumäe Nature Reserve, Orissaare, Hullo, Oonga, Puhtu, Laelatu, Nigula Nature Reserve, Kohala, Tiksoja and Vapramäe **(III)**.

Material: 30♂♂, Orissaare (1994, 1995), Piiri (1995), Oonga (1995), Nigula Nature Reserve (1994), Lake Kahrila (1995), Taevaskoja (1995), Vapramäe (1993), Melliste (1995), Tiksoja (1994), Järvselja (1989), Kohala (1992), O. Kurina leg.; 1♂, Vorbuse (1956), H. Remm leg.; 2♂♂, Endla Nature Reserve (1995, light trap), K. Kimmel leg. Total 33♂♂.

*** 320.** *A. (A.) lundstroemi* Edwards, 1921 **[I]**

Widely distributed in Europe (Krivosheina *et al.*, 1986; Hackman *et al.*, 1988). The species was reared from macrofungi by me for the first time **(I)**. Later Yakovlev (1994, 1995) found the species on *Lentinus lepideus* and also on *Laccaria laccata*.

Estonia. Reared by me from *Laccaria laccata*, collected at Järvselja **(I)**.

Material: 14♂♂ Piiri (1995), Oonga (1995), Uulu (1995), Nigula Nature Reserve (1994, 1995), Melliste (1995), Tiksoja (1994), Rähni (1994), Mäetaguse (1996), O. Kurina leg.

322. *A. (A.) ornaticollis* (Meigen, 1818) **[III, VI]**

Holarctic species (Hackman *et al.*, 1988). In accordance with Yakovlev (1994) recorded on many species of Agaricales s. l. and also on *Morchella* and *Gyromitra* (Ascomycetes).

Estonia. Lackschewitz, 1937: 34 (from Tartu). Registered by A. Zaitzev at Peedu **(VI)**. Reared by me from *Russula flava* and *Tricholoma terreum*, collected at Nigula Nature Reserve and Tiksoja **(III)**.

Material: 5♂♂, Oonga (1995), Nigula Nature Reserve (1993, 1995), Uue-Saaluse (1995), Lake Vasula (1995), O. Kurina leg.; 2♂♂, Endla Nature Reserve (1995, light trap), K. Kimmel leg. Total 7♂♂.

* **323.** *A. (A.) pyxidiiformis* A. Zaitzev, 1983 **[I, X]**

Holarctic species (Zaitzev, 1983). Feeding on *Boletus, Suillus, Gomphidius, Collybia, Amanita, Cortinarius, Russula* and *Lactarius* (Yakovlev, 1994, 1995).

Estonia. Registered by me on 12 species of macrofungi **(I)**, but this material proved to be misidentified **(X)**. Recorded at Oonga, Nigula Nature Reserve, Taevaskoja, Vapramäe, Melliste, Tiksoja and Rähni **(X)**.

* **324.** *A. (A.) septentrionalis* Hackman, 1971 **[III]**

Holarctic species (Krivosheina *et al.*, 1986). According to Yakovlev (1986) the species is known only as existing on *Laccaria laccata.*

Estonia. Reared by me from *Tricholoma terreum*, collected at Tiksoja **(III)**. The species reared from *Tricholoma* for the first time.

Material: 2♂♂, Melliste (1995), Rähni (1994), O. Kurina leg.

* **325.** *A. (A.) truncata* Edwards, 1921 **[VI]**

Holarctic species (Hackman *et al.*, 1988). Recorded on *Marasmius androsaceus* (Plassmann, 1971).

Estonia. Registered by A. Zaitzev at Peedu **(VI)**.

Material: 18♂♂, Puhtu (1991), Nigula Nature Reserve (1994), Tõrva (1995), Melliste (1995), Tiksoja (1994, 1995), Rähni (1994), Kohala (1992), O. Kurina leg.; 2♂♂, Endla Nature Reserve (1995, light trap), K. Kimmel leg. Total 20♂♂.

* **326.** *A. (A.) zaitzevi* Kurina, 1997 **[X]**

Described by me **(X)**. The material was collected at Nigula Nature Reserve, Uulu, Kiuma, Taevaskoja, Vapramäe, Melliste, Tiksoja and Rähni **(X)**. Previously 36♂♂ of *A. (A.) zaitzevi* reared from 12 species of macrofungi in Estonia 1989 and 1990 were identified by me as *A. (A.) pyxidiiformis* **(X)**. The species recorded also from Russia: Leningrad and Amur Districts **(X)**.

Subgenus *Brachycampta* Winnertz, 1863

327. *A. (B.) alternans* (Zetterstedt, 1838) **[I]**

Holarctic species (Zaitzev, 1984). Feeding on many species of Agaricales s. l. (Yakovlev, 1994).

Estonia. Lackschewitz, 1937: 35 (from Tartu). Reared by me from *Tricholomopsis rutilans*, *Hygrophoropsis aurantiaca* and *Russula xerampelina*, collected at Kabli and Järvselja **(I)**. The species has been reared from *Tricholomopsis* and *Hygrophoropsis* for the first time.
Material: 2♂♂, Oonga (1994), Tiksoja (1994), O. Kurina leg.; 1♂, Sangaste (1957), H. Remm leg. Total 3♂♂.

*** 328.** *A. (B.) barbata* (Lundström, 1909)

Holarctic species (Zaitzev, 1984). Recorded *on Ptychoverpa, Helvella, Aleuria, Peziza, Leccinum* and *Kuechneromyces* (Chandler, 1978; Hackman & Meinander, 1979; Yakovlev, 1994).
Material: 1♂, Kambja (1995), O. Kurina leg.

*** 329.** *A. (B.) czernyi* (Landrock, 1912) **[I]**

Holarctic species (Zaitzev, 1984). Known on *Suillus, Clitocybe, Tricholomopsis, Agrocybe Kuechneromyces, Dermocybe* and *Russula* (Yakovlev, 1994, 1995).
Estonia. Reared by me from *Cortinarius* sp., collected at Nigula Nature Reserve **(I)**. The species reared from *Cortinarius* for the first time.
Material: 5♂♂, Piiri (1995), Hargla (1994), Taevaskoja (1995), Tiksoja (1995), O. Kurina leg.

330. *A. (B.) grata* (Meigen, 1830) **[I]**

Transpalaearctic species (Zaitzev, 1984). Feeding on various species of Agaricales s. l. (Yakovlev, 1994).
Estonia. Lackschewitz, 1937: 35 (from Tartu). Reared by me from *Tricholomopsis rutilans*, collected at Kabli **(I)**. The species reared from *Tricholomopsis* for the first time.
Material: 3♂♂, Piiri (1995), Uulu (1995), Vapramäe (1995), O. Kurina leg.

*** 331.** *A. (B.) neglecta* Edwards, 1925

Widely distributed in Europe (Krivosheina *et al.*, 1986; Hackman *et al.*, 1988). According to literature (Yakovlev, 1994, 1995) reared from *Gyromitra, Ptychoverpa* and *Kuehneromyces*.
Material: 3♂♂, Kambja (1995), Rähni (1994), Suuresöödi (1994), O. Kurina leg.; 1♂, Endla Nature Reserve (1995, light trap), K. Kimmel leg. Total 4♂♂.

332. *A. (B.) pisillata* (Lundström, 1911) **[VI]**

Holarctic species (Hackman *et al.*, 1988). Recorded on *Peziza* sp. (Yakovlev, 1994).
Estonia. Lackschewitz, 1937: 35 (from Audru). Registered by A. Zaitzev at Peedu **(VI)**.
Material: 3♂♂, Viidumäe Nature Reserve (1988), Kambja (1995), Lake Vasula (1995), O. Kurina leg.

*** 333.** *A. (B.) retracta* Plassmann, 1977

Transpalaearctic species (Zaitzev, 1984). Biology unknown.

Material: 1♂, Endla Nature Reserve (1995, light trap). K. Kimmel leg.

*** 334.** *A. (B.) silvatica* (Landrock, 1912) **[VI]**

Transpalaearctic species (Zaitzev, 1984). Recorded on *Ptychoverpa, Discina, Neogyromitra, Gyromitra* and *Peziza* (Buxton, 1960; Dely-Draskovitš & Babos, 1993; Yakovlev, 1994).

Estonia. Registered by A. Zaitzev at Peedu **(VI)**.

Material: 2♂♂, Nigula Nature Reserve (1995), Käru (1996), O. Kurina leg.

*** 335.** *A. (B.) triangularis* (Strobl, 1895)

Transpalaearctic species (Zaitzev, 1984; Krivosheina *et al.*, 1986; Hackman *et al.*, 1988). Recorded on *Peziza repanda* and *P.* sp. (Buxton, 1960; Yakovlev, 1994).

Material: 17♂♂, Uulu (1995), Kabli (1995), Nigula Nature Reserve (1990, 1995); Hargla (1994); Taevaskoja (1995), Kiuma (1995), O. Kurina leg.; 1♂, Endla Nature Reserve (1995, light trap), K. Kimmel leg. Total 18♂♂.

*** 336.** *A. (B.) vernalis* Polevoi, 1995

Described by three male specimens from Russian Karelia (Zaitzev & Polevoi, 1995). The species has been reared from *Peziza badia* and *Discina perlata* (Zaitzev & Polevoi, 1995).

Estonia. This record is the first after the original description.

Material: 2♂♂, Kambja (1995), Tiksoja (1994), O. Kurina leg.

Genus *Allodiopsis* Tuomikoski, 1966

Subgenus *Allodiopsis* Tuomikoski, 1966

337. *A. (A.) domestica* (Meigen, 1830) **[III, VI]**

Holarctic species (Hackman *et al.*, 1988). Recorded on many species of Agaricales s. l. (Yakovlev, 1994, 1995). According to Hackman and Meinander (1979) the species is regular on Tricholomataceae.

Estonia. Lackschewitz, 1937: 29 (as *Rhymosia domestica* Meig. from Audru and Tartu). Reared by me from *Clitocybe gibba, C. cavipes, Hebeloma edurum* and *Entoloma* sp., collected at Puhtu, Hullo and Kabli **(III)**. Registered by me also at Peedu **(VI)**. The species reared from *Entoloma* for the first time.

Material: 2♂♂, Lake Rae (1994), Tiksoja (1994), O. Kurina leg.

*** 338.** *A. (A.) pseudodomestica* (Lackschewitz, 1937) **[I]**

Transpalaearctic species (Krivosheina *et al.*, 1986; Hackman *et al.*, 1988). Found on *Lycoperdon perlatum* (Krivosheina *et al.*, 1986).

Estonia. Reared by me from *Lepista gilva*, collected at Järvselja **(I)**. The species reared from *Lepista* for the first time.

*** 339.** *A. (A.) rustica* (Edwards, 1941) **[I, VI]**

Transpalaearctic species (Krivosheina *et al.*, 1986). Recorded on *Clitocybe, Tricholoma, Lyophyllum, Lepista, Dermocybe* and *Russula* (Buxton, 1960; Plassmann, 1971; Ribeiro, 1990; Yakovlev, 1994).

Estonia. Reared by me from *Clitocybe clavipes*, collected at Kabli **(I)**. Registered by me also at Peedu **(VI)**.

Material: 29♂♂, Piiri (1995), Hellamaa (1996), Klooga (1996), Kasemetsa near Saku (1996), Oonga (1994), Kärbu (1995), Nigula Nature Reserve (1994), Tõrva (1995), Hargla (1994), Taevaskoja (1995), Vapramäe (1995), Lake Vasula (1995), Revoja (1996), O. Kurina leg.

Subgenus *Gumnogonia* Tuomikoski, 1966

*** 340.** *A. (G.) gracilis* (Winnertz, 1863)

Widely distributed in Europe (Krivosheina *et al.*, 1986; Hackman *et al.*, 1988). Recorded on *Gyromitra, Suillus, Russula* and *Coprinus* (Halidov, 1984; Yakovlev, 1994).

Material: 1♂, Orissaare (1994), O. Kurina leg.

*** 341.** *A. (G.) ingeniosa* (Kidd, 1969)

Previously known from Great Britain and Russia: Karelia, Leningrad District (Krivosheina *et al.*, 1986; Hackman *et al.*, 1988). Biology unknown.

Material: 1♂, Oonga (1994), O. Kurina leg.

*** 342.** *A. (G.) rufilatera* (Edwards, 1941)

Known from Great Britain, Poland, Finland and Russia: West Siberia (Hackman *et al.*, 1988). Biology unknown.

Material: 1♂, Kiuma (1995), O. Kurina leg.

343. *A. (G.) sintenisi* (Lackschewitz, 1937)

Known from Germany, Finland, Latvia and Russia: Karelia, Leningrad District (Krivosheina *et al.*, 1986; Hackman *et al.*, 1988). Biology unknown.

Estonia. Lackschewitz, 1937: 31 (as *Rhymosia sintenisi* n. sp. from Tartu.), typus.

Material: 4♂♂, Piiri (1995), Oonga (1994), Taevaskoja (1995), Lake Vasula (1995), O. Kurina leg.

*** 344.** *A. (G.) venosa* (Dziedzicki, 1910)

Previously known from Byelorussia and Russia: Karelia, Leningrad District (Krivosheina *et al.*, 1986; Hackman *et al.*, 1988). Biology unknown.

Material: 5♂♂, Piiri (1995), Oonga (1994), Melliste (1995), Tiksoja (1995) and Rähni (1994), O. Kurina leg.

Subgenus Notolopha Tuomikoski, 1966

345. *A. (N.) cristata* (Staeger, 1840) **[VI]**

Transpalaearctic species (Krivosheina *et al.*, 1986). Reared from *Marasmius, Tricholomopsis, Tricholoma, Stropharia, Naematoloma* and *Lactarius* (Halidov, 1984; Yakovlev, 1994, 1995).

Estonia. Lackschewitz, 1937: 29 (as *Rhymosia cristata* Staeg. from Tartu). Registered by me at Peedu **(VI)**.

Material: 37♂♂, Piiri (1995), Oonga (1994), Kunila (1995), Nigula Nature Reserve (1994, 1995), Hargla (1994), Apja-Suurjärv (1994), Uue-Saaluse (1995), Kiuma (1995), Taevaskoja (1994, 1995), Kambja (1995), Vapramäe (1995), Tiksoja (1994), O. Kurina leg.

Subgenus Myrosia Tuomikoski, 1966

*** 346.** *A. (M.) maculosa* (Meigen, 1818)

Widely distributed in Europe (Krivosheina *et al.*, 1986; Hackman *et al.*, 1988). According to literature (Eisfelder, 1956; Chandler, 1978) found on *Corticium, Coprinus* and *Cortinarius*.

Material: 1♂, Orissaare (1994), O. Kurina leg.

Genus *Anatella* Winnertz, 1863

*** 347.** *A. ankeli* Plassmann, 1977 **[IV]**

Known from Germany, France, Austria and Russia: Leningrad District (Matile, 1980; Caspers, 1984; Plassmann & Plachter,1986; Zaitzev, 1989b). Biology unknown.

Estonia. Registered by me from Ülgase cave **(IV)**.

*** 348.** *A. crispa* A. Zaitzev, 1994

Described by one specimen from Russia: Altai (Zaitzev, 1994b). Biology unknown.

Estonia. This is the first record after the original description.

Material: 1♂, Endla Nature Reserve (1995, light trap), K. Kimmel leg.

349. *A. dampfii* Landrock, 1924

Registered from Germany, Great Britain and Sweden (Hackman *et al.*, 1988). Biology unknown.

Estonia. Landrock, 1924: 81 (collected by A. Dampf from Jõõpre bog); the same material has also been cited in Lackschewitz, 1937: 21.

*** 350.** *A. minuta* (Staeger, 1840)

Transpalaearctic species (Zaitzev, 1989b). By Halidov (1984) reared from *Paxillus, Amanita, Pholiota, Russula* and *Lactarius*.

Material: 1♂, Nigula Nature Reserve (1990), O. Kurina leg.; 5♂♂, Endla Nature Reserve (1995, light trap), K. Kimmel leg. Total 6♂♂.

*** 351.** *A. pseudogibba* Plassmann, 1977 **[IV]**

Recorded from Germany, France, Great Britain and Sweden (Chandler, 1977; Matile, 1980; Plassmann, 1980; Plassmann & Plachter, 1986; Zaitzev, 1989b). Biology unknown.

Estonia. Registered by me from Aruküla cave **(IV)**.

*** 352.** *A. setigera* Edwards, 1921

Widely distributed in Europe (Hackman *et al.*, 1988; Zaitzev, 1989b). Known also from West Siberia (Zaitzev, 1989b). Biology unknown.

Material: 1♂, Tiksoja (1995), O. Kurina leg.; 2♂♂, Endla Nature Reserve (1995, light trap), K. Kimmel leg. Total 3♂♂.

*** 353.** *A. simpatica* Dziedzicki, 1923

Holarctic species (Hackman *et al.*, 1988). Biology unknown.

Material: 11♂♂, Endla Nature Reserve (1995, light trap), K. Kimmel leg.

? *A. umbraculiforma* Ostroverkhova, 1974

The species is known from Russia: Tomsk District (Hackman *et al.*, 1988). According to Ostroverkhova (1979) the species has also been recorded in Estonia, but it is obviously a mistake.

Genus *Brachypeza* Winnertz, 1863

Subgenus *Brachypeza* Winnertz, 1863

*** 354.** *B. (B.) armata* Winnertz, 1863

Transpalaearctic species (Hackman *et al.*, 1988). Recorded on *Hydnum coralloides, Pleurotus ostreatus, P. pulmonarius* and *Cortinarius* sp. (Yakovlev, 1994, 1995).

Material: 1♂, Oonga (1995), O. Kurina leg.

*** 355.** *B. (B.) radiata* Jenkinson, 1908 **[I]**

Known from Great Britain, Ukraine, Transcaucasus and Russia: Karelia (Krivosheina *et al.*, 1986; Hackman *et al.*, 1988; Yakovlev, 1995). Recorded on *Pleurotus* (Edwards, 1925; Ghandler, 1978; Yakovlev, 1994).

Estonia. Reared by me from *Armilariella mellea*, collected at Nigula Nature Reserve (**I**). The species reared from *Armilarialla* for the first time.

Subgenus *Paracondyla* Tuomikoski, 1966

*** 356.** *B. (P.) obscura* Winnertz, 1863 **[XII]**

Transpalaearctic species (Krivosheina *et al.*, 1986). Recorded on *Ptychoverpa, Polyporys, Pleurotus, Lentinus, Suillus, Leccinum* and *Lactarius* (Yakovlev, 1994).

Estonia. Reared by me from *Lentinus lepideus*, collected at Rannametsa (**XII**).

Genus *Brevicornu* Marshall, 1896

Subgenus *Brevicornu* Marshall, 1896

*** 357.** *B. (B.) beatum* (Johannsen, 1911) **[V]**

Holarctic species (Zaitzev, 1988b). Biology unknown.

Estonia. Registered by me at Nigula Nature Reserve (**V**).

*** 358.** *B. (B.) bellum* (Johannsen, 1911) **[V]**

Holarctic species (Zaitzev, 1988b). Biology unknown.

Estonia. Registered by me at Virtsu and Hargla (**V**).

359. *B. (B.) fissicauda* (Lundström, 1911) **[V]**

Holarctic species (Zaitzev, 1985). Biology unknown.

Estonia. Lackschewitz, 1937: 35 (as *Allodia fissicauda* Lundst. from Tartu); Zaitzev, 1985: 41 (from Peedu). Registered by me at Piiri and Tiksoja (**V**).

*** 360.** *B. (B.) foliatum* (Edwards, 1925) **[V]**

Transpalaearctic species (Zaitzev, 1988b). Biology unknown.

Estonia. Registered by me at Oonga (**V**).

*** 361.** *B. (B.) fuscipenne* (Staeger, 1840) **[V]**

Transpalaearctic species (Hackman *et al.*, 1988). Biology unknown.

Estonia. Registered by me at Nigula Nature Reserve (**V**).

*** 362.** *B. (B.) griseicolle* (Staeger, 1840) **[V, VI]**

Holarctic species (Zaitzev, 1988b). Recorded on *Hebeloma, Inocybe* and *Cortinarius* (Eisfelder, 1956; Palssmann, 1971).

Estonia. Registered by me at Oonga, Nigula Nature Reserve, Elva, Järvselja (**V**), and Peedu (**VI**).

*** 363.** *B. (B.) griseolum* (Zetterstedt, 1852) **[V]**

Previously known from former Czechoslovakia, Germany, Great Britain, Sweden, Norway, Finland and Russia: Karelia, Leningrad District, Siberia (Krivosheina *et al.*, 1986; Hackman *et al.*, 1988; Søli, 1994; Yakovlev, 1995). Biology unknown.

Estonia. Registered by me at SW coast of Lake Koobassaare = Apja-Suurjärv (**V**).

364. *B. (B.) nigrofuscum* (Lundström, 1909) **[V]**

Holarctic species (Zaitzev, 1988b). Biology unknown.

Estonia. Lackschewitz, 1937: 36 (as *Allodia nigrofusca* Lundst. from Ridala). Registered by me at Puhtu (**V**).

365. *B. (B.) proximum* (Staeger, 1840) **[V, VI]**

Transpalaearctic species (Zaitzev, 1985; Hackman *et al.*, 1988). Biology unknown.

Estonia. Lackschewitz, 1937: 35 (as *Allodia proxima* Staeg. from Vändra). Registered by me at Oonga, Nigula Nature Reserve, Uue-Saaluse (**V**) and Peedu (**VI**).

366. *B. (B.) ruficorne* (Meigen, 1838) **[V]**

Transpalaearctic species (Zaitzev, 1988b). Biology unknown.

Estonia. Dampf, 1924: 44 (as *Allodia cinerea* Lundst. from Kärdla). Registered by me at Reola (**V**).

*** 367.** *B. (B.) serenum* (Winnertz, 1863) **[V]**

Recorded from Germany, France, Great Britain, Hungary, Poland, Finland and Russia: Karelia, Leningrad District (Krivosheina *et al.*, 1986; Hackman *et al.*, 1988; Yakovlev, 1995). Biology unknown.

Estonia. Registered by me at Nigula Nature Reserve and Taevaskoja (**V**).

*** 368.** *B. (B.) sericoma* (Meigen, 1830) **[V]**

Holarctic species (Zaitzev, 1988b). Recorded on *Amanita rubescens* (Yakovlev, 1994)

Estonia. Registered by me at Orissaare, Piiri, Oonga, Nigula Nature Reserve, Kanaküla, Kambja, Järvselja and Endla Nature Reserve (**V**).

Subgenus *Stigmatomeria* Tuomikoski, 1966

369. *B. (S.) crassicorne* (Stannius, 1831) **[V]**

Holarctic species (Krivosheina *et al.*, 1986). According to Edwards (1925) recorded on *Tuber* (Ascomycetes).

Estonia. Lackschewitz, 1937: 34 (as *Allodia crassicornis* Staeg. from Tartu). Registered by me at Taevaskoja and Melliste (**V**).

*** 370.** *B. (S.) obscurum* (Winnertz, 1863) **[V]**

Transpalaearctic species (Krivosheina *et al.*, 1986). Biology unknown.

Estonia. Registered by me at Oonga, Nigula Nature Reserve and Tiksoja (**V**).

Genus *Cordyla* Meigen, 1803

*** 371.** *C. brevicornis* (Staeger, 1840) **[I]**

Transpalaearctic species (Krivosheina *et al.*, 1986; Hackman *et al.*, 1988). According to literature (Yakovlev, 1994) recorded on various genera of Agaricales s. l. By Hackman and Meinander (1979) the species is regular on Russulaceae.

Estonia. Reared by me from five species of *Russula* and also from *Rozites caperata* and *Amanita virosa*, collected at Viidumäe Nature Reserve, Nigula Nature Reserve, Apja and Järvselja (**I**).

Material: 3♂♂, Abruka (1991), Viidumäe Nature Reserve (1988), O. Kurina leg.

*** 372.** *C. crassicornis* Meigen, 1818

Transpalaearctic species (Krivosheina *et al.*, 1986; Hackman *et al.*, 1988). Recorded on *Russula aurea*, *R. emetica* and *Lactarius deliciosus* (Edwards, 1925; Plassmann, 1971; Halidov, 1984).

Material: 3♂♂, Orissaare (1993), Puhtu (1991), O. Kurina leg.; 4♂♂, Endla Nature Reserve (1995, light trap), K. Kimmel leg. Total 7♂♂.

*** 373.** *C. fasciata* Meigen, 1830 **[I]**

Transpalaearctic species (Krivosheina *et al.*, 1986; Hackman *et al.*, 1988). Formerly reared from many genera of Agaricales s. l. (Krivosheina *et al.*, 1986, Yakovlev, 1994). By Hackman and Meinander (1979) the species is regular on Russulaceae.

Estonia. Reared by me from *Russula adusta*, collected at Järvselja (**I**).

Material: 1♂, Tõstamaa (1994), O. Kurina leg.

*** 374.** *C. fissa* Edwards, 1925

Transpalaearctic species (Krivosheina *et al.*, 1986; Hackman *et al.*, 1988). By Yakovlev (1995) reared from *Suillus luteus*.

Material: 1♂, Oonga (1989), O. Kurina leg.; 3♂♂, Endla Nature Reserve (1995, light trap), K. Kimmel leg. Total 4♂♂.

*** 375.** *C. flaviceps* (Staeger, 1840) **[I]**

Transpalaearctic species (Krivosheina *et al.*, 1986; Hackman *et al.*, 1988). Formerly reared from *Leccinum, Hygrophorus, Russula* and *Lactarius* (Yakovlev, 1994). According to Hackman and Meinander (1979) the species is regular on Russulaceae.

Estonia. Reared by me from nine *Russula* species and from *Hygrophorus eburneus*, collected at Viidumäe Nature Reserve, Oonga, Nigula Nature Reserve and Järvselja **(I)**.

Material: 2♂♂, Viidumäe Nature Reserve (1988), Oonga (1991), O. Kurina leg.

376. *C. fusca* Meigen, 1804 **[I, IX]**

Transpalaearctic species (Krivosheina *et al.*, 1986; Hackman *et al.*, 1988). Recorded on *Leccinum, Boletus, Agaricus, Amanita, Hypoloma, Russula* and *Lactarius* (Halidov, 1984; Yakovlev, 1994, 1995). The species is regular on Russulaceae (Hackman & Meinander, 1979).

Estonia. Lackschewitz, 1937: 37 (from Ridala). According to my original material found only on *Russula* species, collected at Nigula Nature Reserve and Järvselja **(I)**.

377. *C. murina* Winnertz, 1863

Transpalaearctic species (Hackman *et al.*, 1988). Recorded on *Boletus, Leucopaxillus, Lactarius* and *Sleroderma* (Eisfelder, 1955; Dely-Draskovitš, 1974; Yakovlev, 1994).

Estonia. Lackschewitz, 1937: 37 (from Ridala, Vändra, Tartu and Kose).

Material: 1♂, Kohala (1992), O. Kurina leg.

*** 378.** *C. nitidula* Edwards, 1925 **[XII]**

Widely distributed in Europe (Krivosheina *et al.*, 1986; Hackman *et al.*, 1988). In the literature there are many data about feeding on *Russula* (e. g. Edwards, 1925, Dely-Draskovitš, 1974; Ostroverkhova, 1979; Ribeiro, 1990). Known also from *Lactarius, Suillus* and *Boletus* (Eisfelder, 1955; Ostroverkhova, 1979; Sakharova, 1977).

Estonia. Reared by me from *Russula* sp., collected at Uue-Saaluse **(XII)**.

*** 379.** *C. pravipalpis* Edwards, 1925

Transpalaearctic species (Krivosheina *et al.*, 1986; Hackman *et al.*, 1988). By Sakharova (1977) reared from *Russula* sp. Found also on mycelium in rotten wood (Yakovlev, 1994).

Material: 8♂♂, Järvselja (1989), Nigula Nature Reserve (1994), Hargla (1994), Lake Aheru (1994), O. Kurina leg.

*** 380.** *C. semiflava* (Staeger, 1840)

Transpalaearctic species (Krivosheina *et al.*, 1986; Hackman *et al.*, 1988). Biology unknown.

Material: 1♂, Nigula Nature Reserve (1994), O. Kurina leg.

*** 381.** *C. sixi* (Barendrecht, 1938)

Transpalaearctic species (Krivosheina *et al.*, 1986; Hackman *et al.*, 1988; Zaitzev & Menzel, 1996). Biology unknown.

Material: 3♂♂, Abruka (1991), Viidumäe Nature Reserve (1988), Tiksoja (1994), O. Kurina leg.; 3♂♂, Endla Nature Reserve (1995, light trap), K. Kimmel leg. Total 6♂♂.

Genus *Exechia* Winnertz, 1863

382. *E. bicincta* (Staeger, 1840)

Widely distributed in Europe (Hackman *et al.*, 1988). According to literature (Eisfelder, 1955; Dely-Draskovitš, 1974; Halidov, 1984; Ribeiro, 1990) recorded on *Pleurotus, Omphalotus, Gomphidius, Hygrophoropsis, Tricholoma, Collybia, Mycena, Tricholomopsis* and *Russula.*

Estonia. Dampf, 1924: 43 (as *Exechia interrupta* Zett. from Pääsküla bog).

*** 383.** *E. cincta* (Winnertz, 1863)

Transpalaearctic species (Hackman *et al.*, 1988). By Hackman and Meinander (1979) found on *Hygrophoropsis aurantiaca.*

Material: 3♂♂, Taevaskoja (1995), Piigandi (1995), Kirna (1996), O. Kurina leg.

384. *E. confinis* Winnertz, 1863 **[III, IV]**

Widely distributed in Europe (Krivosheina *et al.*, 1986; Hackman *et al.*, 1988). According to Hackman and Meinander (1979), *Exechia* sp. pr. *confinis* has been found regularly on *Paxillus involutus.* By Plassmann (1971) recorded also on *Lactarius piperatus.*

Estonia. Dampf, 1924: 43 (from Jõõpre bog); Lackschewitz, 1937: 22 (from Tartu). Reared by me only from fruit bodies of *Paxillus involutus*, collected at Muhu, Oonga, Pikasilla, Kohala and Tamsa-Altmäe **(III)**. Registered by me also from Maasi Castle Vault and Kalmistu cave **(IV)**.

Material: 10♂♂, Orissaare (1995), Oonga (1994, 1995), Nigula Nature Reserve (1994), Melliste (1995), Tiksoja (1994), Mäetaguse (1996), O. Kurina leg.

*** 385.** *E. contaminata* Winnertz, 1863 **[I, IX]**

Holarctic species (Hackman *et al.*, 1988). Recorded on *Hypoloma, Russula* and *Lactarius* (Chandler, 1978; Yakovlev, 1994). According to Hackman and Meinander (1979) this species is regular on Russulaceae.

Estonia. Reared by me from *Lactarius rufus* and *L. trivialis*, collected at Viidumäe Nature Reserve, Rannametsa and Järvselja **(I)**.

Material: 31♂♂, Nigula Nature Reserve (1995), Lake Rae (1994), Tõrva (1995), Lake Apja-Suurjärv (1994), Taevaskoja (1994, 1995), Melliste (1995), Lake Vasula (1995), Tiksoja (1994), Kirna (1996), Mäetaguse (1996), O. Kurina leg.; 1♂, Endla Nature Reserve (1995, light trap), K. Kimmel leg. Total 32♂♂.

*** 386.** *E. cornuta* Lundström, 1914

Transpalaearctic species (Hackman *et al.*, 1988). According to literature (Yakovlev, 1994, 1995) recorded on *Hydnum repandum, Gomphidius glutinosus, Pholiota alnicola* and *Russula* sp.

Material: 5♂♂, Nigula Nature Reserve (1995), Kiuma (1995), Tiksoja (1995), Kirna (1996), O. Kurina leg.

387. *E. dizona* Edwards, 1924 **[IV]**

Transpalaearctic species (Hackman *et al.*, 1988). Reared from *Mycena* sp., *Stropharia hornemannii* and *Russula* sp. (Yakovlev, 1995).

Estonia. Lackschewitz, 1937: 22 (from Tartu). Registered by me from Helme and Kalmistu caves **(IV)**.

Material: 19♂♂, Oonga (1995), Tõstamaa (1995), Nigula Nature Reserve (1994), Lake Rae (1994), Valma (1995), Taevaskoja (1995), Vapramäe (1995), Järvselja (1989), Tiksoja (1994, 1995), Rähni (1994), O. Kurina leg.

388. *E. dorsalis* (Staeger, 1840) **[I]**

Transpalaearctic species (Hackman *et al.*, 1988). Formerly recorded from many genera of Agaricales s. l. (Yakovlev, 1994).

Estonia. Lackschewitz, 1937: 22 (from Tartu). Reared by me from *Cortinarius* sp, *C. armillatus* and *Inocube* sp, collected at Nigula Nature Reserve and Järvselja **(I)**.

Material: 22♂♂, Abruka (1991), Oonga (1995), Tõstamaa (1995), Nigula Nature Reserve (1993, 1994), Taevaskoja (1995), Vapramäe (1995), Kambja (1995), Melliste (1995), Järvselja (1989), Tiksoja (1995), Rähni (1994), Jüriküla (1995), O. Kurina leg.

*** 389.** *E. exigua* Lundström, 1909 **[IV]**

Transpalaearctic species (Hackman *et al.*, 1988). Biology unknown.

Estonia. Registered by me from Maasi Castle Vault **(IV)**.

Material: 8♂♂, Oonga (1994), Nigula Nature Reserve (1994), Kambja (1995), Tiksoja (1995), Suuresöödi (1994), Uljaste (1996), O. Kurina leg.

*** 390.** *E. festiva* Winnertz, 1863

Widely distributed in Europe (Krivosheina *et al.*, 1986; Hackman *et al.*, 1988). Biology unknown.

Material: 2♂♂, Kiuma (1995), Kambja (1995), O. Kurina leg.

*** 391.** *E. frigida* (Boheman, 1865)

Holarctic species (Hackman *et al.*, 1988). By Hackman and Meinander (1979) reared from *Naematoloma* sp.

Material: 1♂, Tiksoja (1995), O. Kurina leg.

392. *E. fusca* (Meigen, 1804) **[I, IV]**

Holarctic species (Hackman *et al.*, 1988). According to literature (e. g. Ribeiro, 1990; Yakovlev, 1994) recorded on many genera of Agaricales s. l. By Eisfelder (1955) in Germany registered on 128 species of macrofungi. By

Hackman and Meinander (1979) it is the polyphagous species. Chandler (1978) found this species also on Polyporaceous fungi.

Estonia. Dampf, 1924: 43 (as *Exechia fungorum* DeG. from Kärdla, Ellamaa bog, Jõõpre bog, and Pääsküla bog); Lackschewitz, 1937: 21 (from Tartu). Reared by me from 12 species of Agaricales s. l., collected at Viidumäe Nature Reserve, Oonga, Nigula Nature Reserve and Järvselja (**I**). Registered by me also from Kalmistu cave (**IV**).

Material: 37♂♂, Orissaare (1995), Piiri (1995), Riguldi (1996), Kasemetsa (1996), Oonga (1993, 1994, 1995), Nigula Nature Reserve (1990, 1992, 1993, 1994, 1995), Taevaskoja (1995), Järvselja (1989), Tiksoja (1994, 1995), Rähni (1994), Voore (1989), Kohala (1992), O. Kurina leg.; 1♂, Kääriku (1970), H. Remm leg. Total 38♂♂.

393. *E. lucidula* (Zetterstedt, 1838)

Widely distributed in Europe (Krivosheina *et al.*, 1986; Hackman *et al.*, 1988). Found also in West Siberia (Ostroverkhova, 1979). Recorded on *Gyromitra, Collybia, Laccaria, Mycena, Kuehneromyces, Pholiota* and *Inocybe* (Eisfelder, 1955; Dely-Draskovitš, 1974; Ostroverkhova, 1979; Yakovlev, 1995).

Estonia. Dampf, 1924: 43 (from Jõõpre bog).

394. *E. lundstroemi* Landrock, 1923

Transpalaearctic species (Hackman *et al.*, 1988). According to literature (Eisfelder, 1955; Ostroverkhova, 1979; Yakovlev, 1994) recorded on *Hydnellum, Lentinus, Laccaria, Collybia, Pholiota* and *Russula.*

Estonia. Lackschewitz, 1937: 22 (from Tartu).

*** 395.** *E. nigrofusca* Lundström, 1909

Widely distributed in Europe (Krivosheina *et al.*, 1986; Hackman *et al.*, 1988). Reared from *Camarophyllus niveus* and *Dermosybe anthracina* (Eisfelder, 1955).

Material: 1♂, Taevaskoja (1995), O. Kurina leg.

396. *E. nigroscutellata* Landrock, 1912 **[I, VI, IX]**

Transpalaearctic species (Hackman *et al.*, 1988). Earlier bred from *Russula* and *Lactarius* (e. g. Eisfelder, 1955; Chandler, 1978). By Hackman and Meinander (1979) the species is regular on Russulaceae.

Estonia. Dampf, 1924: 43 (from Pääsküla bog). Reared by me from *Russula emetica, R. sanguinea, Lactarius torminosus, L. theiogalus* and *L. helvus*, collected at Viidumäe Nature Reserve, Oonga, Nigula Nature Reserve and Järvselja (**I**). Registered by me also at Peedu (**VI**).

Material: 33♂♂, Oonga (1995), Nigula Nature Reserve (1990, 1994), Tõrva (1995), Taevaskoja (1994, 1995), Tiksoja (1994, 1995), Udria (1996), Kohala (1992), O. Kurina leg.

397. *E. parva* Lundström, 1909 **[I, XI]**

Transpalaearctic species (Hackman *et al.*, 1988). Recorded on *Ptychoverpa, Clitocybe, Armillaria, Mycena, Kuehneromyces, Naematoloma* and *Russula* (Chandler, 1978, Hackman & Meinander, 1979; Yakovlev, 1995).

Estonia. Lackschewitz, 1937: 24 (from Tartu). Reared by me from *Cortinarius* sp., collected at Järvselja **(I)**. The species was reared from *Cortinarius* for the first time. Registered by me also at Oonga, Nigula Nature Reserve and Tiksoja **(XI)**.
Material: 1♂, Klooga (1996), O. Kurina leg.; 1♂, Reola (1957), H. Remm leg. Total 2♂♂.

*** 398.** *E. parvula* (Zetterstedt, 1852)

Transpalaearctic species (Krivosheina *et al.*, 1986; Hackman *et al.*, 1988). In accordance with Yakovlev (1994) found on *Suillus luteus* and *Inocybe lacera*.
Material: 27♂♂, Uulu (1995), Nigula Nature Reserve (1994), Hargla (1994), Piigandi (1995), Kiuma (1995), Taevaskoja (1994), Melliste (1995), Järvselja (1989), Tiksoja (1994, 1995), O. Kurina leg.

*** 399.** *E. pseudocincta* Strobl, 1910 **[I, VI]**

Transpalaearctic species (Hackman *et al.*, 1988). By many authors (e. g. Hackman & Meinander, 1979; Halidov, 1984; Yakovlev, 1995) the species is regular on *Lactarius deliciosus* and *L. deterrimus*. According to (Dely-Draskovitš, 1974) found also from *Hebeloma crustuliniforme*.
Estonia. Reared by me from *Lactarius deliciosus*, collected at Viidumäe Nature Reserve **(I)**. Registered by me also at Peedu **(VI)**.
Material: 16♂♂, Orissaare (1995), Piiri (1995), Nigula Nature Reserve (1990,1994), Lake Vasula (1995), Tiksoja (1994, 1995), Jüriküla (1995), O. Kurina leg.

*** 400.** *E. repanda* Johannsen, 1912 **[VI, XI]**

Holarctic species (Hackman *et al.*, 1988). Recorded on *Gyromitra, Mycena, Clitocybe, Laccaria, Kuehneromyces, Amanita* and *Inocybe* (Sakharova, 1977; Dely-Draskovitš, 1974; Halidov, 1984; Yakovlev, 1995).
Estonia. Registered by me at Peedu **(VI)**, Nigula Nature Reserve, Tartu and Rähni **(XI)**.

401. *E. repandoides* Caspers, 1984 **[XI]**

The species has been found only once, in Austria (Caspers, 1984). Biology unknown.
Estonia. Registered by me at Oonga and Tõstamaa **(XI)**. The first record after the original description.

402. *E. separata* Lundström, 1912 **[I, IX]**

Transpalaearctic species (Hackman *et al.*, 1988). Feeding on many genera of Agaricales s. l. (Yakovlev, 1994).
Estonia. Lackschewitz, 1937: 24 (from Audru). Reared by me from *Boletus edulis, Chroogomphus rutilus, Boletinus cavipes, Suillus grevillei Gomphidius glutinosus* and *Cortinarius*, collected at Viidumäe Nature Reserve, Kabli, Järvselja **(I)**.
Material: 14♂♂, Piiri (1995), Hullo (1991), Nigula Nature Reserve (1994), Kiuma (1995), Taevaskoja (1995), Järvselja (1989), Tiksoja (1994, 1995), Kohala (1992), O. Kurina leg.

403. *E. seriata* (Meigen, 1830) **[I, IX]**

Transpalaearctic species (Hackman *et al.*, 1988). Reared from many species of Agaricales s. l. (e. g. Ostroverkhova, 1979; Yakovlev, 1995)

Estonia. Dampf, 1924: 43 (as *Exechia pallida* Stann. from Määvli bog on Hiiumaa Island, Pääsküla bog, and Jõõpre bog); Lackschewitz, 1937: 21 (as *Exechia pallida* Stann. from Ridala, Audru and Tartu). Reared by me from *Tricholomopsis rutilans* and *Russula* spp., collected at Viidumäe Nature Reserve, Oonga, Kabli, Nigula Nature Reserve and Järvselja **(I)**.

Material: 17♂♂, Nigula Nature Reserve (1994, 1995), Haanja (1995), Taevaskoja (1995), Lake Vasula (1995), Rähni (1994), Voore (1989), O. Kurina leg.

404. *E. sororcula* Lackschewitz, 1937

Transpalaearctic species (Hackman *et al.*, 1988). Biology unknown.

Estonia. Lackschewitz, 1937: 23 (from Tartu), typus.

Material: 3♂♂, Taevaskoja (1995), Melliste (1995), Kirna (1996), O. Kurina leg.

405. *E. spinigera* Winnertz, 1863

Transpalaearctic species (Hackman *et al.*, 1988). Biology unknown.

Estonia. Lackschewitz, 1937: 21 (from Tartu). Lackschewitz (1937) has cited the material, earlier presented by Dampf (1924), as *Exechia spinuligera* Winnertz, 1863. By Hackman *et al.* (1988) both species are valid but the material was not been preserved and there is no solution to this contradiction.

406. *E. spinuligera* Lundström, 1912 **[I, IV, VI]**

Transpalaearctic species (Hackman *et al.*, 1988). Feeding on *Discina, Suillus, Hygrocybe, Amanita, Hebeloma, Russula* and *Lactarius* (Edwards, 1925; Yakovlev, 1995).

Estonia. Dampf, 1924: 43 (from Kärdla, Ellamaa bog, Jõõpre bog and Pääsküla bog). Reared by me from *Armillaria mellea, Amanita fulva, Hebeloma crustuliniforme* and *Russula velenovskyi*, collected at Viidumäe Nature Reserve, Oonga and Järvselja **(I)**. The species has been reared from *Armillaria* for the first time. Registered by me also from Kalmistu cave **(IV)** and Peedu **(VI)**.

Material: 6♂♂, Melliste (1995), Tiksoja (1994, 1995), Rähni (1994), O. Kurina leg.; 1♂, Piusa (1993), A. Baburin leg. Total 7♂♂.

*** 407.** *E. unifasciata* Lackschewitz, 1937

Transpalaearctic species (Hackman *et al.*, 1988). According to literature (Ostroverkhova, 1979; Yakovlev, 1995) found on *Suillus, Leccinum, Russula* and *Lactarius*.

Material: 3♂♂, Tiksoja (1993), Kirna (1996), Mäetaguse (1996), O. Kurina leg.

Genus *Exechiopsis* Tuomikoski, 1966

Subgenus *Exechiopsis* Tuomikoski, 1966

*** 408.** *E. (E.) clypeata* (Lundström, 1911) **[I, IV]**

Widely distributed in Europe (Krivosheina *et al.*, 1986; Hackman *et al.*, 1988). According to literature (Halidov, 1984) found only on *Suillus bovinus*.

Estonia. Reared by me from *Mycena galericulata*, collected at Järvselja (**I**). The species reared from *Mycena* for the first time. Registered by me also from Helme, Koorküla, Piusa and Kalmistu caves (**IV**).
Material: 2♂♂, Oonga (1995), Nigula Nature Reserve (1994), O. Kurina leg.; 1♂, Endla Nature Reserve (1995, light trap), K. Kimmel leg. Total 3♂♂.

*** 409.** *E. (E.) distendens* (Lackschewitz, 1937) **[IV]**

Transpalaearctic species (Hackman *et al.*, 1988). Biology unknown.
Estonia. Registered by me from Allikukivi, Vana-Kariste, Helme, Koorküla, Piusa, Kalmistu, Aruküla and Ülgase caves (**IV**).
Material: 1♂, Teenuse (1990, light trap), R. Ülemaante leg.

*** 410.** *E. (E.) dumitrescui* (Burghele-Balacescu, 1972) **[IV]**

Transpalaearctic species (Hackman *et al.*, 1988). Biology unknown.
Estonia. Registered by me from Vana-Kariste, Piusa and Aruküla caves (**IV**).

*** 411.** *E. (E.) fimbriata* (Lundström, 1909) **[I, IV]**

Transpalaearctic species (Hackman *et al.*, 1988). By Eisfelder (1955) found on Tricholomataceae.
Estonia. Reared by me from *Laccaria laccata*, collected at Viidumäe Nature Reserve and Järvselja (**I**). My remark about lacking of the feeding data (**I**) is a mistake. Registered by me also from Allikukivi, Vana-Kariste, Helme, Koorküla, Piusa, Kalmistu, Aruküla and Ülgase caves (**IV**).
Material: 1♂, Nigula Nature Reserve (1990, light trap), O. Kurina leg.; 1♂, Endla Nature Reserve (1995, light trap), K. Kimmel leg. Total 2♂♂.

412. *E. (E.) hammi* (Edwards, 1925) **[IV]**

Transpalaearctic species (Krivosheina *et al.*, 1986; Hackman *et al.*, 1988). Biology unknown.
Estonia. Lackschewitz, 1937: 27 (as *Exechia Hammi* Edw. from Tartu). Registered by me from Vana-Kariste, Helme, Piusa, Kalmistu and Aruküla caves (**IV**).

413. *E. (E.) indecisa* (Walker, 1856) **[I, IV, IX]**

Transpalaearctic species (Hackman *et al.*, 1988). Recorded on *Suillus Xarocomus, Amanita* and *Lactarius* (Ostroverkhova, 1979; Yakovlev, 1994). By Hackman and Meinander (1979) the species is regular on Boletaceae.
Estonia. Lackschewitz, 1937: 27 (as *Exechia indecisa* Walk. from Tartu). Reared by me from fruit bodies of four species of genus *Suillus*, collected at Rannametsa, Kabli, Nigula Nature Reserve and Järvselja (**I**). Registered by me also from Maasi Castle vault and from Piusa, Kalmistu and Ülgase caves (**IV**).
Material: 4♂♂, Kohala (1992), O. Kurina leg.; 1♂, Endla Nature Reserve (1995, light trap), K. Kimmel leg. Total 5♂♂.

*** 414.** *E. (E.) intersecta* (Meigen, 1818) **[IV]**

Widely distributed in Europe (Hackman *et al.*, 1988). By Chandler (1978) found on *Tricholoma saponaceum*.

Estonia. Registered by me from Maasi Castle vault and from Allikukivi, Helme, Koorküla, Piusa, Kalmistu and Ülgase caves (**IV**).

*** 415.** *E. (E.) januarii* (Lundström, 1913) **[IV]**

After first record the species has been registered only in Latvia (Lackschewitz, 1937) and Tatary (Halidov, 1984). Reared only from *Paxillus involutus* (Halidov, 1984).

Estonia. Registered by me from Helme and Piusa caves (**IV**).

*** 416.** *E. (E.) lackschewitziana* (Stackelberg, 1948) **[IV]**

Transpalaearctic species (Hackman *et al.*, 1988). Biology unknown.

Estonia. Registered by me from Allikukivi, Helme, Piusa and Kalmistu caves (**IV**).

Material: 1♂, Tiksoja (1994), O. Kurina leg.

*** 417.** *E. (E.) landrocki* (Lundström, 1912) **[IV]**

Transpalaearctic species (Hackman *et al.*, 1988). Biology unknown.

Estonia. Registered by me from Allikukivi, Vana-Kariste, Helme, Koorküla and Piusa caves (**IV**).

*** 418.** *E. (E.) ligulata* (Lundström, 1913) **[IV]**

Previously recorded from Austria, Germany, France, Great Britain, Norway, Sweden, Finland and Russia: Murmansk District (Krivosheina *et al.*, 1986; Hackman *et al.*, 1988; Søli, 1994). Biology unknown.

Estonia. Registered by me from Allikukivi, Vana-Kariste, Helme, Koorküla, Piusa and Ülgase caves (**IV**).

Material: 1♂, Endla Nature Reserve (1995, light trap), K. Kimmel leg.

*** 419.** *E. (E.) pseudindecisa* Laštovka et Matile, 1974 **[IV]**

Transpalaearctic species (Hackman et al., 1988). Biology unknown.

Estonia. Registered by me from Piusa and Ülgase caves (**IV**).

*** 420.** *E. (E.) pseudopulchella* (Lundström, 1912) **[IV]**

Recorded from Finland (Hackman, 1980), Germany (Plassmann & Plachter, 1986) and Norway (Søli, 1994). Biology unknown.

Estonia. Registered by me from Helme, Piusa, Aruküla and Ülgase caves (**IV**).

*** 421.** *E. (E.) pulchella* (Winnertz, 1863)

Widely distributed in Europe (Krivosheina *et al.*, 1986; Hackman *et al.*, 1988). Biology unknown.

Material: 6♂♂, Oonga (1995), Nigula Nature Reserve (1994), Järvselja (1989), O. Kurina leg.; 4♂♂, Endla Nature Reserve (1995, light trap), K. Kimmel leg. Total 10♂♂.

*** 422.** *E. (E.) sagittata* Laštovka et Matile, 1974

Transpalaearctic species (Krivosheina, *et al.*, 1986; Hackman *et al.*, 1988). Biology unknown.

Material: 1♂, Tiksoja (1994), O. Kurina leg.

423. *E. (E.) subulata* (Winnertz, 1863) **[IV]**

Widely distributed in Europe (Krivosheina *et al.*, 1986; Hackman *et al.*, 1988). Reared from *Xerocomus subtomentosus* (Halidov, 1984).

Estonia. Lackschewitz, 1937: 27 (as *Exechia subulata* Winn. from Tartu). Registered by me from Allikukivi, Vana-Kariste, Helme, Koorküla, Piusa, Kalmistu, Aruküla and Ülgase caves (**IV**).

Material: 1 ♂, Nigula Nature Reserve (1994), O. Kurina leg.

Subgenus *Xenexechia* Tuomikoski, 1966

*** 424.** *E. (X.) crucigera* (Lundström, 1909)

Widely distributed in Europe (Krivosheina *et. al.*, 1986; Hackman *et al.*, 1988). Biology unknown.

Material: 3 ♂ ♂, Oonga (1995), Taevaskoja (1995), Kohala (1992), O. Kurina leg.

*** 425.** *E. (X.) leptura* (Meigen, 1830)

Widely distributed in Europe (Krivosheina *et. al.*, 1986; Hackman *et al.*, 1988). Biology unknown.

Material: 1 ♂, Orissaare (1995), O. Kurina leg.

*** 426.** *E. (X.) pollicata* (Edwards, 1925) **[IV]**

Transpalaearctic species (Hackman *et al.*, 1988). Biology unknown.

Estonia. Registered by me from Allikukivi, Vana-Kariste, Helme, Koorküla, Piusa, Kalmistu, Aruküla and Ülgase caves (**IV**).

Genus *Pseudexechia* TuoMikoski, 1966

*** 427.** *P. aurivernica* Chandler, 1978 **[VI]**

Previously recorded from Great Britain, Ireland (Hackman *et al.*, 1988), Germany (Palssmann & Joost, 1986; Plassmann, 1989), Austria (Palssmann, 1984a) and also from Russia: Moscow District (Krivosheina *et al.*, 1986), environs of Rybinsk Reservoir (Zaitzev, 1987). Biology unknown.

Estonia. Registered by me at Peedu (**VI**).

Material: 1 ♂, Mäetaguse (1996), O. Kurina leg.

*** 428.** *P. hamulata* (Lackschewitz, 1937) **[IV]**

The species is known only from Latvia (Lackschewitz, 1937).

Estonia. Registered by me from Kalmistu cave (**IV**). It is the first record after the original description.

*** 429.** *P. trisignata* (Edwards, 1913) **[IV]**

Transpalaearctic species (Hackman *et al.*, 1988). Biology unknown.

Estonia. Registerd by me from Kalmistu cave (**IV**).

Material: 1 ♂, Oonga (1995), O. Kurina leg.

*** 430.** *P. tristriata* (Stackelberg, 1969)

Transpalaearctic species (Krivosheina *et al.*, 1986; Hackman *et al.*, 1988). By Yakovlev (1995) the species has been reared from *Telephora terrestris*.

Material: 1 ♂, Uue-Saaluse (1995), O. Kurina leg.

431. *P. trivittata* (Staeger, 1840)

Transpalaearctic species (Hackman *et al.*, 1988). According to Chandler (1978) recorded on *Coprinus radicans* and *C.* sp.

Estonia. Lackschewitz, 1937: 26 (as *Exechia trivittata* Staeg. from Tartu).

Material: 2♂♂, Tõstamaa (1995), Rähni (1994), O. Kurina leg.

Genus *Pseudobrachypeza* Tuomikoski, 1966

*** 432.** *P. pseudohelvetica* Plassmann, 1984

Previously recorded from Austria (Palssmann, 1984b; Caspers, 1984). Biology unknown.

Estonia. The species is very similar to *P. helvetica* (Walker, 1856), but by Plassmann's description and figures my material belongs to this species.

Material: 14♂♂, Uulu (1995), Nigula Nature Reserve (1994, 1995), Hargla (1994), Järvselja (1989), Tiksoja (1994, 1995), Lake Vasula (1995), Suuresöödi (1994), O. Kurina leg.

Genus *Pseudorymosia* Tuomikoski, 1966

*** 433.** *P. fovea* (Dziedzicki, 1910)

Transpalaearctic species (Krivosheina *et al.*, 1986; Hackman *et al.*, 1988). In accordance with Eisfelder (1955) recorded on *Tricholoma flavobrunneum*.

Material: 1♂, Piigandi (1995), O. Kurina leg.

Genus *Rymosia* Winnertz, 1863

434. *R. affinis* Winnertz, 1863 **[III, IV]**

Transpalaearctic species (Hackman *et al.*, 1988). According to literature (Dely-Draskovitš, 1974; Chandler, 1978) recorded on *Ramaria, Hygrocybe, Hygrophorus, Tricholoma, Rhodophyllus, Amanita, Lepiota, Macrolepiota, Cortinarius* and *Russula*.

Estonia. Dapmf, 1924: 43 (from Kärdla and Jõõpre bog); Lackschewitz, 1937: 32 (from Audru). Reared by me from *Cortinarius* sp. and *Entoloma* sp., collected at Orissaare and Hullo **(III)**. The species reared from *Entoloma* for the first time. Registered by me also from Maasi Castle vault **(IV)**.

*** 435.** *R. bifida* Edwards, 1925

Widely distributed in Europe (Krivosheina *et al.*, 1986; Hackman *et al.*, 1988). By Yakovlev (1995) reared from *Psathyrella spadicea* and *Inocybe lacera*.

Material: 4♂♂, Oonga (1995), Nigula Nature Reserve (1994, 1995), Lake Rae (1994), O. Kurina leg.; 3♂♂, Endla Nature Reserve (1995, light trap), K. Kimmel leg. Total 7♂♂.

*** 436.** *R. britteni* Edwards, 1925

Previously recorded from Great Britain and Germany (Edwards, 1925; Plassmann, 1980). Biology unknown.

Material: 2♂♂, Tiksoja (1995), O. Kurina leg.

437. *R. connexa* Winnertz, 1863

Transpalaearctic species (Hackman *et al.*, 1988). Recorded on *Tricholoma inocyboides* (Yakovlev, 1995)

Estonia. Lackschewitz, 1937: 32 (from Audru and Tartu).

*** 438.** *R. fasciata* (Meigen, 1804) **[IV, VI]**

Widely distributed in Europe (Krivosheina *et al.*, 1986; Hackman *et al.*, 1988). According to literature (Edwards, 1925; Eisfelder, 1955; Chandler, 1978) found on *Morchella, Clavulinopsis, Tricholoma* and *Galerina*.

Estonia. Registered by me at Peedu (**VI**) and from Maasi Castle vault, Helme, Koorküla, Piusa and Aruküla caves (**IV**).

Material: 4♂♂, Nigula Nature Reserve (1995), Kambja (1995), Tiksoja (1995), Kohala (1992), O. Kurina leg.; 1♂, Endla Nature Reserve (1995, light trap), K. Kimmel leg. Total 5♂♂.

*** 439.** *R. placida* Winnertz, 1863 **[IV]**

Widely distributed in Europe (Krivosheina *et al.*, 1986; Hackman *et al.*, 1988). Biology unknown.

Estonia. Registered by me from Ülgase cave (**IV**).

Material: 1♂, Piigandi (1995), O. Kurina leg.

*** 440.** *R. setiger* Dziedzicki, 1910 **[III]**

Widely distributed in Europe (Krivosheina *et al.*, 1986; Hackman *et al.*, 1988). By Dely-Draskovitš (1974) and Yakovlev (1995) recorded on *Ramaria formosa, Hygrophorus erubescens* and *Cortinarius crocolitus*.

Estonia. Reared by me from *Sarcodon imbricatus*, collected at Viidumäe Nature Reserve (**III**). The species has been reared from *Sarcodon* for the first time.

Material: 3♂♂, Nigula Nature Reserve (1995), Melliste(1995), O. Kurina leg.

*** 441.** *R. signatipes* (van der Wulp, 1859)

Previously known from Austria, Germany, Netherlands, Poland, Finland, Norway and Byelorussia (Hackman *et al.*, 1988; Søli, 1994). Biology unknow.

Material: 1♂, Lake Vasula (1995), O. Kurina leg.

*** 442.** *R. spinipes* Winnertz, 1863 **[XII]**

Transpalaearctic species (Hackman *et al.*, 1988). The species has been reared from *Entoloma, Laccaria, Cortinarius, Inocybe* and *Tricholoma* (Ribeiro, 1990; Yakovlev, 1994). Registered also on Tremellales (Yakovlev, 1994)

Estonia. Reared by me from *Inocybe bongardii*, collected at Laelatu (**XII**).

Genus *Tarnania* Tuomikoski, 1966

*** 443.** *T. fenestralis* (Meigen, 1818) **[III, VI]**

Widely distributed in Europe (Hackman *et al.*, 1988). Previously found on many species of Agaricales s. l. (e. g. Edwards, 1925; Eisfelder, 1955; Yakovlev, 1994), by Dely-Draskovitš (1974) also on *Ramaria*.

Estonia. Reared by me from *Cortinarius* sp., *Pleurotus ostreatus, Clitocybe rivulosa* and *C. odora*, collected at Abruka, Orissaare, Kohala and Uhtna **(III)**. Registered by me also at Peedu **(VI)**.

Material: 22♂♂, Viidumäe Nature Reserve (1988), Orissaare (1995), Rannametsa (1995), Hargla (1994), Kiuma (1995), Taevaskoja (1995), Järvselja (1989), Rähni (1994), Jüriküla (1995), O. Kurina leg.

444. *T. tarnanii* (Dziedzicki, 1910) **[I, VI]**

Transpalaearctic species (Hackman *et al.*, 1988). Previously recorded on many species of Agaricales s. l. (e. g. Hackman & Meinander, 1979; Yakovlev, 1994).

Estonia. Dampf, 1924: 43 (as *Rhymosia tarnanii* Dzied. from Varudi bog); Lackschewitz, 1937: 31 (as *Rhymosia tarnani* Dzied. from Audru). Reared by me from nine species of Agaricales s. str., collected at Viidumäe Nature Reserve, Oonga, Rannametsa, Nigula Nature Reserve and Järvselja **(I)**. Registered by me also at Peedu **(VI)**.

Material: 11♂♂, Orissaare (1995), Nigula Nature Reserve (1994), Piigandi (1995), Taevaskoja (1994, 1995), Vapramäe (1995), O. Kurina leg.

4. DISCUSSION

4. 1. Species diversity and zoogeography

The investigations carried out by me included six families of the superfamily Mycetophiloidea: Bolitophilidae, Keroplatidae, Macroceridae, Ditomyiidae, Diadocidiidae and Mycetophilidae. Family Sciaridae was omitted intentionally, the species from other families — Manotidae, Mycetobiidae, Lygistorrhinidae — have not been recorded in Estonia so far. From the six families investigated, earlier studies have reported data on 174 species (Landrock, 1924; Dampf, 1924; Lackschewitz, 1937; Remm, 1959; Väisänen, 1984; Zaitzev, 1985). As a result of this study 270 species are added, thus increasing the total number of species to 444. The number of species recorded earlier and the ones new to the Estonian fauna are given in Table 1.

Table 1. Number of Estonian fungus gnats in earlier and in my studies.

Family	Number of species		
	Known before	Added by me	Total
Bolitophilidae	4	16	20
Keroplatidae	9	5	14
Macroceridae	12	6	18
Ditomyiidae	1	1	2
Diadocidiidae	1	2	3
Mycetophilidae	147	240	387
Total	174	270	444

The species diversity in the six families listed above can be compared with that of the neighbouring areas i. e. with Latvia and Finland. The comparison is based on Latvian (Lackschewitz, 1937) and Finnish (Hackman, 1980; Väisänen, 1984) data. After Lackschewitz (1937) fungus gnats have not been studied in Latvia. Fungus gnats of Finnish fauna are relatively well studied. When comparing the species diversity of the Estonian and Finnish fauna, the greatest difference appears in the number of the species of genera *Mycomya* Rondani, 1856, *Thichonta* Winnertz, 1863 and *Phronia* Winnertz, 1863. The higher number of the species in genera listed above can be explained by the higher habitat diversity in Finland, but also by a better level of investigation. In their monographs, Väisänen (1984) and Gagne (1981) treat the genera *Mycomya* and *Trichonta*, respectively. *Phronia* species have been properly studied by Hackman (1970). When comparing the species diversities in Estonia and the neighbouring areas (Fig. 5.) it appears that there is a group of species, that are present both in Finland and Latvia, but not in Estonia. They probably also occur in Estonia. Considering the limited study effort in Latvia the number of such

species is supposedly even higher. The number of the species of Estonian fungus gnats might be about 500, thus, ca 90% of them have been registered so far.

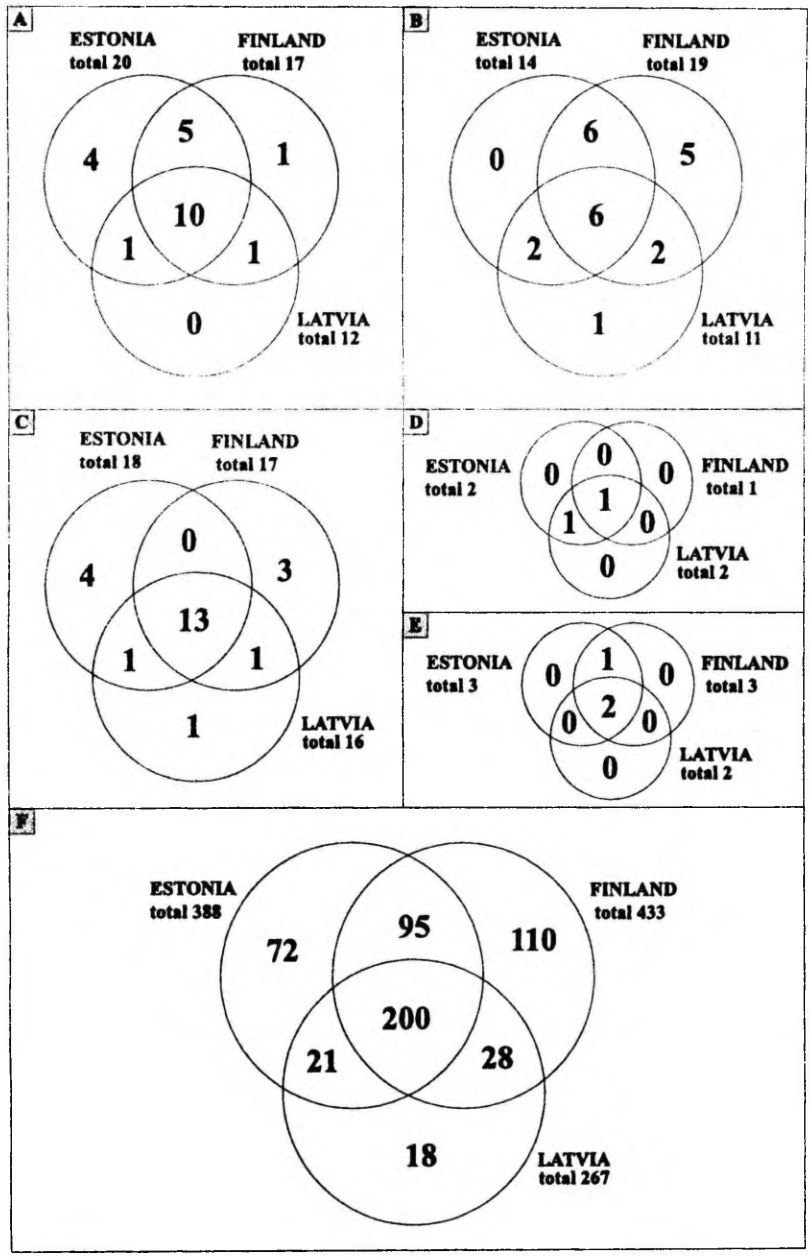

Figure 5. Comparison of species diversity in Estonia, Finland and Latvia. The numbers represent recorded species. A, Bolitophilidae; B, Keroplatidae; C, Macroceridae; D, Ditomyiidae; E, Diadocidiidae; F, Mycetophilidae.

It is difficult to carry out a zoogeographical analysis of fungus gnats in the Palaearctic region because of the scanty data on their distribution. The Mediterranean area (Portugal, Spain, South-France, Italy, Greece and Turkey), but also Russia (Siberia and Far-East) are poorly studied. However, as concerns fungus gnats recorded in Estonia three basic distribution types can be described. In following their distribution will be discussed, making use of the scheme presented by Zaitzev (1994a).

1. Holarctic species.
Two species from family Bolitophilidae: *Bolitophila (Bolitophila) cinerea* Meigen, 1818 and *B. (Cliopisa) hybrida* (Meigen, 1804); among the Keroplatidae, Macroceridae and Ditomyiidae holarctic species are absent; one species of Diadocidiidae: *Diadocidia (Diadocidia) ferruginosa* (Meigen, 1830); in the family Mycetophilidae 112 holarctic species are known, while *Leia wintheimi* Lehman, 1822 and *Mycetophila fungorum* (De Geer, 1776) of them also occur in the Oriental region. In genera with numerous species, the proportion of holarctic species is the highest in the genus *Phronia* Winnertz, 1863: 23 species out of the total of 33 have been found in Estonia.

2. Transpalaearctic species (Fig. 6, A).
These species are distributed over the major part of Europe and Asia to the Pacific Ocean. For the species recorded in Estonia, the distribution type is typical for 15 Bolitophilid, 5 Keroplatid, 10 Macrocerid and 146 Mycetophilid species. It is typical also for *Summerus annulatus* (Meigen, 1830) (Ditomyiidae) and *Diadocidia (Diadocidia) spinosula* Tollet, 1948 (Diadocidiidae).

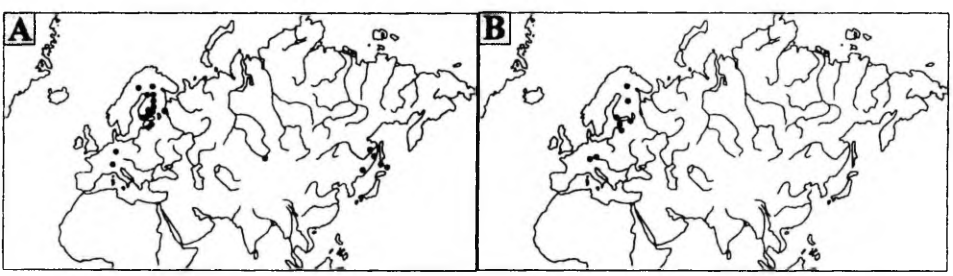

Figure 6. Distribution types of fungus gnats. A, Transpalaearctic — *Mycomya (Mycomya heydeni)* Plassmann, 1970; B, European — *Mycomya (Mycomya)* hians (Lundström, 1912).

3. Species distributed only in Europe (Fig. 6, B).
One species from Bolitophilidae (*Bolitophila (Cliopisa) bimaculata* Zetterstedt, 1838); 7 species from family Keroplatidae; 5 species from family Macroceridae; one species from Ditomyiidae (*Summerus nobilis* Lackschewitz, 1937); 103 species from family Mycetophilidae. Part of them are probably mainly with northern distribution (e. g. *Boletina pectinunguis* Edwards, 1925, *B. landrocki*

Edwards, 1924 and *Mycetophila lapponica* Lundström, 1906), others are widely distributed in Europe (e. g. *Mycetophila marginata* Winnertz, 1863).

Besides the above mentioned three types, Euro-Siberian species can be described. They are distributed in Europe as well as in Siberia, to the Altai and the Yenisey. Euro-Siberian distribution is characteristic for *Bolitophila (Cliopisa) edwardsina* Stackelberg, 1969, *B. (C.) ingrica* Stackelberg, 1969 (Bolitophilidae); *Neoplatyura flava* (Macquart, 1826) (Keroplatidae); *Macrocera grandis* Lundström, 1912, *M. sigmoides* Edwards, 1925 (Macroceridae); *Mycomya (Mycomya) karelica* Väisänen, 1979, *M. (M.) siebecki* (Landrock, 1912), *Paratina sciarina* Mik, 1874, *Docosia flavicoxa* Strobl, 1900, *Allodiopsis (Gymnogonia) rufilatera* (Edwards, 1941), *Anatella setigera* Edwards, 1921, *Brevicornu (Brevicornu) griseolum* (Zetterstedt, 1852) and *Exechia lucidula* (Zetterstedt, 1838).

Seven species are distributed in Europe but also in Transcaucasus: *Pyratula zonata* (Zetterstedt, 1855) (Keroplatidae); *Macrocera angulata* Meigen, 1818 (Macroceridae); *Mycomya (Mycomya) flavicollis* (Zetterstedt, 1852), *Apolephista subincana* (Curtis, 1837), *Boletina lundstroemi* Landrock, 1912, *Dziedzickia marginata* (Dziedzicki, 1885) and *Zygomyia pseudohumeralis* Caspers, 1980 (Mycetophilidae).

Transpalaearctic distribution is probably typical for the two above mentioned groups of species, but the present knowledge obviously rather reflects study effort than the actual situation. *Greenomyia mongolica* Laštovka et Matile, 1974 is of Balto-Eurasian distribution type. Ecologically the distribution type is connected to spruce and fir forest of South-Taiga (**VIII**).

Two species — *Sciophila pseudoflexuosa* Kurina, 1991 and *Mycetophila estonica* Kurina, 1992, described from Estonia, have not been recorded in other areas (**I, II**). *Allodia (Allodia) zaitzevi* Kurina, 1997 has for the present also been recorded in Russia: Leningrad and Amur Districts (**X**). For eight species — *Neuratelia subulata* A. Zaitzev, 1994, *Syntemna stylatoides* A. Zaitzev, 1994, *Boletina gusakovae* A. Zaitzev, 1994, *Allodia (Brachycampta) vernalis* Polevoi, 1995, *Anatella crispa* A. Zaitzev, 1994, *Exechia repandoides* Caspers, 1984, *Pseudexechia hamulata* (Lackschewitz, 1937), *Zygomyia jakovlevi* A. Zaitzev, 1989 — the first record after the original description is reported, but the knowledge of their wider distribution is absent. *Neuratelia sintenisi* Lackschewitz, 1937 has been described from Estonia, but it has not been found after the original description.

Wide ranges of Mycetophilids, supposedly connected with polyphagy, are typical of their distribution. Polyphagy allows them not to depend on the distribution of certain fungus species.

4. 2. Ecological aspects

Most of the species of fungus gnats are associated with the fruit bodies of fungi or mycelium. According to Yakovlev (1994) 320 species of fungus gnats (Mycetophiloidea excl. Sciaridae) have been reared from macrofungi or myxomycetes in the Palaearctic region.

As a result of my study, 77 species of fungus gnats have been recorded as mycetophagous: 9 Bolitophilid species and 68 Mycetophilid species. *Boletina gripha* Dziedzicki, 1885, *Allodia (Allodia) lundstroemi* Edwards, 1921 and *Phthinia winnertzi* Mik, 1869 were reared from macrofungi for the first time (**I, III**). It was the first time that a species of genus *Boletina* Staeger, 1840 had been recorded on Agaricales s. l. My previous remarks about the lack of feeding data on *Leia bilineata* (Winnertz, 1863) (**III**) and *Exechiopsis (Exechiopsis) fimbriata* (Lundström, 1909) (**I**) were erroneous. For 22 species a new genus of host macrofungi was found (Table 2). That extends our knowledge of their feeding spectrum. Two species — *Mycomya (Mycomya) cinerascens* (Macquart, 1826) and *Sciophila modesta* A. Zaitzev, 1982 — were reared from Agaricales s. l. for the first time.

Some of the reared fungus gnats seem to prefer certain fungus species or groups as larval host. According to Yakovlev (1994) *Bolitophila (Cliopisa) retangulata* Lundström, 1913 is a monophagous species on *Laetiporus sulphureus*. In Estonia, the species has also been reared from this species of macrofungi only (**IX**). *Mycetophila estonica* Kurina, 1992 and *Exechia confinis* Winnertz, 1863 also seem to be monophagous on *Lactarius deterrimus* and *Paxillus involutus*, respectively. Six species of fungus gnats supposedly prefer feeding on a species of a certain genus of macrofungi (**IX**): *Bolitophila (Cliopisa) rossica* Landrock, 1912 on *Suillus*; *Mycetophila alea* Laffoon, 1965 on *Russula — Compactae* group; *Mycetophila blanda* Winnertz, 1863 on *Lactarius*; *Cordyla fusca* Meigen, 1804 on *Russula*; *Exechia pseudocincta* Strobl, 1910 on *Lactarius*; *Exechiopsis (Exechiopsis) indecisa* (Walker, 1856) on *Suillus*. In addition, *Bolitophila (Cliopisa) hybrida* (Meigen, 1804) seems to be regular on *Paxillus involutus*, *Mycetophila confluens* Dziedzicki, 1884 on Boletaceae, *Mycetophila lunata* Meigen, 1830 on *Hygrophoropsis aurantiaca*, *Exechia seriata* (Meigen, 1830) on *Russula*, *E. separata* Lundström, 1912 on Boletaceae and Comphidiaceae, *Exechia nigroscutellata* Landrock, 1912 on Russulaceae (**IX**). For a detailed food preference studies of fungus gnats pre-planned complex ecological studies are needed. However, this is not an objective of the thesis.

Table 2. The species of fungus gnats for which a new genus of host macrofungi was found.

Species of fungus gnats	Genus of host macrofungi reported for the first time
Mycomya (M.) cinerascens (Macq.)	Cortinarius
Sciophila modesta A. Zaitzev	Lactarius
S. nonnisilva Hutson	Phellinus
Leia bilineata (Winn.)	Phellinus, Piptoporus
Mycetophila confluens Dzied.	Suillus
M. laeta Walker	Phellinus
M. ocellus Walker	Cortinarius
M. sigillata Dzied.	Laccaria
Allodia (A.) embla Hackman	Laccaria
A. (A.) septentrionalis Hackman	Tricholoma
A. (B.) alternans (Zett.)	Tricholomopsis
A. (B.) czernyi (Landr.)	Cortinarius
A. (B.) grata (Meig.)	Tricholomopsis
Allodiopsis (A.) domestica (Meig.)	Entoloma
A. (A.) pseudodomestica Lackschewitz	Lepista
Brachypeza (B.) radiata Jenkinson	Armillaria
Exechia parva Lundst.	Cortinarius
E. spinuligera Lundst.	Armillaria
Exechiopsis (E.) clypeata (Lundst.)	Mycena
E. (E.) fimbriata (Lundst.)	Laccaria
Rymosia affinis Winn.	Entoloma
R. setiger Dzied.	Sarcodon

Phenodynamic studies of fungus gnats give evidence of the activity of many species in early spring. The reason for that is their hibernation as imagoes. The hibernating of 28 species of fungus gnats in caves of Estonia (**IV**) and two species in broken umbelliferous stems (**XI**) was recorded by me. The overwintering of fungus gnats in caves has not been studied in Europe so far. The prevalence of genus *Exechiopsis* has been recorded among Mycetophilids, hibernating in caves (**IV**). There are data on hibernation of two species of fungus gnats, (*Execia parva* Lundström, 1909 and *E. repanda* Johannsen, 1912), in umbelliferous stems (Väisänen, 1981b). My studies have approved the Finnish data (**XI**).

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SEENESÄÄSKLASED EESTIS (*DIPTERA, NEMATOCERA: BOLITOPHILIDAE, KEROPLATIDAE, MACROCERIDAE, DITOMYIIDAE, DIADOCIDIIDAE, MYCETOPHILIDAE*)

Kokkuvõte

Käesolev töö on faunistilise suunitlusega, käsitledes Eesti fauna seenesääsklasi. Töös esitatakse nimestik 444 liigiga, nendest: *Bolitophilidae* — 20 liiki; *Keroplatidae* — 14 liiki; *Macroceridae* — 18 liiki, *Ditomyiidae* — 2 liiki; *Diadocidiidae* — 3 liiki ja *Mycetophilidae* — 387 liiki. Teeside aluseks olnud uuringutel on 270 nendest leitud Eestis esmakordselt: *Bolitophilidae* — 16 liiki; *Keroplatidae* — 5 liiki, *Macroceridae* — 6 liiki, *Ditomyiidae* — 1 liik, *Diadocidiidae* — 2 liiki, *Mycetophilidae* — 240 liiki. Töö põhineb materjalil, mis sisaldab 16 991 isendit, nendest 13 013 on määratud liikideni. On kirjeldatud kolm teadusele uut liiki: *Sciophila pseudoflexuosa* Kurina, 1991, *Mycetophila estonica* Kurina, 1992 ja *Allodia (Allodia) zaitzevi* Kurina, 1997. Kaks esimest liiki on kirjeldatud ainult Eesti materjali põhjal, liik *A. (A.) zaitzevi* on sedastatud *A. (A.) pyxidiiformis* A. Zaitzev, 1983 tüüpseeria läbivaatuse tulemusel ka Venemaal: Leningradi ja Amuuri oblastis. Kaheksa liiki — *Neuratelia subulata* A. Zaitzev, 1994, *Syntemna stylatoides* A. Zaitzev, 1994, *Boletina gusakovae* A. Zaitzev, 1994, *Allodia (Brachycampta) vernalis* Polevoi, 1995, *Anatella crispa* A. Zaitzev, 1994, *Exechia repandoides* Caspers, 1984, *Pseudexechia hamulata* (Lackschewitz, 1937), *Zygomyia jakovlevi* A. Zaitzev, 1989 — on leitud esmakordselt pärast esmakirjeldamist. Käsitletud liikidele on iseloomulikud kolm põhilist levikutüüpi: holarktiline (115 liiki), transpalearktiline (178 liiki) ja Euroopa levikutüüp (117 liiki).

9 *Bolitophilidae* ja 68 *Mycetophilidae* liigi puhul on sedastatud nende seentoidulisus. Kolm liiki — *Boletina gripha* Dziedzicki, 1885, *Allodia (Allodia) lundstroemi* Edwards, 1921 ja *Phthinia winnertzi* Mik, 1869 — kasvatati makroseentest välja esmakordselt. 22 Mycetophilidae liigile leiti uus substraatseene perekond, nendest liigid *Mycomya (Mycomya) cinerascens* (Macquart, 1826) ja *Sciophila modesta* A. Zaitzev, 1982 kasvatati esmakordsena välja lehikulistest (*Agaricales* s. l.). 15-l *Mycetophilidae* liigil jälgiti nende arvatavaid toitumiseelistusi mõnel seeneliigil või -rühmal.

Seenesääsklaste talvitumine valmikuna selgitati 30 liigil: 28 liiki koobastes, 2 liiki sarikõieliste vartes. Koobastes talvituvate seenesääsklaste hulgas prevaleeris perekond *Exechiopsis* Tuomikoski, 1966, sarikõieliste vartes talvitusid liigid *Execia parva* Lundström, 1909 ja *E. repanda* Johannsen, 1912.

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PUBLICATIONS

I

Kurina, O. 1991.
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УДК 595.771

Olavi KURINA *

MYCETOPHILIDAE (*DIPTERA*) REARED FROM MACROFUNGI IN ESTONIA

The fruit bodies of Macrofungi form a special habitat and food for the fungivorous larvae of numerous species of various dipterous families; when decaying the same fruit bodies also serve as the substrate for the saprophagous flies though they can occur also in other decomposing objects. *Mycetophilidae* have a principal position among the families containing fungivorous species. In general the fungus fauna has been studied in several countries of Europe. *Mycetophilidae* have been particularly well investigated in Finland (Hackman, Meinander, 1979), England (Buxton, 1960; Hutson et al., 1980), Germany (Landrock, 1940; Plassmann, 1969), Hungary (Dely-Draskovits, 1974), Karelia (Яковлев, Осипова, 1985), Tataria (Халидов, 1984), the Moscow Region (Сахарова, 1977), and also in Siberia, the Asian part of the USSR (Островерхова, 1979).

In Estonia *Mycetophilidae* have been studied by A. Dampf (1924), K. Landrock (1924) and P. Lackschewitz (1937), but without special rearing of imagines from fruit bodies. The list composed by Lackschewitz is more complete containing 143 species from Estonia, three of the included species being described as new to science. The list by Dampf (1924) contains 39 species from the Estonian raised bogs. The paper by Landrock (1924) includes four species of *Mycetophilidae*, among them two new ones. Some species are also mentioned by H. Remm (1959) in the list of the *Diptera* of the Avaste Fen.

The material for the present work was obtained by breeding the imagines of fungus gnats from fruit bodies collected from 8 sites in Estonia: Revoja in the Lahemaa National Park (1988), Oonga south-east of Haapsalu (1988, 1989, 1990), the Viidumäe State Nature Reserve in the Island of Saaremaa (1988), Kabli (1988, 1990) and Rannametsa (1988), both south of Pärnu, the Nigula State Nature Reserve (1990), the Järvselja Experimental Forestry Enterprise south-east of Tartu (1989), and Apja east of Valga (1988).

Fruit bodies collected for laboratory rearing were placed in plastic and glass containers of the size of 0.2, 0.5 and 1 litre. Pure peat was used as substrate for pupation. The breeding containers were covered with nylon gauze. The emerged imagines were either pinned or preserved in 70% ethanol. The material is deposited at the Institute of Zoology and Botany of the Estonian Academy of Sciences, Tartu.

101 fungus species were infested with insects, and 83% of them, i. e. 84 species, were infested with the larvae of *Mycetophilidae*. All in all 2031 male specimens of fungus gnats and 1056 females of only 4 species (*Rondaniella dimidiata* Mg., *Cordyla fusca* Mg., *Tarnania tarnanii* Dz. and *Mycetophila fungorum* Deg.) were bred and identified. Among them there were 1004 ♂♂ and 1013 ♀♀ of *M. fungorum* Deg. The reared material contained altogether 40 species. A new species of the genus *Sciophila* Mg. is described in this paper. 17 species are new to Estonia. Asterisks before their names indicate them in the list. Three species, *Allodia lundstroemi*

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Edw., *Boletina gripha* Dz. and *Exechiopsis fimbriata* Lundst. have been recorded from fungi for the first time. The larvae of *Mycetophila blanda* Winn. were found only on two closely related species of fungi — *Lactarius deterrimus* and *L. deliciosus*. *Cordyla flaviceps* Staeg. was reared only from the species of *Russula*, *Exechia contaminata* Winn. only from *Lactarius*, *Exechia seriata* Mg. only from *Russula*, and *Exechiopsis indecisa* Walk. only from *Suillus*. *Mycetophila fungorum* Deg. was the most abundant species forming approximately 41% of all the registered specimens of the fungus gnats.

Literature data about the host fungi of Mycetophilid species are given in the following list mainly by Krivosheina et al. (Кривошеина et al., 1986).

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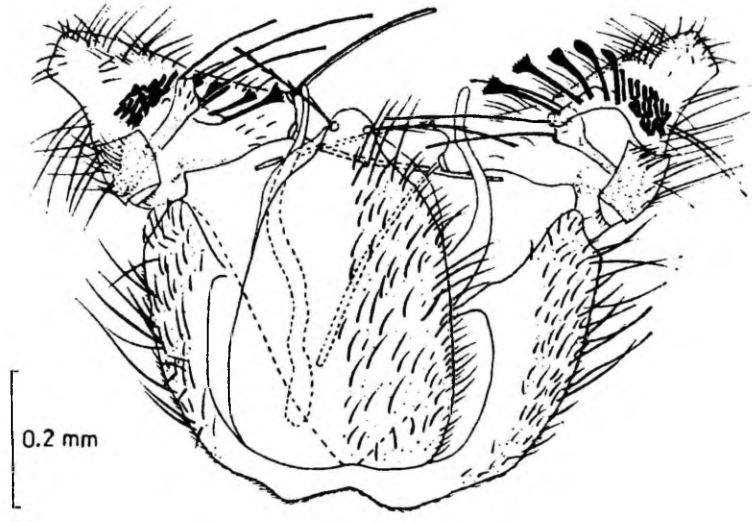
List of species

***1. Sciophila pseudoflexuosa** sp. n.

Male. Body length 4.5 mm, wing length 3.8 mm. Head black. Vertex with long bristles. Mouthparts brownish, palps brownish basally, yellow apically. Antennae bicoloured: scape, pedicel and three first flagellar segments yellow, remainder brown. Flagellum with short hairs. Sternopleuron, mesopleuron, pteropleuron, pleurotergite and mediotergite brown. Propleuron yellowish. Mesonotum dull blackish brown. Wing membrane with micro- and macrotrichia. Veins pale. M petiole subequal rm. Sc_2 ending in R_1 at its beginning. Small cell nearly square, as long as wide. Halteres pale. Legs yellow. Abdomen brownish black with indistinct brown spots. Hypopygium figure.



Sciophila pseudoflexuosa sp. n., hypopygium, dorsal view.

Holotype, male, Estonia, the Nigula State Nature Reserve, emerged from *Lactarius helvus* 7. 9. 1990. Fruit body was collected 6. 8. 1990.

Sciophila pseudoflexuosa sp. n. is very similar to *S. flexuosa* Zaitzev, 1982, described only by the type specimen (♂) from the Primorsk Territory in the Soviet Far East. The new species may be distinguished from *S. flexuosa* by the dull mesonotum, by the short small cell of wing and by the male genitalia (figure; Заїцев, 1982, fig. 6, 6). The basis of the IX tergite is relatively broad. The apex of the IX tergit has two shortly pubescent bristles. The small medial appendage of gonostylus has three long blunt bristles of different lengths. The new species is a little larger as *S. flexuosa*. Body length of *S. flexuosa* is 3.0 mm, wing length 3.1 mm.

Larvae of *S. flexuosa* were recorded on the surface of fruit body of *Pleurotus citrinopileatus*.

2. **Boletina gripha** Dziedzicki, 1885
The first record from fungus.
Material: Rannametsa, *Suillus bovinus* 17. 9. 1988, 1 ♂ emerged 21. 9. 1988.

3. **Rondaniella dimidiata** (Meigen, 1804)
The species has been bred frequently from a variety of fungi. My original material not numerous. Also females were determined.
Material: Nigula, ex *Boletus edulis* and *Lactarius helvus*. 2♂♂ 2♀♀.

4. **Mycetophila alea** Laffoon, 1965
Formerly recorded on *Russula*, *Lactarius*, *Collybia*, *Hebeloma*.
Material: Viidumäe, ex *Russula densifolia*; Järvselja, ex *R. adusta*. 51♂♂.

*5. **Mycetophila assimilis** Matile, 1967
Formerly recorded from *Russula*, *Lactarius*, *Boletus*, *Leccinum*.
Material: Oonga, ex *Leccinum scabrum*; Nigula, ex *Xerocomus subtomentosus*, *Paxillus involutus*, *Boletus edulis*; Järvselja, ex *Leccinum aurantiacum*. 9♂♂.

6. **Mycetophila blanda** Winnertz, 1863
Formerly recorded on *Lactarius*, *Russula*, *Panus*, *Hygrophoropsis*.
According to my original data, in Estonia registered only on two very closely related species *Lactarius deterrimus* and *L. deliciosus*. By some mycologists, these fungus species are concidered only varieties of a single species (Kalamees, 1979).
Material: Viidumäe, ex *Lactarius deliciosus*, 1♂; Viidumäe, Nigula and Järvselja, ex *L. deterrimus*, 59♂♂.

7. **Mycetophila confluens** Dziedzicki, 1884
Earlier recorded on *Leccinum* and *Xerocomus*.
Material: Kabli, ex *Suillus granulatus*; Nigula and Järvselja, ex *S. variegatus*. 4♂♂.

8. **Mycetophila finlandica** Edwards, 1913
Formerly, according to the literature, also on the basis of the new original data feeding only on *Tricholomopsis rutilans*.
Material: Kabli and Järvselja, ex *T. rutilans*, 61♂♂.

9. **Mycetophila fungorum** (De Geer, 1776)
More than 120 species of the *Agaricales* s. str. and the *Boletales* are registered as food substrate of *M. fungorum*. Known also from *Peziza* and *Cantharellus*. According to my original data, in Estonia from 40 species of the *Agaricales* s. str.
Material: Viidumäe, Oonga, Rannametsa, Kabli, Apja, Järvselja, 1004♂♂ and 1013♀♀.

10. Mycetophila ichneumonea Say, 1823
Formerly reared from fungi of 13 genera of the *Agaricales s. str.* According to my original material, from 11 species of various genera.
Material: Viidumäe, Kabli, Nigula, Järvselja, 83♂♂.

11. Mycetophila laeta Walker, 1848
Formerly bred from *Fomitopsis*, *Polyporus* and *Lactarius*.
Material: Nigula, *Phellinus igniarius*, 12.10.1990, 8♂♂ emerged 19.10.1990.

12. Mycetophila luctuosa Meigen, 1830
Formerly reared from *Peziza*, *Fomitopsis*, *Stereum*, *Rozites*, *Lactarius*, *Russula*, *Paxillus*, *Tricholoma*.
Material: Viidumäe, ex *Russula densifolia*, 27♂♂; Oonga, ex *Lactarius theiogalus*, 1♂.

*13. **Mycetophila lunata** Meigen, 1804
Formerly (Халидов, 1984) and, according to my original data, only from *Hygrophoropsis aurantiaca*.
Material: Nigula and Järvselja, ex *H. aurantiaca*, 14♂♂.

*14. **Mycetophila ruficollis** Meigen, 1818
Earlier reared only from *Armillaria*.
Material: Nigula, ex *Oudemansiella platyphylla*; Järvselja, ex *Entoloma* sp. and *Pholiota aurivella*. 8♂♂.

15. **Mycetophila sigillata** Dziedzicki, 1884
Formerly registered on *Russula* and *Lactarius*.
Material: Viidumäe, ex *Laccaria laccata*, 1♂; Nigula and Järvselja, ex *Russula delica*, 25♂♂.

*16. **Allodia (Allodia) lundstroemi** Edwards, 1921
Formerly no records about feeding.
Material: Järvselja, *Laccaria laccata*, 27.8.1989, 2♂♂ emerged 7.9.1989.

*17. **Allodia (Allodia) pyxidiiformis** A. Zaitzev, 1983
A species closely related to *A. ornaticollis* Mg., distinguished only by the hypopygium. The species is absent in the Catalogue of Palaearcic Diptera (1988). Earlier recorded only on undetermined fungi *Agaricales* s. str.
Material: Nigula, ex *Boletus edulis*, *Amanita muscaria*, *Russula flava*, *R. paludosa*, *R. vinosa*; Järvselja, ex *Suillus bovinus*, *Comphidius glutinosus*, *Amanita citrina*, *A. muscaria*, *A. porphyria*, *Russula fragilis*, *R. velenovskyi*, R. sp. 36♂♂.

18. Allodia (Brachycampta) alternans (Zetterstedt, 1838)
Polyphagous. Feeding on many species of *Agaricales* s. l.
Material: Kabli, ex *Tricholomopsis rutilans*; Nigula, ex *Hygrophoropsis aurantiaca*; Järvselja, ex *Russula xerampelina* var. *elaeodes*. Total 3♂♂.

19. Allodia (Brachycampta) czernyi (Landrock, 1912)
Earlier known on *Kuehneromyces* and *Dermocybe*.
Material: Nigula, *Cortinarius* sp., 8.8.1990. 1♂ emerged 27.8.1990.

20. Allodia (Brachycampta) grata (Meigen, 1830)
Feeding on various *Agaricales* s. str.
Material: Kabli, *Tricholomopsis rutilans*, 15.8.1990, 28♂♂ emerged 4.9.1990.

***21. Allodiopsis (Allodiopsis) pseudodomestica** (Lackschewitz, 1937)
Formerly recorded only from *Lycoperdon*.
Material: Järvselja, *Lepista gilva*, 4.9.1989, 2♂♂ emerged 25.9.1989.

*22. **Allodiopsis (Allodiopsis) rustica** (Edwards, 1941)
Earlier recorded on *Tricholoma*, *Lepista* and *Clitocybe*.
Material: Kabli, *Clitocybe clavipes*, 4. 9. 1990, 2♂♂ emerged 31. 8. 1990 and 15. 9. 1990.

*23. **Brachypeza (Brachypeza) radiata** Jenkinson, 1908
Formerly bred from *Pleurotus*.
Material: Nigula, *Armillaria mellea*, 8. 8. 1990, 1♂ emerged 27. 8. 1990.

*24. **Cordyla brevicornis** (Staeger, 1840)
Recorded from various genera of the *Agaricales* s. l. by many authors.
Material: Viidumäe, ex *Russula ochroleuca*; Rannametsa, ex *R. paludosa* and *Rozites caperata*; Nigula, ex *R. caperata*, *Russula paludosa*, *R.* sp.; Apja, ex *R. vesca*; Järvselja, ex *R. emetica* var. *emetica*, *R.* sp., *Amanita virosa*. 30♂♂.

*25. **Cordyla fasciata** Meigen, 1830
Formerly reared from many genera of the *Agaricales* s. l.
Material: Järvselja, *Russula adusta*, 4. 9. 1989, 7♂♂ emerged 14. 9. 1989.

*26. **Cordyla flaviceps** (Staeger, 1840)
Formerly reared from *Hygrophorus*, *Lactarius* and *Russula*. According to my original material, this species was reared from 9 *Russula* species and from *Hygrophorus eburneus* only in one case.
Material: Viidumäe, ex *Hygrophorus eburneus*, *Russula aurata*, *R. delica*, *R. ochroleuca*, *R. paludosa* (51♂♂), *R. vinosa*; Oonga and Nigula, ex *R. flava*; Järvselja, ex *R. aeruginea*, *R. emetica* var. *betularum*, *R. velenovskyi*. Total 93♂♂.

27. **Cordyla fusca** Meigen, 1864
Feeding on *Russula*, *Hypholoma* and *Boletus*. According to my original material, in Estonia found only on *Russula*. Determined also by females.
Material: Nigula, ex *Russula flava*, *R. paludosa*; Järvselja, ex *R. adusta*, *R. cyanoxantha*, *R. paludosa*. 33♂♂ 20♀♀.

*28. **Exechia contaminata** Winnertz, 1863
Formerly recorded from *Russula* and *Lactarius*. According to my original data only on *Lactarius*.
Material: Viidumäe, ex *Lactarius rufus*; Rannametsa and Järvselja, in both ex *L. rufus* and *L. trivialis*. 13♂♂.

29. **Exechia dorsalis** (Staeger, 1840)
Formerly recorded from many genera of the *Agaricales* s. l.
Material: Nigula, ex *Cortinarius armillatus*, *Inocybe* sp.; Järvselja, ex *Cortinarius* sp. 10♂♂.

30. **Exechia fusca** (Meigen, 1804)
Polyphagous. Registered on 23 genera of the *Agaricales* s. str., on *Suillus* and *Boletus* and *Pseudotrametes*.
Material: Viidumäe, ex *Hygrophorus cossus*, *H. eburneus*, *Russula emetica* var. *betularum*; Oonga, ex *Hebeloma crustuliniforme*; Nigula, ex *H. crustuliniforme*, *Amanita rubescens*, *Russula delica*; Järvselja, ex *Boletinus cavipes*, *Xerocomus subtomentosus*, *Stropharia hornemannii*, *Russula emetica* var. *emetica*, *R. flava*, *R. fragilis*, *R. puellaris*. 34♂♂.

31. **Exechia nigroscutellata** Landrock, 1912
Earlier bred from *Lactarius* and *Russula*.
Material: Viidumäe, ex *Lactarius torminosus*, 31♂♂; Oonga, ex *L. theiogalus*; Nigula, ex *L. helvus*, *Russula emetica* var. *emetica*, *R. sanguinea*; Järvselja, ex *Lactarius helvus*, *L. theiogalus*. Total 46♂♂.

32. Exechia parva Lundström, 1909
Earlier found on *Verpa, Armillaria, Hypoloma.*
Material: Järvselja, *Cortinarius* sp., 2. 9. 1989, 1♂ emerged 10. 9. 1989.

***33. Exechia pseudocincta** Strobl, 1910
Feeding on *Lactarius* and *Hebeloma.*
Material: Viidumäe, *Lactarius deliciosus*, 9. 8. 1988, 9♂♂ emerged 17. 8. 1988.

34. Exechia separata Lundström, 1912
Feeding on many genera of the *Agaricales* s. l.
Material: Viidumäe, ex *Boletus edulis, Chroogomphus rutilus*; Kabli, ex *C. rutilus*; Järvselja, ex *Boletinus cavipes, Suillus grevillei, Gomphidius glutinosus* (35♂♂), *Cortinarius* sp. Total 69♂♂.

35. Exechia seriata (Meigen, 1830)
Formerly reared from *Kuechneromyces, Russula, Lactarius, Hygrophorus, Tricholoma.*
Material: Kabli, ex *Tricholomopsis rutilans*, 1♂; Viidumäe, Oonga, Kabli, Nigula and Järvselja, ex *Russula* spp., 102♂♂.

***36. Exechia spinuligera** Lundström, 1912
Earlier recorded from *Amanita, Lactarius, Pluteus, Boletus* and *Suillus.*
Material: Viidumäe, ex *Armillaria mellea*; Oonga, ex *Amanita fulva*; Järvselja, ex *Hebeloma crustuliniforme, Russula velenovskyi.* Total 13♂♂.

***37. Exechiopsis (Exechiopsis) clypeata** (Lundström, 1911)
Feeding on *Suillus bovinus* (Халидов, 1984).
Material: Järvselja, *Mycena galericulata,* 3. 9. 1989, 3♂♂ emerged 12. 9. 1989.

***38. Exechiopsis (Exechiopsis) fimbriata** (Lundström, 1909)
Earlier no remarks about feeding.
Material: Viidumäe and Järvselja, in both ex *Laccaria laccata*, 8♂♂.

39. Exechiopsis (Exechiopsis) indecica (Walker, 1856)
Formerly recorded on *Suillus, Xerocomus* and *Leccinum.* Probably bred on *Amanita* (Островерхова, 1979). Original material only from *Suillus.*
Material: Rannametsa and Järvselja, in both localities ex *Suillus bovinus* and *S. variegatus*; Kabli, ex *S. granulatus*; Nigula, ex *S. variegatus* and *S. luteus.* Total 99♂♂.

40. Tarnania tarnanii (Dziedzicki, 1910)
Polyphagous. Earlier registered on many species of the *Agaricales* s. l. According to my original material found from 9 species of fungi. Also females were determined.
Material: Viidumäe, ex *Hygrophorus eburneus, H. persicolor, H. russula, Hebeloma edurum, Cortinarius* sp., *Russula* sp.; Oonga, ex *Hebeloma crustuliniforme*; Rannametsa, ex *Cortinarius mucosus, Lactarius trivialis*; Nigula, ex *Rozites caperata*; Järvselja, ex *Cortinarius violaceus.* Total 26♂♂ 21♀♀.

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Olavi KURINA

EESTIS MAKROSEENTEST VÄLJAKASVATATUD SEENESÄÄSKLASED (*DIPTERA, MYCETOPHILIDAE*)

Senised andmed seenesääsklastest Eestis ei ole saadud nende väljakasvatamise teel seentest. Siinses uurimuses on kindlaks tehtud 40 seenesääsklase liiki 84-st makroseene liigist. Neist 17 on uued liigid Eestile. On kirjeldatud uus liik *Sciophila pseudoflexuosa* sp. n. ühe isase järgi, mis kasvatati välja sooriisikast (*Lactarius helvus*). Kolme liigi vastsed on leitud esmakordselt seentest. Mõnede seenesääsklaste puhul on selgunud uusi substraatseeni. Kõige tavalisemaks ja arvukamaks seenesääsklaseks on *Mycetophila fungorum* Deg.

Олави КУРИНА

ГРИБНЫЕ КОМАРЫ (*DIPTERA, MYCETOPHILIDAE*), ВЫВЕДЕННЫЕ В ЭСТОНИИ ИЗ МАКРОМИЦЕТОВ

Данные о грибных комарах Эстонии, существующие в литературе, не были получены путем выведения имаго из плодовых тел грибов. В настоящей работе изучены 84 вида макромицетов, в которых установлено 40 видов грибных комаров, при этом 17 из них являются новыми для Эстонии. Описывается новый вид *Sciophila pseudoflexuosa* sp. n., выведенный из гриба *Lactarius helvus*. Личинки 3 видов были найдены впервые в грибах. Для некоторых видов грибных комаров установлены новые субстратные грибы. Самым обычным и многочисленным видом оказался *Mycetophila fungorum* Deg.

II

Kurina, O. 1992.
A new species of the genus *Mycetophila* Meigen
(Diptera, Mycetophilidae) found in Estonia.
Proc. Estonian Acad. Sci. Biol., 41, N 3, 127–130.

Proc. Estonian Acad. Sci. Biol., 1992, 41, 3, 127—130

UDC 595.771

*Olavi KURINA**

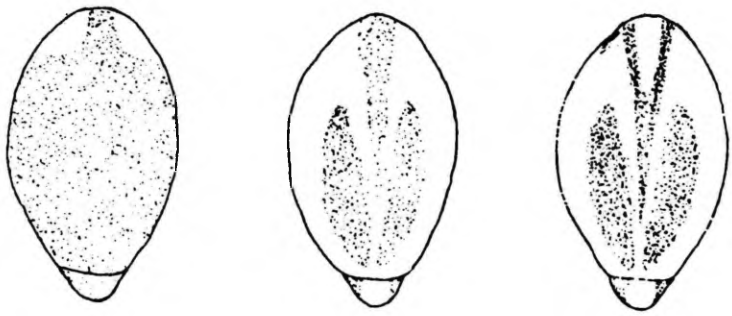
A NEW SPECIES OF THE GENUS *MYCETOPHILA* MEIGEN (*DIPTERA, MYCETOPHILIDAE*) FOUND IN ESTONIA

Abstract. A new fungus gnat *Mycetophila estonica* sp. n. is described. Adult specimens, 19 ♂♂, were reared from fruit bodies of *Lactarius deterrimus*, collected in three localities in Western Estonia. *M. estonica* is closely related to *M. blanda* Winn. and *M. signatoides* Dz., both also found in Estonia. The colour pattern of the mesonotum and some details of the hypopygium are figured for all three species.

Mycetophila Meigen, 1803, is a widely distributed genus of fungus gnats. So far there are 143 species recorded in the Palaearctic region (Laštovka, 1988), 28 of them in Estonia (Lackschewitz, 1937; Kurina, 1991). My original material from Estonia has been reared from fruit bodies of Macrofungi and contains a new species among all the 14 *Mycetophila-species* collected by me in 1988—1991.

Mycetophila estonica sp. n.

Male. Body length 3.9 mm, wing length 3.2 mm, Frons brown. Palps yellow. Other mouthparts and face yellowish to brown. Scape and pedicel of antennae yellow, flagellum dull brown. Mesonotum yellow with a V-shape stripe and with two brownish black elongated spots (Fig. 3.). Pronotum and propleuron dark yellow. Mesopleuron, pteropleuron, metapleuron and sternopleuron dull brownish. Scutellum brown



Figs. 1—3. *Mycetophila* Mg. Mesonotums. 1 — *M. blanda* Winn., 2 — *M. signatoides* Dz., 3 — *M. estonica* sp. n.

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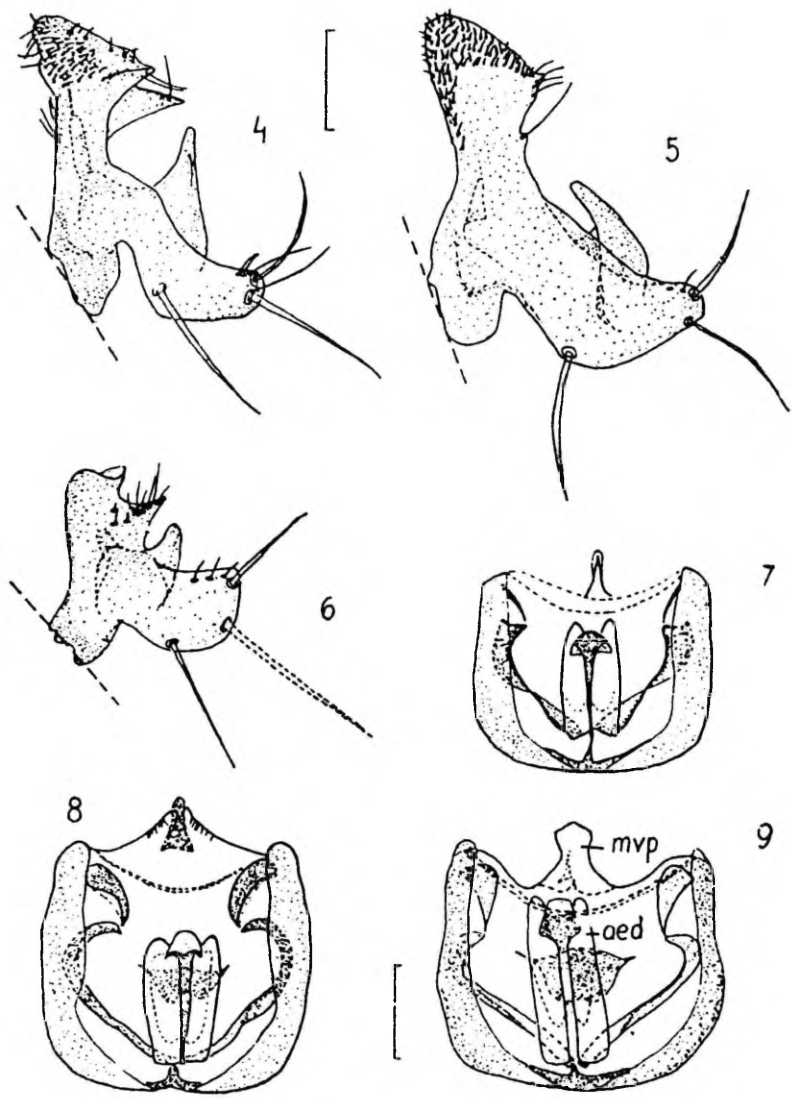

Figs. 4—9. *Mycetophila* Mg. Male genitalia. 4, 8 — *M. blanda* Winn., 5, 9 — *M. estonica* sp. n. (holotype), 6, 7 — *M. signatoides* Dz. 4—6 dorsal part of gonostylus, dorsal view; the fragmentary line shows the disconnection site of the dorsal part of gonostylus from the hypopygium. Scale represents 0.05 mm. 7—9 — central part of hypopygium, the ninth tergite removed, dorsal view. Scale represents 0.1 mm. aed — aedeagus, mvp — medioventral process.

with yellow middle part. Coxae bright yellow. Femurs yellow. Distal part of hind femur with a dark brown streak. Halteres yellow. Wings with central spot, preapical spot does not reach M_1. Abdomen brown with a yellow median stripe and anterior and posterior margins of tergites. Two last tergites wholly brownish. Details of hypopygium, Figs. 5, 9.

Female unknown.

Material studied:

Holotype ♂, Estonia, the Nigula State Nature Reserve, emerged from *Lactarius deterrimus*, 20.viii.1990, fruit body was collected 5.viii.1990.

Paratypes, pinned specimens: ♂, same data as those of holotype; ♂, Island of Saaremaa, the Viidumäe State Nature Reserve, Audaku, emerged from *L. deterrimus* 15.viii.1988, fruit body was collected 4.viii.1988; 4 ♂♂, Island of Abruka, emerged from *L. deterrimus* 27.—30.ix.1991, fruit bodies were collected 10.ix.1991.

Additional material in alcohol: 12 ♂♂, localities the same as those of the holotype and the paratypes, also from *L. deterrimus*.

The types and all other specimens are deposited in the collection of the Institute of Zoology and Botany, Tartu.

Previously ten specimens of this new species collected in 1988 and 1990 were identified by me as *M. blanda* Winn. (Kurina, 1991). In my old material of *M. blanda* Winn., 50 specimens had been determined correctly. The recent material, reared in 1990 and 1991, also contains *M. signatoides* Dz., another species closely related to *M. blanda* Winn. *M. signatoides* (25 ♂♂) emerged from *Leccinum scabrum* and *Boletus edulis*, which were collected in the Nigula State Nature Reserve and Vormsi Island. Earlier *M. signatoides* had been recorded in Estonia by Lackschewitz (1937). According to the literature (Hackman, Meinander, 1979; Кривошеина et al., 1986), besides *Leccinum* and *Boletus* this species has also been registered on *Suillus* and *Xerocomus*.

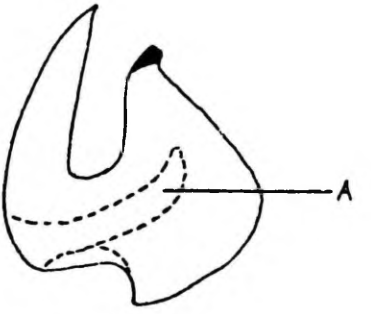

Fig. 10. *Mycetophila* Mg. Ventral part of gonostylus, a general scheme for the group of *M. blanda* Winn., *M. signatoides* Dz. and *M. estonica* sp. n. A — appendage on the inner side.

All the above-mentioned three species distinctly differ from other species of *Mycetophila* by the presence of a long inner appendage of the ventral part of the gonostylus (Fig. 10.). These species can be distinguished from each other by the pigmentation of their mesonotums (Figs. 1—3.) and by the construction of the dorsal part of the gonostylus (Figs. 4—6.). There are also differences in the shape of the aedeagus and the medioventral process of the hypopygium (Figs. 7—9.).

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Presented by K. Elberg

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Olavi KURINA

UUS LIIK PEREKONNAST *MYCETOPHILA* MEIGEN (*DIPTERA, MYCETOPHILIDAE*) EESTIST

Senini on perekonnast *Mycetophila* Mg. Palearktikas tuntud 143 liiki, seejuures Eestis 28 liiki.

Uus liik — *Mycetophila estonica* sp. n. — on väga lähedane liikidele *M. blanda* Winn. ja *M. signatoides* Dz. Kõigile kolmele liigile on iseloomulik gonostüüli ventraalse osa sisemisel küljel asuv jätke, mis ülejäänud liikidel puudub. Omavahel on nimetatud liigid selgesti eristatavad mesonootumi pigmentatsiooni, gonostüüli dorsaalse jätke, edeaguse ja hüpopüügi medioventraalse jätke poolest.

Uue liigi 19 isast valmiksääske saadi nende väljakasvatamisel vastsetest kuuseriisika (*Lactarius deterrimus*) viljakehadest.

Олави КУРИНА

НОВЫЙ ВИД РОДА *MYCETOPHILA* MEIGEN (*DIPTERA, MYCETOPHILIDAE*) ИЗ ЭСТОНИИ

До сих пор из рода *Mycetophila* Mg. в Палеарктике было известно 143 вида, причем в Эстонии 28 видов.

Новый вид — *Mycetophila estonica* sp. n. — очень близкий к видам *Mycetophila blanda* Winn. и *M. signatoides* Dz. *M. estonica* отличается от них по пигментации мезонотума, форме дорзального придатка гоностиля, эдеагусу и медновентральному придатку гипопигия.

Имаго (19 ♂♂) вида были выведены из плодовых тел гриба *Lactarius deterrimus*.

III

Kurina, O. 1994.
New records of Mycetophilidae (Diptera) reared from macrofungi in Estonia.
Proc. Estonian Acad. Sci. Biol., 43, 4, 216–220.

Proc. Estonian Acad. Sci. Biol., 1994, 43, 4, 216—220

NEW RECORDS OF *MYCETOPHILIDAE (DIPTERA)* REARED FROM MACROFUNGI IN ESTONIA

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Presented by K. Elberg

Received April 18, 1994; accepted June 1, 1994

Abstract. Data on 20 fungivorous Mycetophilid species are given, eleven of them being new to Estonia: *Phthinia winnertzi* Mik, *Sciophila modesta* A. Zaitzev, *S. varia* Winn., *Docosia gilvipes* (Walk.), *Leia bimaculata* (Mg.), *Mycetophila strobli* Laštovka, *M. uninotata* Zett., *Allodia (A.) embla* Hack., *A. (A.) septentrionalis* Hack., *Rymosia setiger* Dz. and *Tarnania fenestralis* (Mg.). *Phthinia winnertzi* Mik and *Leia bilineata* (Winn.) were reared from macrofungi for the first time.

Key words:: *Diptera*, *Mycetophilidae*, Estonia.

Mycetophilidae are the most frequent *Diptera* in macrofungi and they are the main component of the fungivorous insect complex. Mycetophilid eggs or larvae can be found already in young mushrooms.

There are known 161 species of *Mycetophilidae* in Estonia (Dampf, 1924; Lackschewitz, 1937; Kurina, 1991, 1992); 42 of them have been reared from macrofungi (Kurina, 1991, 1992). In this paper additional material about 20 fungivorous species is presented, eleven of them are new to Estonia. Two species, *Phthinia winnertzi* Mik, 1869, and *Leia bilineata* (Winnertz, 1863), have been recorded from fungi for the first time.

The imagines of *Mycetophilidae* were reared on fungi. The method of rearing can be found in an earlier paper (Kurina, 1991).

The material for the present work was collected at 18 sites in Estonia: Audaku in the Viidumäe State Nature Reserve on the Island of Saaremaa (1988, 1992); the Island of Abruka (1991); Orissaare on the Island of Saaremaa (1993); the islands of Muhu (1993) and Vormsi (1991, 1992); Oonga (1992, 1993); Virtsu (1991), Puhtu (1991) and Laelatu (1991), both near Virtsu; Kabli (1991); the Nigula State Nature Reserve (1990, 1991, 1992, 1993); Varudi (1992); Kohala (1992); the Järvselja Experimental Forestry Enterprise (1989); Tiksoja, near Tartu (1993); Vapramäe (1992) and Tamsa-Altmäe (1993), both near Elva (1993); Pikasilla (1993).

The material is deposited at the Zoological Museum of the University of Tartu. Asterisks before Mycetophilid names in the species list indicate new species to Estonia.

Data on the host fungi of Mycetophilid species in the following list are mainly based on Krivosheina et al. (Кривошеина et al., 1986), if not shown otherwise. The method of treatment of *Agaricales* s. l. and *Agaricales* s. str. has been given by Urbonas et al., (1986).

LIST OF SPECIES

1. Mycomya cinerascens (Macquart, 1826)
Dampf, 1924: 43; Lackschewitz, 1937: 9.

Edwards (1925) has reared the adults of this species on larvae feeding on *Stereum* sp.

New material: Tiksoja, *Cortinarius* sp., 12. 09. 1993, 1 ♂ emerged 24. 09. 1993.

***2. Phthinia winnertzi** Mik, 1869

Earlier records about feeding lacking.

New material: Nigula, *Russula flava,* 22. 08. 1991, 1 ♀ emerged 17. 09. 1991.

3. **Sciophila lutea** Macquart, 1826
Lackschewitz, 1937: 15.

Polyphagous. Feeding on many species of *Ascomycetes, Basidiomycetes* and *Gasteromycetes*. The larvae of *S. lutea* Macq. were recorded on the surface of the fruit-bodies of *Aphyllophorales* by A. Zaitsev (Зайцев, 1982).

New material: Nigula, ex *Amanita porphyria, Russula paludosa, R. emetica* var. *emetica* and *Lactarius torminosus*; Varudi, ex *Lactarius deliciosus*; Tamsa-Altmäe, ex *Lactarius deterrimus*. Total 12 ♂.

***4. Sciophila modesta** A. Zaitsev, 1982

Formerly registered on *Gyromitra* and *Verpa* (*Ascomycetes*).

New material: Nigula, *Lactarius helvus,* 06. 08. 1990, 1 ♂ emerged 07. 09. 1990.

***5. Sciophila varia** Winnertz, 1863

Feeding on many species of *Basidiomycetes.*

New material: Abruka, *Hydnum repandum,* 10. 09. 1991, 9 ♂ ♂ emerged 10. 10. 1991; Virtsu, *H. repandum,* 31. 08. 1991, 1 ♂ emerged 24. 09. 1991.

6. Coelosia tenella (Zetterstedt, 1852)
Lackschewitz, 1937: 16.

Formerly reared from fungi belonging to many genera of *Ascomycetes, Aphyllophorales* and *Agaricales* s. l.

New material: Nigula, ex *Russula paludosa, R. emetica* var. *emetica, R. decolorans* and *Suillus granulatus*. Total 3 ♂ ♂ 3 ♀ ♀.

***7. Docosia gilvipes** (Walker, 1856)

Formerly registered on many species of *Ascomycetes* and *Basidiomycetes*. Original material from twelve species of fungi.

New material: Orissaare, ex *Tricholoma terreum, Pholiota squarrosa, Pholiota* sp., *Russula delica*; Nigula ex *Cortinarius* sp., *Russula vinosa, R. paludosa, R. decolorans, Amanita porphyria* (from two fruit-bodies); Järvselja, ex *Leccinum aurantiacum, Tricholoma album*; Tamsa-Altmäe, ex *Macrolepiota procera*. Total 20 ♂ ♂ 33 ♀ ♀.

8. Leia bilineata (Winnertz, 1863)
Lackschewitz, 1937: 20.

According to Hutson et al. (1980) the species has been found from the nest of *Sciurus vulgaris* and also under the bark of an oak. My records are the first ones on fungi.

New material: Laelatu, *Piptoporus betulinus,* 30. 08. 1991, 1 ♂ emerged 21. 09. 1991; *Phellinus igniarius,* 30. 08. 1991, 1 ♂ emerged 16. 09. 1991.

***9. Leia bimaculata** (Meigen, 1804)

According to literature data (Hutson et al., 1980; Халидов, 1984; Кривошеина et al., 1986) from *Cantharellus, Craterellus, Hydnum* (*Aphyllophorales*) and on many species of *Agaricales* s. l. The most frequent fungivorous *Leia* species.

New material: Puhtu, *Polyporus squamosus,* 12. 08. 1992, 1 ♀ emerged 07. 09. 1992.

***10. Mycetophila strobli** Laštovka, 1972

Earlier registered on many species of *Agaricales* s. l.

Previously 13 specimens of this species collected at Audaku in 1988 were misidentified by me as *Mycetophila ichneumonea* Say, 1823 (Kurina, 1991). In my old material of *M. ichneumonea* Say, 70 specimens from Audaku, Kabli, Nigula, and Järvselja had been determined correctly.

New material: Audaku *Russula delica,* 03. 08. 1988, 13 ♂♂ emerged 13. 08. 1988; Virtsu, *Lactarius torminosus,* 31. 08. 1991, 1 ♂ emerged 24. 09. 1991.

***11. Mycetophila uninotata** Zetterstedt, 1852

Earlier known on *Cortinarius* and *Lactarius* (Hackman, Meinander, 1979).

New material: Nigula, *Cortinarius* sp., 22. 08. 1991, 3 ♂♂ emerged 01. 09. 1991.

***12. Allodia (Allodia) embla** Hackman, 1971

Earlier reared only from *Inocybe.*

New material: Vormsi, *Laccaria laccata,* 27. 08. 1992, 1 ♂♂ emerged 25. 09. 1992.

13. Allodia (Allodia) lugens (Wiedemann, 1817)
Lackschewitz, 1937: 34.

Polyphagous. Feeding on many species of the *Agaricales* s. l. (Hackman, Meinander, 1979; Халидов, 1984). By Krivošeina et al. (Кривошеина et al., 1986) also on the *Ascomycetes.* According to my original data, in Estonia from 16 species of the *Agaricales* s. l. New material from *Paxillus involutus, Hygrophoropsis aurantiaca, Laccaria laccata, Tricholoma terreum, Oudemansiella platyphylla, Amanita porphyria, Inocybe* sp., *Hebeloma mesophaeum, H.* sp., *Gymnopilus penetrans, Russula aurata, R. emetica* var. *betularum, R. integra, R.* sp., *Lactarius rufus, L. torminosus*; Audaku, Orissaare, Vormsi, Oonga, Puhtu, Laelatu, Nigula, Kohala, Tiksoja, and Vapramäe all in all 50 ♂♂.

14. Allodia (Allodia) ornaticollis Meigen, 1818
Lackschewitz, 1937: 34.

A species closely related to *A. (A.) pyxidiiformis* A. Zaitsev distinguished only by the hypopygium (Зайцев, 1983). Formerly recorded on fungi of 30 genera of *Agaricales* s. l. and also on *Gyromitra* and *Morchella.* Some of these reports may be erroneous, and these specimens may belong to the species *A. (A.) pyxidiiformis.*

New material: Nigula, *Russula flava,* 22. 08. 1991, 1 ♂ emerged 01. 09. 1991; Tiksoja, *Tricholomā terreum,* 12. 09. 1993, 7 ♂♂ emerged 26. 09. 1993.

***15. Allodia (Allodia) septentrionalis** Hackman, 1971

According to Yakovlev (Яковлев, 1986) this species is known only as existing on *Laccaria laccata.*

New material: Tiksoja, *Tricholoma terreum,* 12. 09. 1993, 3 ♂♂ emerged 27. 09. and 01. 10. 1993.

16. **Rymosia affinis** Winnertz, 1863
Dampf, 1924: 43; Lackschewitz, 1937: 32.

The species has been previously recorded on a variety of *Agaricales* s. str. and also on *Ramaria*.

New material: Orissaare, *Cortinarius* sp., 02. 10. 1993, 2 ♂ ♂ emerged 21. 10. 1993; Vormsi, *Entoloma* sp., 26. 08. 1992, 2 ♂ ♂ emerged 11. 09. and 13. 09. 1992.

***17. Rymosia setiger** Dziedzicki, 1910

According to Dely-Draskovits (1974), on *Cortinarius* and *Ramaria*.

New material: Audaku, *Sarcodon imbricatus*, 04. 09. 1992, 3 ♂ ♂ 4 ♀ ♀ emerged 26. 09 and 30. 09. 1992.

18. **Allodiopsis (Allodiopsis) domestica** (Meigen, 1830)
Lackschewitz, 1937: 29 (*Rhymosia domestica* Meig.)

Formerly reared on the fungi of 13 genera of *Agaricales* s. l. The species is common on *Tricholomataceae*.

New material: Vormsi, ex *Clitocybe gibba*, *Entoloma* sp., *Hebeloma edurum*; Puhtu, *Entoloma* sp.; Kabli, ex *Clitocybe cavipes*. Total 14 ♂ ♂.

19. Exechia confinis Winnertz, 1863
Dampf, 1924: 43; Lackschewitz, 1937: 22.

According to Hackman and Meinander (1979), *Exechia* sp. pr. *confinis* has been found regularly on *Paxillus involutus*.

New material: from five fruit bodies of *Paxillus involutus*; Muhu, Oonga, Kohala, Tamsa-Altmäe, and Pikasilla, all in all 6 ♂ ♂.

***20. Tarnania fenestralis** (Meigen, 1818)

Earlier found on 13 species of *Agaricales* s. l., by Dely-Draskovits (1974), also on *Ramaria*.

New material: Abruka, ex *Cortinarius* sp.; Orissaare, ex *Pleurotus ostreatus* and *Cortinarius* sp.; Kohala, ex *Clitocybe rivulosa*; Uhtna, ex *Clitocybe odora*. Total 20 ♂ ♂.

ACKNOWLEDGEMENTS

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MAKROSEENTEST VÄLJAKASVATATUD SEENESÄÄSKLASTE (*DIPTERA, MYCETOPHILIDAE*) UUED LEIUD EESTIS

Olavi KURINA

Senini oli Eestis sugukonnast *Mycetophilidae* teada 161 liiki, nendest 42 oli välja kasvatatud seentest. Käesolevaga lisandub viimastele veel 20 liiki, millest 11 on leitud Eestist esmakordselt. Kahe liigi, *Phthinia winnertzi* Mik, 1869 ja *Leia bilineata* (Winnertz, 1863), valmikuid ei ole seentest varem välja kasvatatud.

НОВЫЕ ДАННЫЕ О ГРИБНЫХ КОМАРАХ (*DIPTERA, MYCETOPHILIDAE*), ВЫВЕДЕННЫХ В ЭСТОНИИ ИЗ МАКРОМИЦЕТОВ

Олави КУРИНА

До сих пор в Эстонии из семейства *Mycetophilidae* был известен 161 вид, среди которых 42 выведены из плодовых тел макромицетов. В настоящей работе к ним добавлено еще 20 мицетобионтных видов, при этом 11 из них новые для Эстонии. Два вида (*Phthinia winnertzi* Mik, 1869 и *Leia bilineata* (Winnertz, 1863)) выведены впервые из макромицетов.

IV

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Hibernation of fungus gnats (Diptera, Mycetophilidae) in Estonian caves

[Zur Überwinterung von Pilzmücken in Estländischen Höhlen (Diptera, Mycetophilidae)]

by
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Abstract The hibernation of Mycetophilids in eight Estonian caves and in one vault has been studied. A total of 28 species belonging to 6 genera have been recorded. The most abundant of them, considering both species and specimens, was the genus *Exechiopsis* TUOMIKOSKI. The second record for *Pseudexechia hamulata* (LACKSCHEWITZ, 1937) and the third record for *Exechiopsis (Exechiopsis) januarii* (LUNDSTRÖM, 1913) are presented. Eighteen of the determined species of Mycetophilids are new to Estonia.

Key words Diptera, Mycetophilidae, Hibernation, Caves, Estonia.

Zusammenfassung Die Überwinterung von Mycetophiliden in acht Estnischen Höhlen und einem Kellergewölbe wurde untersucht. Insgesamt konnten 28 Arten aus 6 Genera festgestellt werden. Die Gattung *Exechiopsis* TUOMIKOSKI steuerte die meisten Individuen und Arten bei. Bemerkenswert erscheint der erst zweite Nachweis von *Pseudoexechia hamulata* (LACKSCHEWITZ, 1937) sowie der nunmehr dritte Fund von *Exechiopsis (Exechiopsis) januarii* (LUNDSTRÖM, 1913). Achtzehn Pilzmückenarten konnten erstmals für die Fauna Estlands nachgewiesen werden.

Stichwörter Diptera, Mycetophilidae, Überwinterung, Höhlen, Estland

Introduction

According to ØKLAND (1995), hibernation as imago seems to be the most common strategy of the Mycetophilids. There are data on hibernation in umbelliferous stems (VÄISÄNEN 1981) as well as under bark of trees (OSTROVERHOVA & ISOTOV 1986, YAKOVLEV 1988). PLASSMANN (1989) has published data on the winter activity of Mycetophilids. The fungus gnats fauna of caves has been widely studied (e. g. MOHRIG et al. 1968, BURGHELE-BLACESCO 1972, STROUHAL & VORNATSCHER 1975, ØSTBYE et al. 1987, PLASSMANN & WEBER 1988), but without special accent on overwintering of these Diptera in caves. According to GORODKOV (1962), in some caves of the Leningrad District Mycetophilids form the majority of hibernating Diptera. The caves in Estonia are mainly artificial, thus the typical cave species (troglophiles) are absent. The temperature in inner parts of the caves is 5 - 6 °C and relative humidity is 80 - 100 %, all year round (MASING 1990). These stable conditions favour overwintering of Mycetophilids in these caves.

Material and methods

Study sites

The records of Mycetophilids are based on investigations in 8 different caves or cave systems and in one old castle vault in Estonia (Fig. 1.). The data on caves have been given by HEINSALU (1987) and by MASING (1990). Geographic coordinates of caves on the ellipsoid (WGS84) are given.

1: Maasi Castle Vault (58°34'N, 23°02'E) from 14th century is situated on the east coast of Saaremaa Island (Ösel). The vault is built from limestone and is mostly falling in. The vault was visited on the 25th of February and 25th of December 1995.

2: Allikukivi Cave (58°09'N, 25°00'E) lies 3 km East of the Kilingi-Nõmme. A natural cave in sandstone with many splits, about 33 m long. The cave was visited on the 19th of January and 3rd of March 1996.

3: Vana - Kariste Cave (58°08'N, 25°21'E) is situated 5 km Southwest of Abja-Paluoja. It is an artificial cave in sandstone, about 106 m long. The cave was used as a manor beer cellar in the 19th century. The cave was visited on the 3rd of March 1996.

4: Helme Cave (58°01'N, 25°53'E) is situated 2 km Northwest of Tõrva. It is an old refuge cave, with most tunnels falling in. At present the cave is about 50 m long. The cave was visited on the 19th of January and 3rd of March 1996.

5: Koorküla Cave (57°56'N, 25°52'E) is a small old refuge cave, about 15 m long and lies 9 km Southwest of Tõrva. The cave was visited on the 3rd of March 1996.

6: Piusa Caves (57°51'N, 27°25'E) are situated in Southeast Estonia near the Võru-Petseri railway. The caves consist of eight separated systems of tunnels, altogether about 20 km long. They are old sand mines used for the glass industry. The caves were visited on the 11th of February 1995 and on the 1st of February 1996.

7: Kalmistu Cave (58°24'N, 26°42'E) is a small cave in the Northwest part of Tartu. It is an artificial narrow tunnel in sandstone, about 15 m long. The cave was visited on the 18th of February 1995, on the 7th of January and the 2nd of March 1996.

8: Aruküla Cave (58°24'N, 26°42'E) is situated at the Northwest boundary of Tartu. It is an artificial labyrinth in sandstone with a total area of about 300 m^2. The cave was visited on the 18th of February 1995 and on the 7th of January 1996.

9: Ülgase Cave (59°29'N, 25°06'E) lies on the North coast of Estonia, 7 km Northeast of Maardu. It is an old phosphorite mine in limestone, about 4 km long. The cave was visited on the 31st of January 1996.

Collecting methods and material preservation

The main collecting methods were hand-picking, with use of an exhauster, from walls and splits of the caves. The material was either pinned or preserved in 70 % ethanol. The material has been deposited at the Institute of Zoology and Botany, Tartu, Estonia [IZBE].

Results

Altogether 2671 male and 2673 female specimens of fungus gnats were studied. The female material are identified to genus level (Table). Data about male Mycetophilids from caves are given in figure 2. The material of male Mycetophilids contains 28 species, 18 of them are new to Estonia (marked with a point •). The most abundant genus, considering both species and specimens, was *Exechiopsis* TUOMIKOSKI, 1966. Most species found are widely distributed in Europe (CASPERS 1984, KRIVOSHEINA et al. 1986, PLASSMANN & PLACHTER 1986, HACKMAN 1988, SØLI 1994), if not shown otherwise in the list of species. Asterisks before Mycetophilid names in the species list indicate new species to Estonia: for the other species the literature data from Estonia are given.

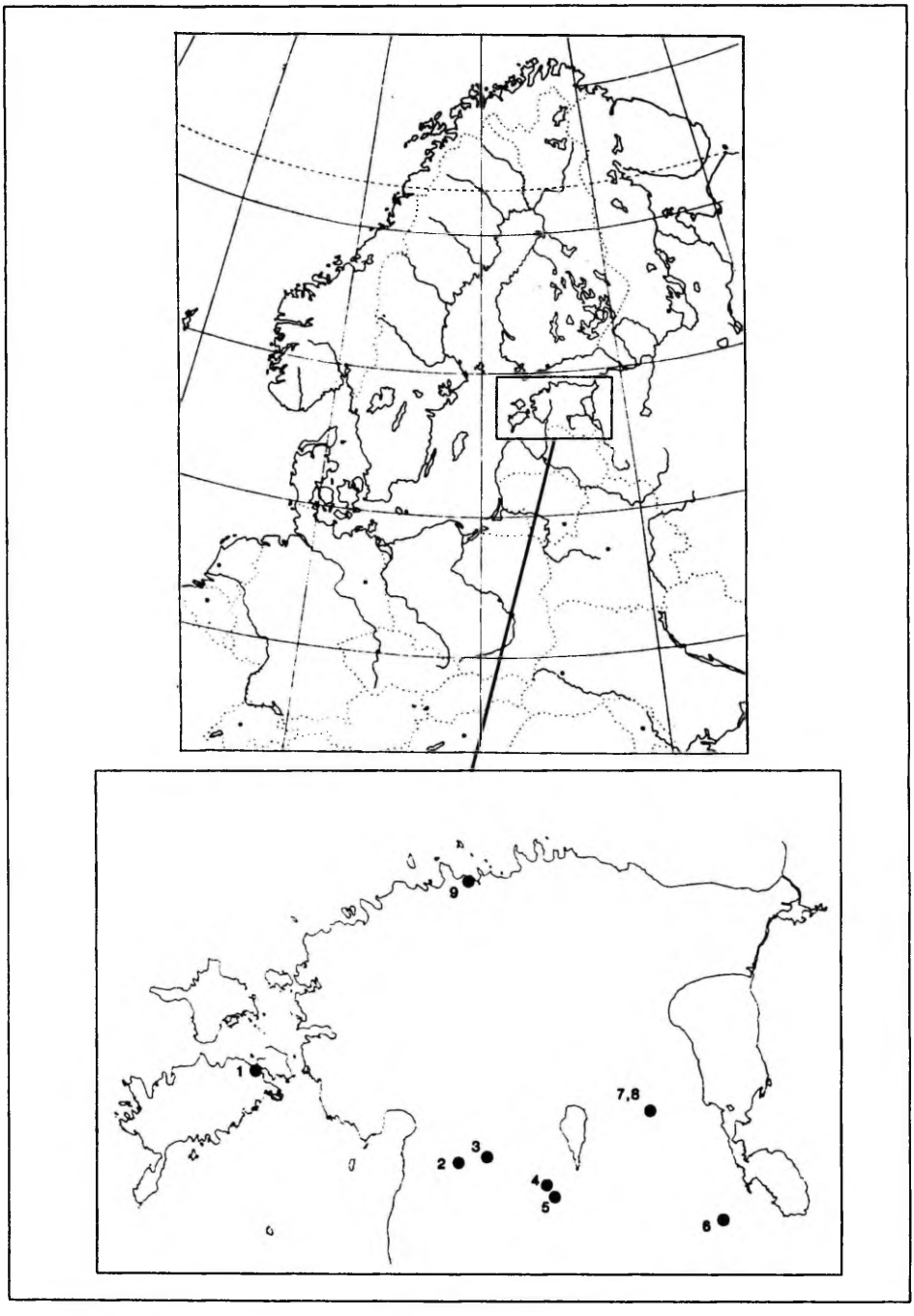

Fig. 1: The caves studied in Estonia: - **1**: Maasi; - **2**: Allikukivi; - **3**: Vana-Kariste; - **4**: Helme; - **5**: Koorküla; - **6**: Piusa; - **7**: Kalmistu; - **8**: Arukülа; - **9**: Ülgase. Scale of upper map 1 : 12,000,000.

Table: Number of female specimens of Mycetophilids from Estonian caves. 1. - Maasi, 2. - Allikukivi, 3. - Vana-Kariste, 4. - Helme, 5. - Koorküla, 6. - Piusa, 7. - Kalmistu, 8. - Arukülа, 9. - Ülgase.

Genus/Cave No.	1	2	3	4	5	6	7	8	9	Total
Anatella spp.	-	-	-	-	-	-	-	-	1	**1**
Exechia spp.	9	-	-	11	-	-	40	-	-	**60**
Exechiopsis spp.	11	95	86	1005	312	607	60	28	310	**2524**
Pseudexechia spp.	-	-	-	-	-	-	20	-	-	**20**
Rymosia spp.	27	-	-	3	4	4	1	-	1	**40**
Tarnania spp.	-	-	-	1	-	-	-	-	-	**1**
Mycetophila spp. (*ruficollis* group)	-	-	-	2	-	2	-	-	3	**7**
Total	**47**	**95**	**86**	**1022**	**316**	**613**	**121**	**28**	**315**	**2673**

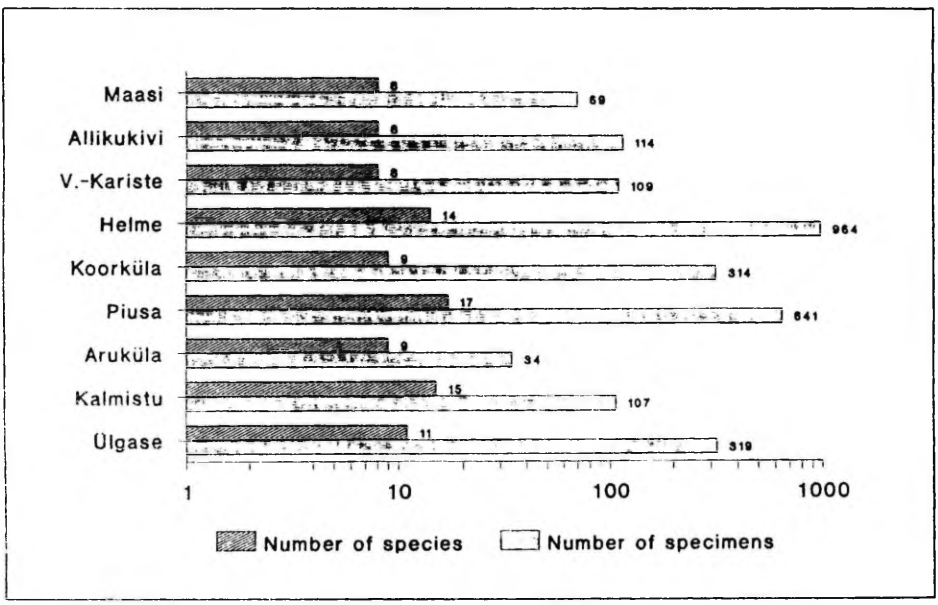

Fig. 2: Abundance of Mycetophilid species and male specimens in the caves of Estonia.

List of species

- **1. *Anatella ankeli* PLASSMANN, 1977**

Earlier known from Germany (PLASSMANN 1977, PLASSMANN & PLACHTER 1986), France (MATILE 1980) and Austria (CASPERS 1984). According to ZAITZEV (1989) also from the Leningrad District. The figure of male genitalia by PLASSMANN (1977) and CASPERS (1984) are identical, but different from the figure of ZAITZEV (1989), which may be a result of misidentification.

Material: Ülgase, 31 January 1996, 1♂.

• **2. *Anatela pseudogibba* PLASSMANN, 1977**

The species has been previously recorded from Germany (PLASSMANN 1977, PLASSMANN & PLACHTER 1986), France (MATILE 1980), Great Britain (CHANDLER 1977, ZAITZEV 1989) and Sweden (PLASSMANN 1980).

Material: Aruküla, 18 February 1995: 1♂.

3. *Exechia confinis* WINNERTZ, 1863

DAMPF 1924: 43; LACKSCHEWITZ 1937: 22; KURINA 1994: 219.

Material: Maasi, 25 February 1995: 3♂♂; Kalmistu, 18 February 1995: 19♂♂; 7 January 1996: 1 ♂. Total 23♂♂.

4. *Exechia dizona* EDWARDS, 1924

Lackschewitz 1937: 22.

Material: Helme, 19 January 1996: 3♂♂, 3 March 1996: 1 ♂; Kalmistu, 18 February 1995: 1♂. Total 5♂♂.

• **5. *Exechia exigua* LUNDSTRÖM, 1909**

Material: Maasi, 25 February 1995: 1♂.

6. *Exechia fusca* (MEIGEN, 1804)

DAMPF 1924: 43 (*Exechia fungorum* DEG.); LACKSCHEWITZ 1937: 21; KURINA 1991: 88.

Material: Kalmistu, 18 February 1995: 1♂, 7 January 1996: 1♂. Total 2♂♂.

7. *Exechia spinuligera* LUNDSTRÖM, 1912

DAMPF 1924: 43, KURINA 1991: 89. LACKSCHEWITZ (1937) has cited material, earlier presented by DAMPF (1924), as *Exechia spinigera* WINNERTZ, 1863. By HACKMAN (1988) the both species are valid but the material is not preserved and there is no solution to this contradiction.

Material: Kalmistu, 18 February 1995: 1♂.

8. *Exechiopsis (Exechiopsis) clypeata* (LUNDSTRÖM, 1911)

KURINA 1991: 89.

Material: Helme, 19 January 1996: 2 ♂♂; Koorküla, 3 March 1996: 1 ♂; Piusa, 11 February 1995: 5 ♂♂, 1 February 1996: 6 ♂♂; Kalmistu, 18 February 1995: 2 ♂♂. Total 16 ♂♂.

• **9. *Exechiopsis* (*Exechiopsis*) *distendens* (LACKSCHEWITZ, 1937)**

Material: Maasi, 25 December 1995: 1♂; Allikukivi, 19 January 1996: 25♂♂, 3 March 1996: 12♂♂; Vana-Kariste, 3 March 1996: 10♂♂; Helme, 19 January 1996: 25♂♂, 3 March 1996: 12♂♂; Koorküla, 3 March 1996: 100♂♂; Piusa, 11 February 1995: 42♂♂, 1 February 1996: 54♂♂; Kalmistu, 18 February 1995: 3♂♂; Aruküla, 18 February 1995: 1♂; Ülgase, 31 January 1996: 168♂♂. Total 453♂♂.

• **10. *Exechiopsis* (*Exechiopsis*) *dumitrescui* (BURGHELE-BALACESCU, 1972)**

Material: Vana-Kariste, 3 March 1996: 4♂♂; Piusa, 11 February 1995: 24♂♂, 1 February 1996: 5♂♂; Aruküla, 18 February 1995: 2♂♂. Total 35♂♂.

11. *Exechiopsis* (*Exechiopsis*) *fimbriata* (LUNDSTRÖM, 1909)

KURINA 1991: 89.

Material: Allikukivi, 19 January 1996: 3♂♂, 3 March 1996: 5♂♂; Vana-Kariste, 3 March 1996: 10♂♂; Helme, 19 January 1996: 24♂♂, 3 March 1996: 482♂♂; Koorküla, 3 March 1996: 35♂♂; Piusa, 11 February 1995: 96♂♂, 1 February 1996: 70♂♂; Kalmistu, 18 February 1995: 1♂; Aruküla, 18 February 1995: 1♂; Ülgase, 31 January 1996: 77♂♂. Total 804♂♂.

12. *Exechiopsis* (*Exechiopsis*) *hammi* (EDWARDS, 1925)

LACKSCHEWITZ 1937: 27.

Material: Vana-Kariste, 3 March 1996: 2♂♂; Helme, 19 January 1996: 3♂♂, 3 March 1996: 7♂♂; Piusa, 11 February 1995: 4♂♂, 1 February 1996: 3♂♂; Kalmistu, 18 February 1995: 1♂, 7 January 1996, 1♂; Aruküla, 18 February 1995: 3♂♂. Total 24♂♂.

13. *Exechiopsis* (*Exechiopsis*) *indecisa* (WALKER, 1856)

LACKSCHEWITZ 1937: 27, KURINA 1991: 89.

Material: Maasi, 25 February 1995: 1♂♂; Piusa, 11 February 1995: 37♂♂, 1 February 1996: 1♂; Kalmistu, 18 February 1995: 1♂; Ülgase, 31 January 1996: 2♂♂. Total 42♂♂.

• 14. *Exechiopsis* (*Exechiopsis*) *intersecta* (MEIGEN, 1818)

Material: Maasi, 25 December 1995: 16♂♂; Allikukivi, 19 January 1996: 2♂♂; Helme, 19 January 1996: 13♂♂, 3 March 1996: 1♂; Koorküla, 3 March 1996: 4♂♂; Piusa, 1 February 1996: 2♂♂; Kalmistu, 18 February 1995: 1♂, 7 January 1996: 1♂; Ülgase, 31 January 1996: 14♂♂. Total 54♂♂.

Additional material studied: Finland, Kuustö: 1♂, LUNDSTRÖM leg., det. [*Exechia gracilicornis* (LANDROCK, 1912)]. Material deposited at Zoological Museum, Helsinki, Finland [MZHF].

• 15. *Exechiopsis* (*Exechiopsis*) *januarii* (LUNDSTRÖM, 1913)

After first record the species has been registered only in Latvia (LACKSCHEWITZ 1937).

Material: Helme, 19 January 1996: 5♂♂, 3 March 1996: 2♂♂; Piusa, 1 February 1996: 1♂. Total 8♂♂.

Additional material studied: Finland, Kuopio, 2 January 1913: 1♂, ENVALD leg., LUNDSTRÖM det., Spec. typ No. 4330 at Zoological Museum, Helsinki, Finland [MZHF].

• 16. *Exechiopsis* (*Exechiopsis*) *lackschewitziana* (STACKELBERG, 1948)

Material: Allikukivi, 19 January 1996: 1♂; Helme, 19 January 1996: 4♂♂; Piusa, 11 February 1995: 2♂♂, Kalmistu, 18 February 1995: 6♂♂. Total 13♂♂.

Additional material studied: Russia, Leningrad District, Sablino, 2 February 1925: 1♂ (typus). STACKELBERG leg. et det. Material deposited at the Zoological Institute of Academy of Sciences, St. Petersburg, Russia [ZMAS].

• 17. *Exechiopsis* (*Exechiopsis*) *landrocki* (LUNDSTRÖM, 1912)

Material: Allikukivi, 19 January 1996: 1♂; Vana-Kariste, 3 March 1996: 6♂♂; Helme, 19 January 1996: 1♂, 3 March 1996: 64♂♂; Koorküla, 3 March 1996: 4♂♂; Piusa, 11 February 1995: 6♂♂, 1 February 1996: 10♂♂. Total 92♂♂.

• 18. *Exechiopsis* (*Exechiopsis*) *ligulata* (LUNDSTRÖM, 1913)

Material: Allikukivi, 19 January 1996: 4♂♂, 3 March 1996: 1♂; Vana-Kariste, 3 March 1996: 1♂; Helme, 19 January 1996: 1♂, 3 March 1996: 1♂; Koorküla, 3 March 1996: 4♂♂; Piusa, 11. February 1995: 37♂♂, 1 February 1996: 57♂♂; Ülgase, 31 January 1996: 5♂♂. Total 111♂♂.

• 19. *Exechiopsis* (*Exechiopsis*) *pseudindecisa* LAŠTOVKA & MATILE, 1974

Material: Piusa, 11 February 1995: 1♂, 1 February 1996: 3♂♂; Ülgase, 31 January 1996: 1♂. Total 5♂♂.

- **20. *Exechiopsis* (*Exechiopsis*) *pseudopulchella* (LUNDSTRÖM, 1912)**

The species has been previously recorded from Finland (HACKMAN 1980), Germany (PLASSMANN & PLACHTER 1986) and Norway (SØLI 1994).

Material: Helme, 19 January 1996: 1♂, 3 March 1996: 1♂; Piusa, 11 February 1995: 2♂♂, 1 February 1996: 5♂♂; Aruküla, 18 February 1995: 1♂; Ülgase, 31 January 1996: 16♂♂. Total 26♂♂.

Additional material studied: Finland, Westend, Esbo, 5 September 1957: 1♂, HACKMAN leg., TUOMIKOSKI det. Material deposited at Zoological Museum, Helsinki, Finland [MZHF].

21. *Exechiopsis* (*Exechiopsis*) *subulata* (WINNERTZ, 1863)

LACKSCHEWITZ 1937: 27.

Material: Allikukivi, 19 January 1996: 35♂♂, 3 March 1996: 24♂♂; Vana-Kariste, 3 March 1996: 71♂♂; Helme, 19 January 1996: 29♂♂, 3 March 1996: 100♂♂; Koorküla, 3 March 1996: 112♂♂; Piusa, 11 February 1995: 80♂♂, 1 February 1996: 75♂♂; Kalmistu, 18 February 1995: 1♂; Aruküla, 18 February 1995: 13♂♂, 7 January 1996: 1♂; Ülgase, 31 January 1996: 18♂♂. Total 559♂♂.

- **22. *Exechiopsis* (*Xenexechia*) *pollicata* (EDWARDS, 1925)**

Material: Maasi, 25 February 1995: 1♂; Allikukivi, 19 January 1996: 1♂; Vana-Kariste, 3 March 1996: 5♂♂; Helme, 19 January 1996: 160♂♂, 3 March 1996: 19♂♂; Koorküla, 3 March 1996: 46♂♂; Piusa, 11 February 1995: 1♂, 1 February 1996: 3♂♂; Kalmistu, 18 February 1995: 39♂♂, 7 January 1996: 6♂♂, 2 March 1996: 1♂; Aruküla, 18 February 1995: 8♂♂; Ülgase, 31 January 1996: 16♂♂. Total 306♂♂.

- **23. *Pseudexechia hamulata* (LACKSCHEWITZ, 1937)**

The species is very similar to *P. parallela* (EDWARDS, 1925) registered from Great Britain (EDWARDS 1925), Germany (PLASSMANN & PLACHTER 1986, PLASSMANN & JOOST 1986), Roumania (BURGHELE-BALACESCO 1972), Leningrad and Moscow district (STACKELBERG 1948, KRIVOSHEINA et al. 1986). Only STACKELBERG (1948) and KRIVOSHEINA et al. (1986) figured the male genitalia. *P. hamulata* is known only from Latvia (LACKSCHEWITZ 1937). According to the male genitalia (especially by ventral part of gonostylus) my material belongs to the species *P. hamulata*.

Material: Kalmistu, 18 February 1995: 18♂♂.

- **24. *Pseudexexhia trisignata* (EDWARDS, 1913)**

Material: Kalmistu, 18 February 1995: 1♂.

25. *Rymosia affinis* WINNERTZ, 1863

DAMPF 1924: 43, LACKSCHEWITZ 1937: 32, KURINA 1994: 219.

Material: Maasi, 25 December 1995: 21♂♂.

- **26. *Rymosia fasciata* (MEIGEN, 1804)**

Material: Maasi, 25 Decenber 1995: 25♂♂; Helme, 19 January 1996: 2♂♂, 3 March 1996: 1♂; Koorküla, 3 March 1996: 8♂♂; Piusa, 11 February 1995: 4♂♂, 1 February 1996: 4♂♂; Aruküla, 18 February 1995: 2♂♂. Total 46♂♂.

- **27. *Rymosia placiada* WINNERTZ, 1863**

Material: Ülgase, 31 January 1996: 1♂.

- **28. *Mycetophila idonea* LAŠTOVKA, 1974**

Known from central Europe and also from Iran, Japan, China (LAŠTOVKA 1988).

Material: Piusa, 1 February 1996: 1♂.

Discussion

The prevalence of *Exechiopsis* in caves is probably caused by the peculiarities of their biology, in particular due to their strategy of hibernation. Most possibly they hibernate also in other bigger cavities with stable climatical conditions, like hollow trees. Among the individuals caught in forests during the spring and autumn in Estonia, *Exechiopsis* share with only 3% a minor part of the whole amount of Mycetophilids.

Species richness of fungus gnats hibernating in Arküla and Kalmistu caves is most interesting in regard to the low number of specimens. This contradiction may be explained by the diversity of habitats next to entrances of these caves, including dendrologically interesting cemetery and river valley with marshes. The other sites studied are surrounded by rather monotonous habitats: costal pine forest with junipers in Maasi; wet peatland forest in Allikukivi, Vana-Kariste and Koorküla; sruce-pine forest in Helme; pine forest in Piusa and humid coastal forest in Ülgase. Low number of Mycetophilids in Arküla and Kalmistu caves can be caused possibly by location of the entrance of the caves in the open landscape, thus limiting access of gnats to the caves; anthropogenic factor should also be taken in consideration. The rest of the caves are located in forested areas.

The sex ratio of Mycetophilids caught in the caves was roughly equal. A similar result has been achieved by sweeping in forests and breeding from macrofungi.

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V

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On the Estonian *Brevicornu* Marshall (Diptera, Mycetophilidae)

Olavi Kurina

Kurina, O. 1996. On the Estonian *Brevicornu* Marshall (Diptera, Mycetophilidae). *Int. J. Dipterol. Res.*, 7(2): 71—73.

Data on fourteen Estonian Mycetophilid species from the genus *Brevicornu* Marshall are presented, nine of them being new to Estonia: *B. (Brevicornu) beatum* (Joh.), *B. (B.) bellum* (Joh.), *B. (B.) foliatum* (Edw.). *B. (B.) fuscipenne* (Staeg.), *B. (B.) griseicolle* (Staeg.), *B. (B.) griseolum* (Zett.), *B. (B.) serenum* (Winn.), *B. (B.) sericoma* (Meig.) and *B. (Stigmatomeria) obscurum* (Winn.).

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Key words. Diptera, Mycetophilidae, *Brevicornu*, Estonia.

Introduction

Brevicornu Marshall, 1896 is a widely distributed genus of fungus gnats. There are 40 species of it recorded in the Palaearctic region (Lundström, 1912; Hackman, 1988; Zaitzev, 1985, 1988; Caspers, 1985; Zaitzev & Polevoi, 1995), five of them in Estonia (Dampf, 1924; Lackschewitz, 1937; Zaitzev, 1985). In this paper additional material on nine *Brevicornu* species is presented. Twenty species are known in the neighbouring areas (see Table 1): 15 species in Finland (Hackman, 1980), 11 species in Latvia (Lackschewitz, 1937) and 12 species in Leningrad Province (Krivosheina et al., 1986; Zaitzev, 1988). Most Estonian species, except the *B. (Stigmatomeria) obscurum* (Winn.) and *B. (Brevicornu) foliatum* (Edw.), have also been recorded in the neighbouring areas.

The material for the present communication collected by sweep netting from 15 sites in Estonia (see Fig. 1). One specimen of *B. (B.) griseicolle* (Staeg.) and one specimen of *B. (B.) sericoma* (Meig.) K. Remm and K. Kimmel collected by light trap from Elva and Endla Nature Reserve. H. Remm collected one specimen of *B. (B.) ruficorne* (Meig.) from Reola near Tartu, but the method used is unknown.

The material deposited in the Institute of Zoology and Botany, Tartu, Estonia. Asterisks before the names of Mycetophilids in the species list indicate new records to Estonia.

List of species

*1. *Brevicornu (B.) beatum* (Johannsen, 1911)

Material. 7 ♂, Nigula Nature Reserve, 24.V.1994, 04.VII.1994, 03.VI.1995.

*2. *B. (B.) bellum* (Johannsen, 1911)

Material. 2 ♂, Virtsu, 30.VIII.1991; 1 ♂, Hargla, 08.VII.1994. Total 3 ♂.

3. *B. (B.) fissicauda* (Lundström, 1911)

Lackschewitz, 1937: 35; Zaitzev, 1985: 41.
Material. 1 ♂, Tiksoja, 09.V.1994; 1 ♂, Piiri, 01.VIII.1995. Total 2 ♂.

*4. *B. (B.) foliatum* (Edwards, 1925)

The species has been previously recorded in Great Britain (Edwards, 1925; Kidd & Ackland, 1970), Germany (Landrock, 1940), Austria (Plassmann, 1984), Norway (Søli, 1994; Økland, 1995) and in

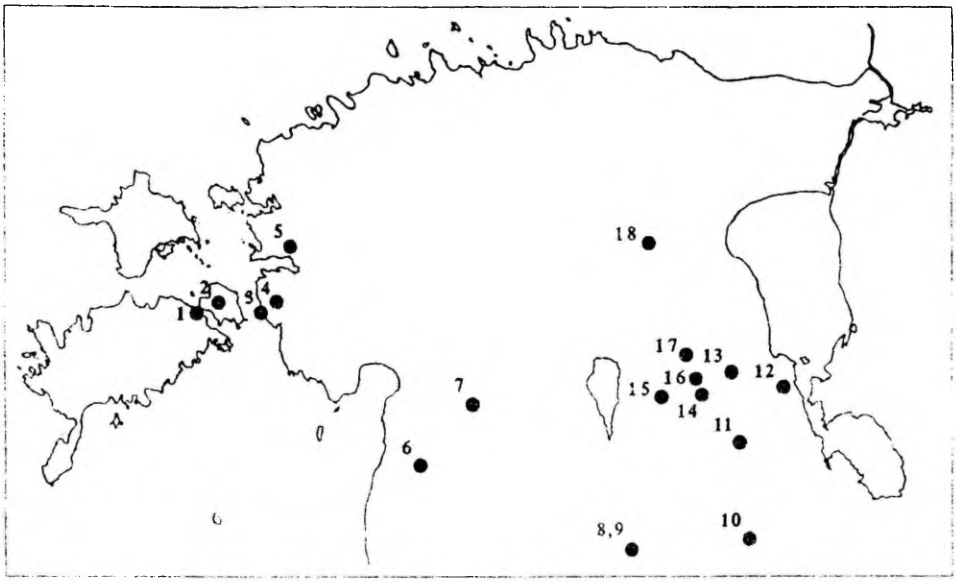

Fig. 1. Sampling sites.

1 – Orissaare on the Island of Saaremaa (1993), 2 – Piiri on the Island of Muhu (1995), 3 – Puhtu near Virtsu (1991), 4 – Virtsu 7 km Northeast (1991), 5 – Oonga Southeast of Haapsalu (1993, 1994, 1995), 6 – Nigula Nature Reserve (1990, 1991, 1992, 1993, 1994, 1995), 7 – Kanaküla Northeast of Kilingi-Nõmme (1995), 8 – Hargla Southeast of Valga (1994), 9 – Southwest coast of Lake Koobassaare Southeast of Valga (1994), 10 – Uue-Saaluse Southeast of Võru (1995), 11 – Taevaskoja North of Põlva (1994), 12 – Järvselja Experimental Forestry Enterprise Southeast of Tartu (1989), 13 – Melliste Southeast of Tartu (1995), 14 – Kambja South of Tartu (1995), 15 – Elva (1995), 16 – Reola near Tartu (1957), 17 – Tiksoja near Tartu (1994), 18 – Endla Nature Reserve (1995).

Russia: Altai (Zaitzev, 1988), Krasnoyarsk Territory and Tomsk Province (Ostroverhova, 1979).

Material. 1 ♂, Oonga, 04.X.1995.

*5. *B. (B.) fuscipenne* (Staeger, 1840)

Material. 1 ♂, Nigula Nature Reserve, 01.VIII.1990.

*6. *B. (B.) griseicolle* (Steager, 1840)

Material. 1 ♂, Järvselja, 15.IX.1989; 1 ♂, Oonga, 05.VI.1993; 1 ♂, Nigula Nature Reserve, 26.VIII.1995; 1 ♂, Elva, 03—08.VII.1995, K. Remm leg. Total 4 ♂.

*7. *B. (B.) griseolum* (Zetterstedt, 1852)

Material. 3 ♂, SW coast of Lake Koobassaare, 08.VII.1994.

8. *B. (B.) nigrofuscum* (Lundström, 1909)

Lackschewitz, 1937: 36.

Material. 1 ♂, Puhtu, 24.VIII.1991.

9. *B. (B.) proximum* (Staeger, 1840)

Lackschewitz, 1937: 35.

Material. 1 ♂, Nigula Nature Reserve, 22.VIII.1993, 1 ♂, Oonga, 25.V.1994, 1 ♂, Uue-Saaluse, 24.IX.1995. Total 3 ♂.

10. *B. (B.) ruficorne* (Meigen, 1838)

Dampf, 1924: 44 (*Allodia cinerea* Lundst.).

Material. 1 ♂, Reola, 03.V.1957, H. Remm leg.

*11. *B. (B.) serenum* (Winnertz, 1863)

Material. 2 ♂, Nigula Nature Reserve, 23.VIII.1993, 23.V.1994; 1 ♂, Taevaskoja, 12.VI.1994. Total 3 ♂.

*12. *B. (B.) sericoma* (Meigen, 1830)

Material. 1 ♂, Järvselja, 23.VII.1989; 4 ♂, Nigula Nature Reserve, 22.VIII.1991, 15.V.1992, 26.VIII.1995; 1 ♂, Orissaare, 02.X.1993; 4 ♂, Oonga, 03.X.1995, 04.X.1995; 1 ♂, Piiri, 01.VIII.1995; 1 ♂, Kambja, 16.IX.1995; 1 ♂, Kanaküla, 14.IX.1995; 1 ♂, Endla Nature Reserve, 08—15.X.1995, K. Kimmel leg. Total 14 ♂.

13. *B. (Stigmatomeria) crassicorne* (Stannius, 1831)

Lackschewitz, 1937: 34 (*Allodia crassicornis* Staeg.).

Material. 1 ♂, Taevaskoja, 20.V.1995; 1 ♂, Melliste, 25.IV.1995. Total 2 ♂.

Table 1. The species of *Brevicornu* Marshall in Estonia and in neighbouring areas.

Fin — Finland, Est. — Estonia, Lat. — Latvia, Len. — Leningrad Province. 0 — original data, 1 — Hackman, 1980, 2 — Lackschewitz, 1937, 3 — Dampf, 1924, 4 — Zaitzev, 1985, 5 — Zaitzev, 1988, 6 — Krivosheina et al., 1986

Species	Fin	Est.	Lat	Len.
subg. *Brevicornu*				
auriculatum (Edw.)	—	—	2	—
beatum (Joh.)	—	0	—	5,6
bellum (Joh.)	—	0	—	5,6
bipartitum Lašt.et Mat.	—	—	—	5,6
boreale (Lundst.)	1	—	—	5,6
fasciculatum (Lacksch.)	—	—	2	6
fennicum (Landr.)	1	—	2	—
foliatum (Edw.)	—	0	—	—
fissicauda (Lundst.)	1	0,2,4	2	—
fuscipenne (Staeg.)	1	0	2	—
griseicolle (Staeg.)	1	0	2	6
griseolum (Zett.)	1	0	—	6
lengi (Edw.)	1	—	2	—
luteum (Landr.)	1	—	—	—
nigrofuscum (Lundst.)	1	0,2	—	—
penicillatum (Lundst.)	1	—	2	—
proximum (Staeg.)	1	0,2	2	6
ruficorne (Meig.)	1	0,3	—	6
serenum (Winn.)	1	0	—	6
sericoma (Meig)	1	0	2	6
subg. *Stigmatomeria*				
crassicorne (Stann.)	1	0,2	2	6
obscurum (Winn.)	—	0	—	—
Total	15	14	11	12

*14. *B. (S.) obscurum* (Winnertz, 1863)

The species has been previously recorded in Austria, Czechoslovakia, Germany, Netherlands, Poland, Sweden and in Russia, West Siberia (Hackman, 1988).

Material. 2 ♂, Oonga, 25.V.1994, 26.V.199.; 1 ♂, Nigula Nature Reserve, 01.VII.1994; 1 ♂, Tiksoja, 26.VII.1994. Total 4 ♂.

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VI

Kurina, O. 1997.
Fungus gnats (Diptera, Mycetophiloidae)
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Fungus gnats (Diptera, Mycetophiloidea) collected by Aleksander Stackelberg in Estonia

OLAVI KURINA

Kurina, O. 1997. Fungus gnats (Diptera, Mycetophiloidea) collected by Aleksander Stackelberg in Estonia. *Int. J. Dipterol. Res.*, 8(1): 3—8.

Data on 77 Estonian Mycetophiloid species, collected by Aleksander Stackelberg from central and southeast Estonia, are presented. 28 of them being new to the Estonian list of fauna: *Bolitophila* (*C.*) *bimaculata* Zett., *B.* (*C.*) *fumida* Edw., *B.* (*C.*) *glabrata* Loew, *B.* (*C.*) *modesta* Lacksch., *Mycomya dziedzicki* Väis., *Boletina rejecta* Edw., *Coelophthinia thoracica* (Winn.), *Dynatosoma cochleare* Strobl, *D. nobile* Loew, *Epicypta aterrima* (Zett.), *Mycetophila forcipata* Lundst., *M. sordida* Wulp, *M. stolida* Walk., *Phronia biarcuata* (Beck.), *P. exigua* (Zett.), *P. humeralis* Winn., *P. minuta* Landr., *P. nitidiventris* (Wulp), *P. obtusa* Winn., *P. strenua* Winn., *Sceptonia flavipuncta* Edw., *S. fumipes* Edw., *Trichonta melanura* (Staeg.), *T. subfusca* Lundst., *Zygomyia semifusca* (Meig.), *Z. valida* Winn., *Z. pseudohumeralis* Caspers and *Pseudexechia auricernica* Chandler. Additionally, unpublished data on 6 species from the genus *Allodia* Winn., collected by A. Stackelberg from southeast Estonia and identified by A. Zaitzev in 1982, are given, 3 of them being new to the Estonian fauna: *A.* (*Allodia*) *anglofennica* Edw., *A.* (*A.*) *truncata* Edw. and *A.* (*Bracycampta*) *silvatica* (Landr.).

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Key words. Diptera, Mycetophiloidea, Estonia.

Introduction

Professor Aleksander Stackelberg (1897—1975) was one of the most famous Russian dipterologists. He has published numerous (altogether 276) papers and monographs (Rihter, Afanasev, 1976) on many families of Diptera, including also Mycetophiloids (e. g. Stackelberg, 1943; 1946; 1969).

On his field excursions in Estonia he has collected fungus gnats in Koeru (central Estonia) in 1948 and in Peedu (southeast Estonia) in 1951. The material collected in Peedu has been partially identified by R. Väisänen (1984) and by A. Zaitzev (1985). The 6 species of genus *Allodia* Winnertz, 1863 were identified by Zaitzev in 1982, but the data have not been published so far. According to Väisänen, the material involves 11 species of genus *Mycomya* Rondani, 1856: *M. affinis* (Staeger, 1840), *M. bicolor* (Dziedzicki, 1885), *M. cinerascens* (Macquart, 1826), *M. circumdata* (Staeger, 1840), *M. disa* Väisänen, 1984, *M. maculata* (Meigen, 1804), *M. neohyalinata* Väisänen, 1984, *M. siebecki* (Landrock, 1912), *M. sigma* Johannsen, 1910, *M. tenuis* (Walker, 1856) and *M. trilineata* (Zetterstedt, 1838). Additionally A. Zaitzev has determined 6 species of genus *Allodia* Winn. and one species of genus *Brevicornu* Marshall, 1896 from the same material: **A.* (*Allodia*) *anglofennica* Edwards, 1921, **A.* (*A.*) *truncata* Edwards, 1921, *A.* (*A.*) *lugens* (Wiedemann, 1817), *A.* (*A.*) *ornaticollis* (Meigen, 1818), *A.* (*Bracycampta*) *pistillata* (Lundström, 1911), **A.* (*B.*) *silvatica* (Landrock, 1912) and *B.* (*Brevicornu*) *fissicauda* (Lundström, 1911). Asterisks before the names of fungus gnats from the genus *Allodia* mark species, new to Estonia.

The material collected by A. A. Stackelberg from Koeru (8 specimen) and most of the material collected by him from Peedu (317 specimen) has not so far been determined. During identification of the

material I found 7 species of Bolitophilidae, 4 species of Keroplatidae, 1 species of Diadocidiidae, 3 species of Macroceridae and 62 species of Mycetophilidae. 28 of the determined species of fungus gnats are new to Estonia.

2 ♂ from genus *Cordyla* Meigen, 1803 (Mycetophilidae) and 1 ♀ from genus *Trichonta* Winnertz, 1863 (Mycetophilidae) are not identified to the species level and they are not presented in the species list.

The Estonian material collected by A. Stackelberg includes 95 species, taking into account also the identifications of R. Väisänen and A. Zaitzev.

Most species are widely distributed in Europe and they have also been recorded in the neighbouring region. The distribution of them is not given in the species list.

The material is deposited at the Zoological Institute of Russian Academy of Sciences, St. Petersburg.

List of species

Asterisks before the names of Mycetophiloids in the species list indicate new species to Estonian fauna; for the other species the literature data from Estonia are given.

Bolitophilidae

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

Dampf, 1924: 44; Lackschewitz, 1937: 4.

Material. Peedu, 7 ♂, 04, 09, 11, 12, 14, 20 and 22.VIII.1951.

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

Lackschewitz (1937) has interpreted the species as a synonym of *B.* (*C.*) *maculipennis* Walker, 1836. By Plassmann (1988a) the both species are valid.

Material. Peedu, 8 ♂, 01, 03, 22, 29.VII, 01. and 17.VIII.1951.

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

Material. Peedu, 2 ♂, 04 and 16.VIII.1951.

****Bolitophila* (*Clopisa*) *glabrata* Loew, 1869**

Material. Peedu, 1 ♂, 15.VIII.1951.

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

Dampf, 1924: 44; Lackschewitz, 1937: 3.

Material. Peedu, 12 ♂, 01, 29, 30.VII, 06, 10, 12, 13, 16 and 22.VIII.1951.

***Bolitophila* (*Clopisa*) *maculipennis* Walker, 1836**

Lackschewitz, 1937: 2.

Material. Peedu, 2 ♂, 01.VII and 14.VIII.1951.

****Bolitophila* (*Clopisa*) *modesta* Lackschewitz, 1937**

Material. Peedu, 2 ♂, 01 and 03.VII.1951.

***Bolitophila* (*Clopisa*) sp.**

Destruction of specimen did not allow exact identification of species. It can by either *B.* (*C.*) *bimaculata* Zetterstedt, 1838, *B.* (*C.*) *maculipennis* Walker, 1836 or *B.* (*C.*) *ingrica* Stackelberg, 1969.

Material. Peedu, 1 secimen, sex ?, 1.VII.1951.

Keroplatidae

***Asindulum nigrum* Latreille, 1805**

Lackschewitz, 1937: 7; Kurina, 1997a.

Material. Peedu, 1 ♀, 06.VIII.1951.

***Neoplatyura flava* (Macquart, 1826)**

Lackschewitz, 1937: 7; Kurina, 1997a.

Material. Peedu, 1 ♀, 17.VIII.1951.

***Orfelia fasciata* (Meigen, 1804)**

Lackschewitz, 1937: 7; Kurina, 1997a.

Material. Koeru, 2 ♀, 14.VII.1948.

***Pyratula zonata* (Zetterstedt, 1855)**

Kurina, 1997a.

Material. Peedu, 1 ♀, 02.VII.1951.

Diadocidiidae

***Diadocidia* (*Diadocidia*) *ferruginosa* (Meigen, 1830)**

Dampf, 1924: 44; Lackschewitz, 1937: 6; Kurina, 1997a.

Material. Peedu, 1 ♀, 20.VIII.1951.

Macroceridae

***Macrocera angulata* Meigen, 1818**

Lackschewitz, 1937: 6.

Material. Peedu, 1 ♀, 02.VII.1951.

***Macrocera fasciata* Meigen, 1804**

Lackschewitz, 1937: 5.

Material. Peedu, 1 ♀, 11.VIII.1951.

***Macrocera vittata* Meigen, 1830**

Lackschewitz, 1937: 5.

Material. Peedu, 2 ♂, 01 and 06.VII.1951.

Mycetophilidae

****Mycomya dziedzicki* Väisänen, 1981**

Material. Peedu, 1 ♀, 04.VIII.1951.

***Neoempheria striata* (Meigen, 1818)**
Lackschewitz, 1937: 12.
Material. Peedu, 1 ♀, 30.VII.1951.

***Sciophila* sp.**
Material. Peedu, 2 ♀, 27.VII and 08.VIII.1951.

******Boletina rejecta* **Edwards, 1941**
Material. Peedu, 1 ♂, 12.VIII.1951.

***Boletina* sp.**
Material. Peedu, 4 ♀, 11, 12 and 17.VIII.1951.

******Codophthinia thoracica* **(Winnertz, 1863)**
Material. Peedu, 1 ♀, 11.VIII.1951.

***Leia fascipennis* Meigen, 1818**
Lackschewitz, 1937: 19.
Material. Peedu, 2 ♀, 07.VII and 01.VIII.1951.

***Leia picta* Meigen, 1830**
Lackschewitz, 1937: 20.
Material. Peedu, 1 ♂, 12.VII.1951.

***Leia winthemi* Lehmann, 1822**
Lackschewitz, 1937: 19.
Material. Peedu, 5 ♀, 24.VI, 01.VII, 02, 13 and 14.VIII.1951.

******Dynatosoma cochleare* **Strobl, 1895**
Material. Peedu, 1 ♂, 11.VIII.1951.

******Dynatosoma nobile* **Loew, 1873**
Material. Peedu, 1 ♀, 11.VIII.1951.

******Epicypta aterrima* **(Zetterstedt, 1852)**
Material. Peedu, 4 ♀, 19.VII, 09 and 20.VIII.1951.

***Mycetophila alea* Laffoon, 1965**
Lackschewitz, 1937: 45 (*Mycetophila guttata* Dziedzicki, 1884), Kurina, 1991: 86.
Material. Peedu: 1 ♂, 12.VIII.1951.

***Mycetophila blanda* Winnertz, 1863**
Dampf, 1924: 43; Lackschewitz, 1937: 46; Kurina, 1991: 86.
Material. Koeru, 1 ♂, 29.VII.1948; Peedu, 1 ♂, 20.VIII.1951.

***Mycetophila caudata* Staeger, 1840**
Lackschewitz, 1937: 44.
Material. Peedu, 2 ♂, 20 and 23.VIII.1951.

***Mycetophila confluens* Dziedzicki, 1884**
Dampf, 1924: 43; Lackschewitz, 1937: 46; Kurina, 1991: 86.
Material. Peedu, 2 ♂, 11 and 20.VIII.1951.

***Mycetophila estonica* Kurina, 1992**
Kurina, 1992: 129.
Material. Peedu, I ♂, 14.VIII.1951.

***Mycetophila finlandica* Edwards, 1913**
Lackschewitz, 1937: 45; Kurina 1991: 86.
Material. Peedu, 2 ♂, 14.VIII.1951.

******Mycetophila forcipata* **Lundström, 1913**
Material. Peedu, 1 ♂, 12.VIII.1951.

***Mycetophila fungorum* (De Geer, 1776)**
Dampf, 1924: 43 (*Mycetophila punctata* Meigen, 1804); Lackschewitz, 1937: 42; Kurina 1991: 86.
Material. Peedu, 6 ♂, 4 ♀, 01.VII, 10, 11, 12, 14, 15, 16, 17, 20.VIII.1951; 2 specimen sex ?, 01.VII and 14.VIII.1951.

***Mycetophila ichneumonea* Say, 1823**
Kurina, 1991: 87.
Material. Peedu, 1 ♂, 11.VII.1951

***Mycetophila idonea* Laštovka, 1972**
Kurina, 1996a: 100.
Material. Peedu, 1 ♂, 14.VIII.1951.

***Mycetophila lunata* Meigen, 1804**
Kurina, 1991: 87.
Material. Peedu: 5 ♂, 09, 11, 17, 20.VIII.1951.

***Mycetophila marginata* Winnertz, 1863**
Lackschewitz, 1937: 44.
Material. Peedu, 7 ♂, 11, 12, 14, 16 and 20.VIII.1951.

***Mycetophila ocellus* Walker, 1848**
Lackschewitz, 1937: 43; Kurina, 1997b.
Material. Peedu, 1 ♂, 16.VIII.1951.

***Mycetophila schnablii* (Dziedzicki, 1884)**
Lackschewitz, 1937: 44.
Material. Peedu, 1 ♂, 23.VIII.1951.

***Mycetophila sigillata* Dziedzicki, 1884**
Dampf, 1924: 43; Lackschewitz, 1935: 45; Kurina 1991: 87.
Material. Peedu, 1 ♂, 04.VIII.1951.

***Mycetophila signatoides* Dziedzicki, 1884**
Lackschewitz, 1937: 45; Kurina, 1992: 129.
Material. Peedu, 1 ♂, 16.VIII.1951.

******Mycetophila sordida* **van der Wulp, 1874**
Material. Peedu: 4 ♂, 12, 14, 17 and 20.VIII.1951.

******Mycetophila stolida* **Walker, 1856**
Material. Peedu, 1 ♂, 20.VIII.1951.

***Mycetophila strobli* Laštovka, 1972**
Kurina, 1994: 218.
Material. Peedu, 1 ♂, 15.VIII.1951.

***Mycetophila uninotata* Zetterstedt, 1852**
Kurina, 1994: 218.
Material. Peedu, 1 ♂, 14.VIII.1951.

***Mycetophila* sp.**
Material. Koeru, 2 ♀, 14.VII and 06.VIII.1948; Peedu, 29 ♀, 02, 26, 30.VII, 02, 11, 12, 13, 14, 16, 17 and 20.VIII.1951, 2 specimen sex ?, 11 and 12.VIII.1951.

******Phronia biarcuata* **(Becker, 1908)**
Material. Peedu, 1 ♂, 16.VIII.1951.

******Phronia exigua* **(Zetterstedt, 1852)**
Material. Peedu, 4 ♂, 01.VII, 16 and 17.VIII.1951.

******Phronia humeralis* **Winnertz, 1863**
Material. Peedu, 4 ♂, 11, 14, 16 and 17.VIII.1951.

******Phronia minuta* **Landrock, 1928**
Material. Peedu, 2 ♂, 16.VIII and 1 ♂, 20.VIII.1951.

***Phronia nigricornis* (Zetterstedt, 1852)**
Dampf, 1924: 44 (*Phronia dubia* Dziedzicki, 1889).
Material. Peedu, 8 ♂, 04, 12, 17 and 20.VIII.1951.

******Phronia nitidiventris* **(van der Wulp, 1858)**
Material. Peedu, 8 ♂, 11, 16, 17 and 20.VIII.1951.

******Phronia obtusa* **Winnertz, 1863**
Material. Peedu, 5 ♂, 12, 14, 17 and 20.VIII.1951.

******Phronia strenua* **Winnertz, 1863**
Material. Peedu, 4 ♂, 12, 14 and 20.VIII.1951.

***Phronia taczanowskyi* Dziedzicki, 1889**
Dampf, 1924: 44.
Material. Peedu, 2 ♂, 17 and 20.VIII.1951.

***Phronia* sp.**
Material. Peedu, 19 ♀, 04, 11, 12, 14, 16, 17 and 20.VIII.1951, 1 specimen sex. ?, 17.VIII.1951.

***Platurocypta punctum* (Stannius, 1831)**
Lackschewitz, 1937: 47 (*Epicypta punctum* Stannius, 1831).
Material. Peedu, 1 ♀, 07.VII.1951.

******Sceptonia flavipuncta* **Edwards, 1925**
Earlier known from Great Britain, France, Germany (Matile, 1977; Laštovka, 1988) and from Spain (Plassman, Schlacht, 1990).
Material. Peedu, 1 ♂, 16.VIII.1951.

******Sceptonia fumipes* **Edwards, 1925**
Material. Peedu, 1 ♂, 20.VIII.1951.

***Sceptonia membranacea* Edwards, 1925**
Lackschewitz, 1937: 46.
Material. Peedu, 1 ♂, 20.VIII.1951.

***Sceptonia* sp.**
Material. Peedu, 3 ♀, 14, 16 and 20.VIII.1951.

******Trichonta melanura* **(Staeger, 1840)**
Material. Peedu, 4 ♂, 4 ♀, 30. VII, 11, 12, 17 and 20.VIII.1951.

******Trichonta subfusca* **Lundström, 1909**
Material. Peedu, 1 ♂, 14.VIII.1951.

***Trichonta* sp.**
Material. Peedu, 2 ♀, 15 and 17.VIII.1951.

***Zygomyia notata* (Stannius, 1831)**
Lackschewitz, 1937: 46.
Material. Peedu, 1 ♂, 16.VIII.1951.

******Zygomyia pseudohumeralis* **Caspers, 1980**
The species has been previously recorded from Germany (e. g. Plassmann, 1986, 1989), Austria (Caspers, 1984), Norway (Søli, 1994), from Mellum and Memmert (Islands of North See) (Plassmann, 1988b) and from Caucasus region (Plassmann, Joost, 1992).
Material. Peedu, 2 ♂, 14 and 16.VIII.1951.

******Zygomyia semifusca* **(Meigen, 1818)**
Widely distributed in Europe (Laštovka, 1988), but it has been treated within the genus of *Mycetophila* Meigen, 1803. New combination has been presented by Zaitzev (1989).
Material. Peedu, 1 ♀, 22.VIII.1951.

******Zygomyia valida* **Winnertz, 1863**
Material. Peedu, 1 ♂, 20.VIII.1951.

***Zygomyia* sp.**
It can by either *Z. humeralis* (Wiedemann, 1817) or *Z. pseudohumeralis* Caspers, 1980.
Material. Koeru, 1 ♀, 14.VII.1948.

***Allodia* (*Allodia*) sp.**
Material. Peedu, 14 ♀, 11, 12, 14, 15, 16, 17 and 20.VIII.1951.

***Allodia* (*Brachycampta*) sp.**
Material. Peedu, 5 ♀, 07, 11, 14 and 15.VIII.1951.

***Allodiopsis* (*Allodiopsis*) *domestica* (Meigen, 1830)**
Lackschewitz, 1937: 29 (*Rhymosia domestica* Meigen, 1830); Kurina, 1994: 219.
Material. Peedu, 4 ♂, 22.VI, 01, 10.VII and 11.VIII. 1951.

***Allodiopsis* (*Allodiopsis*) *rustica* (Edwards, 1941)**
Kurina, 1991: 88.
Material. Peedu, 4 ♂, 11 and 16.VIII.1951.

***Allodiopsis* (*Allodiopsis*) sp.**
Material. Peedu, 2 ♀, 08 and 16.VIII.1951.

***Allodiopsis* (*Notolopha*) *cristata* (Staeger, 1840)**
Lackschewitz, 1937: 29 (*Rhymosia cristata* Staeger, 1840).

Material. Peedu, 17 ♂, 8 ♀, 01, 03.VII, 01, 11, 12, 14, 16 and 17.VIII.1951.

***Brevicornu* (*Brevicornu*) *griseicolle* (Staeger, 1840)**

Kurina, 1996b.

Material. Peedu, 1 ♂, 12.VIII.1951.

***Brevicornu* (*Brevicornu*) *proximum* (Staeger, 1840)**

Lackschewitz, 1937: 35; Kurina, 1996b.

Material. Peedu, 1 ♂, 20.VIII.1951.

***Brevicornu* (*Brevicornu*) sp.**

Material. Koeru, 1 ♀, 25.VII.1948; Peedu, 1 ♀, 02.VII, 1 ♀, 10.VIII, 1 ♀, 15 and 17.VIII.1951.

***Exechia nigroscutellata* Landrock, 1912**

Dampf, 1924: 43; Kurina, 1991: 88.

Material. Peedu, 1 ♂, 01.VII.1951.

***Exechia pseudocincta* Strobl, 1910**

Kurina, 1991: 89.

Material. Peedu, 1 ♂, 11.VIII.1951.

***Exechia repanda* Johannsen, 1912**

Kurina, 1997c.

Material. Peedu, 2 ♂, 19 and 31.VII.1951.

***Exechia spinuligera* Lundström, 1912**

Dampf, 1924: 43; Kurina, 1991: 89; Kurina, 1996a: 97.

Material. Peedu, 1 ♂, 14.VIII.1951.

***Exechia* sp.**

Material. Peedu, 7 ♀, 7, 15 and 19.VIII.1951.

***Exechiopsis* (*Exechiopsis*) sp.**

Material. Koeru, 1 ♀, 6.VIII.1948; Peedu, 1 ♀, 15.VIII.1951.

***Pseudexechia aurivernica* Chandler, 1978**

Previously recorded from Great Britain, Ireland (Hackman, 1988), Germany (Plassmann, Joost, 1986; Plassmann, 1989), Austria (Plassmann, 1984) and also from Russia: Moscow District (Krivosheina et al., 1986), environs of Rybinsk Reservoir (Zaitzev, 1987).

Material. Peedu, 1 ♂, 17.VIII.1951.

***Pseudexechia* sp.**

Material. Peedu, 2 ♀, 05.VII and 15.VIII.1951.

***Rymosia fasciata* (Meigen, 1804)**

Kurina, 1996a: 99

Material. Peedu, 1 ♂, 16.VIII.1951.

***Rymosia* sp.**

Material. Peedu, 1 ♀, 01.VII.1951.

***Tarnania fenestralis* (Meigen, 1818)**

Kurina, 1994: 219.

Material. Peedu, 2 ♂, 22.VI and 01.VII.1951.

***Tarnania tarnanii* (Dziedzicki, 1910)**

Dampf, 1924: 43 (*Rhymosia tarnanii* Dziedzicki, 1910); Lackschewitz, 1937: 31 (*Rhymosia tarnani* Dziedzicki, 1910); Kurina, 1991: 89.

Material. Peedu, 4 ♂, 01.VII, 04 and 14.VIII.1951.

***Tarnania* sp.**

Material. Peedu, 2 ♀, 14 and 17.VIII. 1951, 1 specimen sex ?, 11.VIII.1951.

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Proc. Estonian Acad. Sci. Biol. Ecol., 1997, 46, 1/2, 80–87

A REVIEW OF THE ESTONIAN DITOMYIIDAE, KEROPLATIDAE, AND DIADOCIDIIDAE (DIPTERA, NEMATOCERA)

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Abstract. Data on 19 Estonian species of Ditomyiidae, Keroplatidae, and Diadocidiidae are presented, 8 of them new to the Estonian list of fauna: *Summerus nobilis* Lacksch. (Ditomyiidae); *Cerotelion humeralis* (Zett.), *Monocentrota lundstroemi* Edw., *Orfelia pallida* (Staeg.), *O. unicolor* (Staeg.), *Pyratula zonata* (Zett.) (Keroplatidae); *Diadocidia (D.) spinosula* Tollet, *D. (A.) valida* Mik (Diadocidiidae). The northernmost record of *Summerus nobilis* Lacksch. is given.

Key words: Diptera, Ditomyiidae, Keroplatidae, Diadocidiidae, Estonia.

Ditomyiidae, Keroplatidae, and Diadocidiidae are small families among the Nematocera (Diptera). Below these families are dealt in accordance with Mamaev & Krivosheina (1988), Krivosheina & Mamaev (1988), and Krivosheina (1988).

In the Palaearctic region 16 species of Ditomyiidae, 61 species of Keroplatidae, and 5 species of Diadocidiidae have been recorded (Mamaev & Krivosheina, 1988; Krivosheina & Mamaev, 1988; Krivosheina, 1988; Zaitzev, 1994).

In the neighbouring areas of Estonia 2 species of Ditomyiidae (Dit.), 23 species of Keroplatidae (Ker.), and 3 species of Diadocidiidae (Diad.) are known (see the Table). Two species – *Summerus annulatus* (Meigen, 1830) (Dit.) and *Keroplatus tipuloides* Bosc, 1792 (Ker.) – are included in the Red Book of Russian Karelia (Ivanter & Kuznetzov, 1995). *Keroplatus tipuloides* (= *sesidioides* Wahlberg, 1839) is also in Red Lists of Finland and Sweden (Rassi & Väisänen, 1987; Ehnström et al., 1993).

Formerly 11 species of Ditomyiidae, Keroplatidae, and Diadocidiidae were registered in Estonia. According to Krivosheina and Mamaev (1988) *Keroplatus tipuloides* has also been recorded in Estonia, but it is obviously a mistake. In the literature available to me, the species has not been recorded in Estonia.

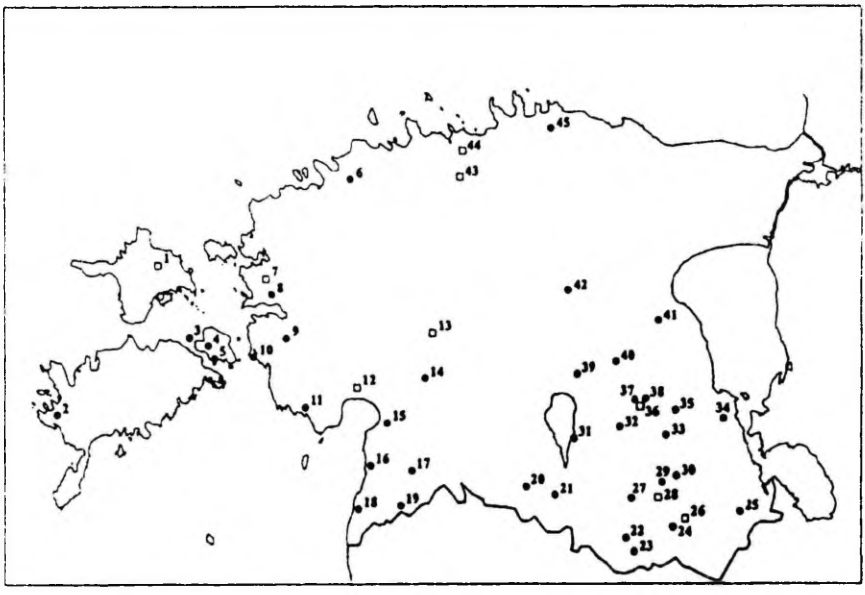
The species of Ditomyiidae, Keroplatidae, and Diadocidiidae in Estonia and in neighbouring areas

Fin. – Finland, Lat. – Latvia, Len. D., Kar. – Leningrad District and Russian Karelia, Est. – Estonia

Families/Species	Fin.	Lat.	Len. D., Kar.	Est.
	References*			
Ditomyiidae				
Summerus annulatus (Meig.)	1	3	7	3, 10
S. nobilis Lacksch.	–	3	–	10
Keroplatidae				
Asindulum nigrum Latr.	–	3	5	3, 10
Cerotelion humeralis (Zett.)	1	3	5, 6	10
C. lineatus (Fabr.)	1	–	–	–
Isoneuromyia semirufa (Meig.)	1	3	5	3, 10
Keroplatus dispar Dufor	–	–	5	–
K. testaceus (Dalman)	1	3	6, 9	3, 10
K. tipuloides Bosc	1, 2	–	7	–
Macrorrhyncha flava Winn.	1	–	5	4, 10
M. rostrata (Zett.)	1	3	5	–
Monocentrota lundstroemi Edw.	1	–	5	10
Neoplatyura flava (Macq.)	–	3	8	3, 10
N. modesta (Winn.)	1	–	–	–
Orfelia basalis (Winn.)	1	–	–	–
O. discoloria (Meig.)	1	3	5, 9	3
O. fasciata (Meig.)	1	3	–	3, 10
O. nemoralis (Meig.)	1	3	5	3
O. nigricornis (Fabr.)	1	–	5	3
O. pallida (Staeg.)	1	–	–	10
O. unicolor (Staeg.)	1	–	–	10
Platyura bicolor (Macq.)	–	3	–	–
Pyratula zonata (Zett.)	1	–	–	10
Urytalpa ochracea (Meig.)	1	3	–	–
U. trivittata (Lundst.)	1	–	–	–
Diadocidiidae				
Diadocidia (D.) ferruginosa (Meig.)	1	3	5	3, 4, 10
D. (D.) spinosula Tollet	1	–	–	10
D. (A.) valida Mik	1	3	–	10
Total number of species	23	15	15	19

* 1, Hackman, 1980; 2, Ståhls & Kaila, 1990; 3, Lackschewitz, 1937; 4, Dampf, 1924; 5, Zaitzev, 1994; 6, Krivosheina et al., 1986; 7, Ivanter & Kuznetzov, 1995; 8, Yakovlev & Mõttus, 1989; 9, Yakovlev, 1986; 10, Original data, and data not published earlier.

The list of Dampf (1924) contains two species, *Diadocidia (D.) ferruginosa* (Meigen, 1830) (Diad.) and *Macrorrhyncha flava* Winnertz, 1846 (Ker.), collected by him from Määvli bog on Hiiumaa Island (see the Figure) and determined by Landrock. Lackschewitz (1937) abstracted Dampf (1924) and gave also data on



Sampling localities. □ data in literature, • original data and data not published earlier. 1, Määvli bog on Hiiumaa Island (Dampf, 1924); 2, Viidumäe Nature Reserve; 3, Islet of Kõinastu near Muhu Island; 4, Piiri on Muhu Island; 5, Suuremõisa on Muhu Island; 6, Klooga, northwest of Keila; 7, Ridala, southeast of Haapsalu (Lackschewitz, 1937); 8, Oonga, southeast of Haapsalu; 9, Kunila, south of Lihula; 10, Puhtu, near Virtsu; 11, Tõstamaa; 12, Audru (Lackschewitz, 1937); 13, Vändra (Lackschewitz, 1937); 14, Jõesuu, northeast of Pärnu; 15, Uulu, south of Pärnu; 16, Rannametsa, south of Pärnu; 17, northeast coast of Lake Rae, southwest of Kilingi-Nõmme; 18, Kabli, south of Pärnu; 19, Nigula Nature Reserve; 20, Ala, west of Tõrva; 21, Tõrva; 22, west coast of Lake Aheru, southeast of Valga; 23, Hargla, southeast of Valga; 24, west coast of Lake Kahrila, southwest of Võru; 25, Hanikase, west of Võru; 26, Kasaritsa, south of Võru (Lackschewitz, 1937); 27, Sangaste; 28, Piigandi, northwest of Võru (Lackschewitz, 1937); 29, Kiuma, southwest of Põlva; 30, Taevaskoja, north of Põlva; 31, Rannaküla, east coast of Lake Võrtsjärv; 32, Vapramäe, northeast of Elva; 33, Kambja, south of Tartu; 34, Järvselja Experimental Forestry Enterprise, southeast of Tartu; 35, Melliste, southeast of Tartu; 36, Tartu and Tartu Tähtvere (Lackschewitz, 1937); 37, Tiksoja, near Tartu; 38, southwest coast of Lake Vasula, near Tartu; 39, Jüriküla, southwest of Puurmani; 40, Suuresöödi, southeast of Puurmani; 41, Voore, east of Jõgeva; 42, Endla Nature Reserve; 43, Kose, southeast of Tallinn (Lackschewitz, 1937); 44, Raasiku, east of Tallinn (Lackschewitz, 1937); 45, Revoja, near Palmse in Lahemaa National Park.

ten species collected by Kennel and Sintenis from Ridala, Audru, Vändra, Kasaritsa, Piigandi, Tartu, Tartu Tähtvere, Kose, and Raasiku (Figure). According to Lackschewitz the material of Sintenis included also *Zelmira basalis* Winnertz, 1863 = *Orfelia basalis* (Winnertz, 1863) (Ker.) collected from Audru, and *Zelmira modesta* Winnertz, 1863 = *Neoplatyura modesta* (Winnertz, 1863) (Ker.) collected from Raasiku, but the specimens were later destroyed by pests and they were impossible to check.

In this paper additional material on eight Ditomyiidae, Keroplatidae, and Diadocidiidae species is presented. All Estonian species, except *Summerus nobilis* Lackschewitz, 1937 (Dit.), are widely distributed in Europe (Mamaev & Krivosheina, 1988; Krivosheina & Mamaev, 1988; Krivosheina, 1988; Zaitzev, 1994).

I collected most of the material for the present communication by sweep netting from 31 sites in Estonia (Figure). One specimen of *Cerotelion humeralis* (Zetterstedt, 1850) (Ker.) and one of *Keroplatus testaceus* (Dalman, 1818) (Ker.) were collected by K. Elberg from the inner side of a window in a house at Ala and Hargla. Three specimens of *Diadocidia (D.) ferruginosa* (Diad.) and one specimen of *D. (A.) valida* Mik, 1874 (Diad.) were collected by K. Kimmel with a light trap from Endla Nature Reserve. One specimen of *Keroplatus testaceus*, one specimen of *Monocentrota lundstroemi* Edwards, 1925 (Ker.), and two specimens of *Orfelia fasciata* (Meigen, 1804) (Ker.) were collected by H. Remm from Sangaste, Hanikase, and Rannaküla, but the method used is not known.

The material is deposited at the Institute of Zoology and Botany, Tartu, Estonia. Asterisks before the names in the species list indicate new species to Estonia.

LIST OF SPECIES

Ditomyiidae

1. *Summerus annulatus* (Meigen, 1830)

Lackschewitz, 1937: 1 (from Kasaritsa, Audru, Piigandi, and Tartu Tähtvere)

Material: 1 ♂, 25. 06. 1995, Piiri on Muhu Island; 1♂, 24. 06. 1996, Melliste. Total 2♂♂.

*2. *S. nobilis* Lackschewitz, 1937

Earlier known from Germany, Latvia, Ukraine, and Belarus (Lackschewitz, 1937; Stackelberg, 1969; Munroe, 1974; Zaitzev, 1994). This record is the northernmost so far.

Material: 1♂, 04. 07. 1994, Nigula Nature Reserve.

Keroplatidae

3. *Asindulum nigrum* Latreille, 1805
Lackschewitz, 1937: 7 (from Kasaritsa)
Material: 1♂, 14. 08. 1992, Oonga.

*4. *Cerotelion humeralis* (Zetterstedt, 1850)
Material: 1♂, 18. 06. 1989, Voore; 1♂, 01. 07. 1995, Taevaskoja; 1♂, 14. 07. 1995, Ala, K. Elberg leg. Total 3♂♂.

5. *Isoneuromyia semirufa* (Meigen, 1818)
Lackschewitz, 1937: 7 (as *Zelmira semirufa* Meig. from Ridala)
Material: 3♂♂, 05. 08. 1990, 07. 08. 1990, and 13. 07. 1994, Nigula Nature Reserve.

6. *Keroplatus testaceus* (Dalman, 1818)
Lackschewitz, 1937: 7 (from Tartu, Kasaritsa, Piigandi, and Audru)
Material: 1♂, 05. 07. 1963, Sangaste, H. Remm leg.; 1♀, 17. 08. 1991, Puhtu; 1♂, 09. 07. 1994, Hargla, K. Elberg leg.; 1♂, 25. 08. 1995, Tõrva. Total 3♂♂ 1♀.

7. *Macrorrhyncha flava* Winnertz, 1846
Dampf, 1924: 44 (as *Asindulum flavum* Winn. from Määvli bog on Hiiumaa Island)
Material: 1♂, 21. 08. 1991, Nigula Nature Reserve.

*8. *Monocentrota lundstroemi* Edwards, 1925
Material: 1♂, 25. 07. 1985, Hanikase, H. Remm leg.; 1♀, 26. 06. 1996, Jõesuu. Total 1♂ 1♀.

9. *Neoplatyura flava* (Macquart, 1826)
Lackschewitz, 1937: 7 (as *Zelmira flava* Macq. from Audru and Ridala)
Material: 19♂♂ 4♀♀, Piiri on Muhu Island (1995), Oonga (1992, 1995), Nigula Nature Reserve (1990, 1993, 1995, 1996), Kiuma (1995), Tiksoja (1994).

10. *Orfelia discoloria* (Meigen, 1818)
Lackschewitz, 1937: 8 (as *Zelmira discoloria* Meig. from Tartu, Kasaritsa, Audru, Raasiku).

11. *O. fasciata* (Meigen, 1804)
Lackschewitz, 1937: 7 (as *Zelmira fasciata* Meig. from Tartu, Audru, Kose)
Material: 1♂, 26. 06. 1956, Rannaküla, H. Remm leg.; 1♀, 13. 07. 1957, Sangaste, H. Remm leg.; 1♂, 17. 06. 1989, Voore; 1♂, 01. 07. 1996, Suuremõisa on Muhu Island. Total 3♂♂ 1♀.

12. *O. nemoralis* (Meigen, 1818)
Lackschewitz, 1937: 8 (as *Zelmira nemoralis* Meig. from Tartu)

13. *O. nigricornis* (Fabricius, 1805)
Lackschewitz, 1937: 7 (as *Zelmira nigricornis* Fabr. from Audru and Vändra)

*14. *O. pallida* (Staeger, 1840)
Material: 1♂, 03. 07. 1994, Nigula Nature Reserve.

*15. *O. unicolor* (Staeger, 1840)
Material: 1♂ 1♀, 04. 07. 1994 and 11. 07. 1993, Nigula Nature Reserve; 1♂, 18. 06. 1989, Voore. Total 2♂♂ 1♀.

*16. *Pyratula zonata* (Zetterstedt, 1855)
Material: 1♂, 26. 06. 1993, Viidumäe Nature Reserve; 1♂, 12. 06. 1994, Taevaskoja; 1♀, 02. 07. 1994, Nigula Nature Reserve; 1♀, 03. 07. 1994, coast of Lake Rae. Total 2♂♂ 2♀♀.

Diadocidiidae

17. *Diadocidia* (*Diadocidia*) *ferruginosa* (Meigen, 1830)
Dampf, 1924: 44 (from Määvli bog on Hiiumaa Island)
Lackschewitz, 1937: 6 (from Tartu, Audru, and Kose)
Material: 42♂♂ 3♀♀, Viidumäe Nature Reserve (1988), Kõinastu (1994), Oonga (1993), Klooga (1996), NE coast of Lake Rae (1994), Nigula Nature Reserve (1990, 1991, 1992, 1993, 1994, 1995), Hargla (1994), W coast of Lake Aheru (1994), W coast of Lake Kahrila (1995), Vapramäe (1995), Kambja (1995), Järvselja (1989), Melliste (1994), SW coast of Lake Vasula (1995), Jüriküla (1995), Suuresöödi (1994), Voore (1989); 3♂♂, 04.–11. 06. 1995, Endla Nature Reserve, K. Kimmel leg. Total 45♂♂ 3♀♀.

*18. *D. (D.) spinosula* Tollet, 1948
Material: 17♂♂ 7♀♀, Piiri on Muhu Island (1995, 1996), Oonga (1989, 1993), Klooga (1996), Kunila (1995), Tõstamaa (1994), Uulu (1995), Rannametsa (1995), Kabli (1995), Nigula Nature Reserve (1991, 1994, 1995), Hargla (1994), Vapramäe (1989, 1995), Lahemaa, Revoja (1996).

*19. *D. (Adidocida) valida* Mik, 1874
Material: 1♂, 04. 07. 1994, Nigula Nature Reserve; 1♂, 8.–15. 10. 1995, Endla Nature Reserve, K. Kimmel leg. Total 2♂♂.

ACKNOWLEDGEMENTS

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ÜLEVAADE SUGUKONDADEST DITOMYIIDAE, KEROPLATIDAE JA DIADOCIDIIDAE (DIPTERA, NEMATOCERA) EESTIS

Olavi KURINA

On esitatud andmed sugukondade Ditomyiidae, Keroplatidae ja Diadocidiidae Eestis esineva 19 liigi kohta. Nendest kaheksa on leitud Eestis esmakordselt: *Summerus nobilis* Lacksch. (Ditomyiidae); *Cerotelion humeralis* (Zett.), *Monocentrota lundstroemi* Edw., *Orfelia pallida* (Staeg.), *O. unicolor* (Staeg.), *Pyratula zonata* (Zett.) (Keroplatidae); *Diadocidia (D.) spinosula* Tollet, *D. (A.) valida* Mik (Diadocidiidae). Liigi *Summerus nobilis* Lacksch. leid on siiani kõige põhjapoolsem.

VIII

Kurina, O. 1997.
Greenomyia mongolica Laštovka et Matile, 1974
(Diptera, Mycetophilidae) found in Estonia.
International Dipterological Research
(St.-Peterburg, Helsinki), 8, 2, 69–71.

Int. J. Dipterol. Res. 8(2)
10 September 1997

ISSN 1021-1020

Greenomyia mongolica Laštovka et Matile, 1974 (Diptera, Mycetophilidae) found in Estonia

OLAVI KURINA

Kurina, O. 1997. *Greenomyia mongolica* Laštovka et Matile, 1974 (Diptera, Micetophilidae) found in Estonia. *Int. J. Dipterol. Res.*, 8(2): 69—71.

The westernmost record of *Greenomyia mongolica* is presented. Female terminalia and the wing of species are figured.

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Key words: Diptera, Mycetophilidae, *Greenomyia*, Estonia.

Greenomyia Brunetti, 1912 is a small genus of fungus gnats, belonging to the tribe *Leiini*. There are six species of it recorded in the Palaearctic region (Hackman, 1988; Zaitzev, 1994), two species in the Nearctic region (Vockeroth, 1981) and two species in the Oriental region (Colless & Liepa, 1973). Only one species, *Greenomyia borealis* (Winnertz, 1863), is known in the neighbouring areas of Estonia: in Finland and Latvia (Hackman, 1988).

The specimens of *Greenomyia mongolica* Laštovka et Matile, 1974 are medium sized (total length about 4.3 mm, wing length about 4.4 mm) blackish fungus gnats. The wings are blackish on the apex, the anal vein ending in Cu_1 after its beginning (Fig. 1). The female coloration and size are the same as of male, female terminalia are presented in figure 2.

The species has been previously recorded in Mongolia, Kazakhstan and Russia (Fig. 3). *Greenomyia mongolica* is of Balto-Eurasian distribution type (a subdivision of Euro-Siberian distribution type). The range involves narrow area between the Pacific Ocean and the Baltic Sea, while not reaching the Central Europe (Fig. 3). Ecologically the distribution type is connected to spruce and fir forests of South-Taiga. The distribution type is given according to Viidalepp and Remm (1996).

Larvae of *G. mongolica* were recorded in the South part of Primorye Territory on the surface of wood with spawn (Zaitzev, 1982).

Estonian material is deposited at the Institute of Zoology and Botany, Tartu.

Material. **Estonia:** 1 ♀, **Kääriku**, 05.X.1985, H. Remm leg.; 1 ♀, **Luunja**, 20.X.1996, O. Kurina leg.

Additional material studied (all deposited at the Zoological Institute of Russian Academy of Sciences, St. Petersburg):

G. mongolica Laštovka et Matile, 1974

Material. 2 ♂, 3 ♀, **Russia**, Nikolsk-Ussur, 29.VII. 1926, Kuznetzov leg., A. Zaitzev det.

G. borealis (Winnertz, 1863)

Material. 1 ♂, **Kazakhstan**, Alma-Ata, 13-16.VI. 1824, Kuzin leg., A. Zaitzev det.

G. stackelbergi A. Zaitzev, 1982

Material. 1 ♂, (holotypus), **Russia**, *Primorskyy Terr.*, Santaheza, 07.VII.1927, Stackelberg leg., A. Zaitzev det.

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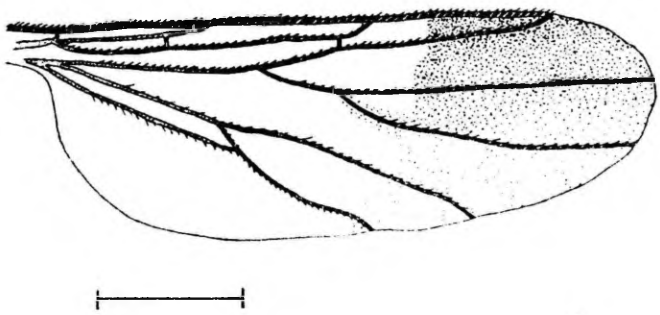

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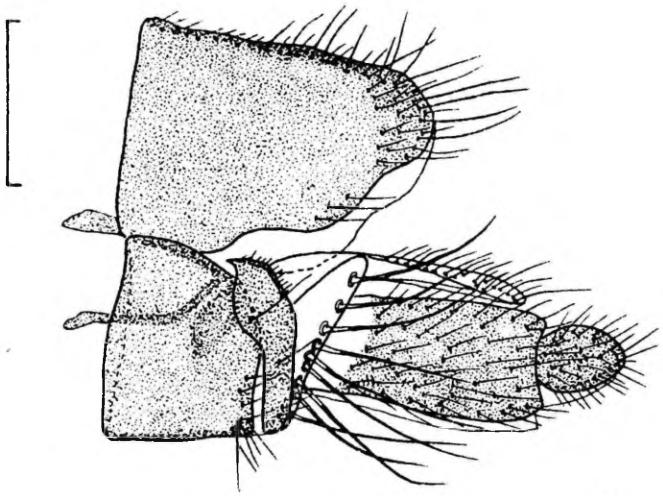

2

Figs 1, 2. *Creenomyia mongolica* Laštovka et Matile, 1974.
1, right wing, scale equal to 1 mm; 2, female terminalia, scale equal to 0.2 mm.

Region. Volume I. Suborder Nematocera. Honolulu: 444—463

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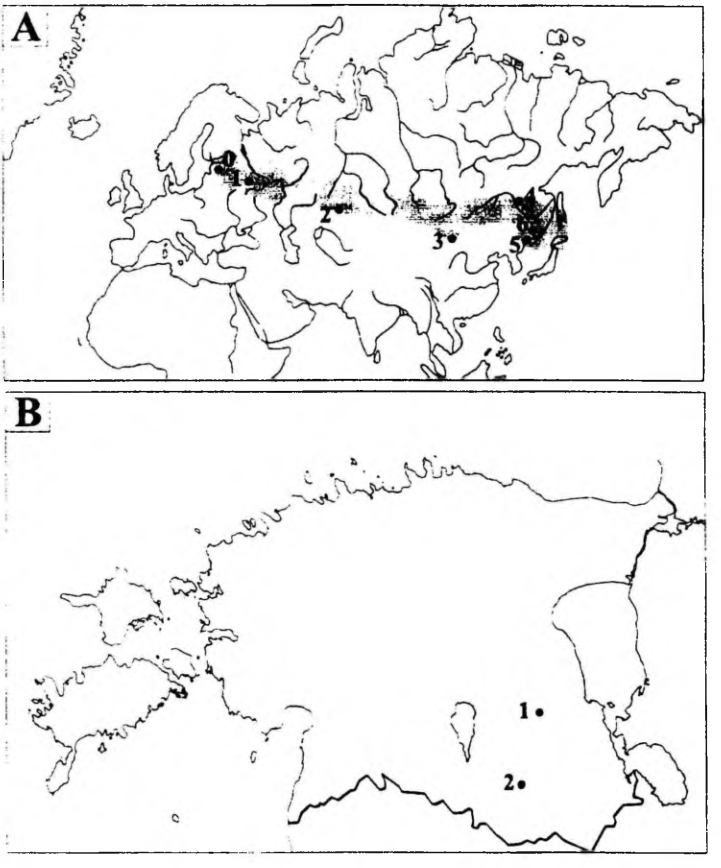

Fig. 3. Distribution of *Greenomyia mongolica* Laštovka et Matile, 1974.

A. Distribution: **0**, Southeast Estonia (original data); **1**, Russia: Moscow Province, Anikeevka (Zaitzev, 1994); **2**. Kazakhstan: Atbasara (Zaitzev, 1982); **3**. Mongolia: Ulan-Bator (Laštovka & Matile, 1974); **4**. Russia: Amur Province, Simonovo (Zaitzev, 1982); **5**. Russia: Primorskyy Terr., Vladivostok and Nikolsk (Zaitzev, 1982); **6**. Primorskyy Terr., Ussurian Nature Reserve (Zaitzev, 1982). The "ridded" area indicates the Balto-Eurasian distribution type. **B**. Sampling sites of *Greenomyia mongolica* in Estonia: **1**. Luunja near Tartu; **2**. Kääriku South west of Otepää.

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Received 22.IV.1997

IX

Kurina, O. 1997.
Мицетофилоидные грибные комары
(Diptera: Mycetophilidae, Bolitophilidae) лесах Эстонии.
В кн: *Место и роль двукрыльных насекомых в экосистемах.*
Санкт-Петербург, 70–71.

МИЦЕТОФИЛОИДНЫЕ ГРИБНЫЕ КОМАРЫ (DIPTERA: MYCETOPHILIDAE, BOLITOPHILIDAE) В ЛЕСАХ ЭСТОНИИ

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Институт зоологии и ботаники Академии наук Эстонии, Тарту

O. Kurina The mycetophilous midges (Diptera: Mycetophilidae, Bolitophilidae) in forests of Estonia

Исследования мицетофилоидных двукрылых проведены с 1988 до 1993 гг. в 27 пунктах на территории Эстонии. Данные были получены при выведении двукрылых из плодовых тел грибов. Для этого были использованы стеклянные или пластмассовые банки, покрытые нейлоновой сеткой. На дне банок, как субстрат для окукливания использовался фрезенный торф.

182 вида плодовых тел грибов из типа Basidiomycota были изолированы в 919 пробах. Двукрылые 127 видов из 20 семейств

выведены в 739 случаях. При этом были выведены следующие семейства: Mycetophilidae (в 68% из изолированных 739 плодовых тел), Limoniidae (30%), Drosophilidae и Anthomyiidae (по 29 %), Sciaridae (20%), Psychodidae (19%), Sphaeroceridae (15%), Muscidae (12%), Phoridae (11%), Heleomyzidae (10%), Cecidomyiidae (9%), Bolitophilidae (6%), Chironomidae (5%), Trichoceridae и Scatopsidae (по 2%). Остальные семейства (Ceratopogonidae, Therevidae, Empididae, Syrphidae и Fanniidae) были малочисленнее. Комары семейства Mycetophilidae были выведены из плодовых тел грибов 15 семейств типа Basidiomycota в 60—86%, за исключением Polyporaceae и Agaricaceae, из которых их вывели соответственно в 43% и 25%. Bolitophilidae были выведены из грибов 6 семейств, более всего из семейств Scutigeraceae (67%) и из семейства Paxillaceae (59%). В течение исследования получены данные о 63 видах комаров из семейства Mycetophilidae и о 8 видах из семейства Bolitophilidae. При изучении карпофорофагии (термин используется по Н. П. Кривошеиной и др., 1986) выяснено наличие моно-, олиго- и полифагии.

К категории монофагов отнесены два вида из семейства Mycetophilidae: *Mycetophila blanda* Winn. и *Mycetophila estonica* Kurina (выведены только из плодовых тел Lactarius deterrimus) и один вид из семейства Bolitophilidae: *Bolitophila* (*Cliopisa*) *retangulata* Lundst. (выведены только из плодовых тел Laetiporus sulphureus).

Олигофагами явились четыре вида из семейства Mycetophilidae: *Mycetophila alea* Laffoon (предпочитает плодовые тела рода Russula, группа Compacta); *Cordyla fusca* Mg. (род Russula); *Exechia contaminata* Winn. (род Russula); *Exechtopsis indecisa* (Walk.) (род Suillus) и один вид из семейства Bolitophilidae: *Bolitophila* (*Cliopisa*) *rossica* Landr. (предпочитает плодовые тела рода Suillus).

Для некоторых полифагов выяснилось предпочтение той или иной группы грибов. Личинки *Mycetophila confluens* Dzied. развивались в основном в плодовых телах из семейства Boletaceae: *Mycetophila lunata* Mg. — в плодовых телах гриба Hydrophoropsis aurantiaca; *Exechia seriata* (Mg.) предпочитал грибы из рода Russula: *Exechia separata* Lundst. — грибы семейств Boletaceae и Comphidiaceae; *Exechia nigroscutellata* Landr. — грибы из родов Russula и Lactarius. Вид *Bolitophila* (*Cliopisa*) *hybrida* (Mg.) предпочитал в основном плодовые тела гриба Paxillus involutus. Для вида *Bolitophila* (*Cliopisa*) *maculipennis* Walk. выяснилось предпочтение к плодовым телам грибов из семейства Tricholomataceae.

X

Kurina, O. 1997.
A new species of fungus gnats from the genus *Allodia* Winnertz, 1863 (Diptera Mycetophilidae) found in Estonia.
Studia Dipterologica (*Halle, Saale*), 4, 2, 275–279.

A new species of fungus gnats of the genus *Allodia* WINNERTZ, 1863 (Diptera, Mycetophilidae) from Estonia

[Eine neue Pilzmückenart der Gattung *Allodia* WINNERTZ, 1863 (Diptera, Mycetophilidae) aus Estland]

by
Olavi KURINA

Tartu (Estonia)

Abstract A new fungus gnat ***Allodia (Allodia) zaitzevi* spec. nov.** is described. The new species is very similar to *Allodia (Allodia) pyxidiiformis* A. ZAITZEV, 1983, from which it is distinguished by the structure of genitals. Detailed illustrations and scanning electron micrographs of genitals from both species are given.

Key words Mycetophilidae, *Allodia*, new species, Estonia

Zusammenfassung Mit ***Allodia (Allodia) zaitzevi* spec. nov.** wird eine neue Pilzmückenart beschrieben. Sie ist *Allodia (Allodia) pyxidiiformis* A. ZAITZEV, 1983 sehr ähnlich, unterscheidet sich aber deutlich im Bau des Genitalapparates. Es werden detaillierte Illustrationen und rasterelektronenmikroskopische Aufnahmen beider Arten gegeben.

Stichwörter Mycetophilidae, *Allodia*, neue Art, Estland

Introduction

While studying Estonian material of fungus gnats from the genus *Allodia* WINNERTZ, 1863 I found a formerly unknown species. The new species is closely related to *Allodia (Allodia) pyxidiiformis* A. ZAITZEV, 1983 (Figs 1, 3, 5, 7). *Allodia (A.) pyxidiiformis* is known from Estonia (original data); Finland (STÅLS 1986); Norway (SØLI 1994); Russia: Leningrad, Moscow and Amur District, the Island of Kunashir; Nearctic Region (ZAITZEV 1983).

I have collected all material for the present paper at ten localities in Estonia (Fig. 8) by sweep netting.

All types and other material are deposited in the collection of the Institute of Zoology and Botany, Tartu, Estonia.

Description of species

Allodia (Allodia) zaitzevi spec. nov. (Figs 2, 4, 6)

Material: **Holotype** ♂: Nigula Nature Reserve, 0.5 km E of Vanajärve, 24. May 1994. **Paratypes**: 1♂, Nigula Nature Reserve, 0.5 km E of Vanajärve, 24. May 1994; 2♂♂, Nigula Nature Reserve, 1 km S of Vanajärve, 23. May 1994; 1♂, Nigula Nature Reserve, 0.5 km E of Vanajärve, 27. August 1995; 1♂, 2 km E of Orissaare, 02. October 1993; 1♂, 3 km SW of Uulu, 28. August 1995; 2♂♂, 3 km N of Kiuma, 16. August 1995; 1♂, Taevaskoja, 12. June 1994; 1♂, Taevaskoja, 20. May 1995; 1♂, Vapramäe, 21. June 1989; 1♂, Vapramäe, 08. September 1995; 2♂♂, Melliste, Karjasilla, 25. April 1995; 3♂♂, Tiksoja, 09. May 1994; 1♂, Tiksoja, 09. June 1994; 1♂, Rähni, 11. May 1994.

Etymology: The species is named in honour of Dr. Aleksander ZAITZEV.

Male

Head: Palps yellow. Other mouthparts and face yellowish to light brown. Frons black. Scape and pedicel of antennae yellow. First flagellar segment yellow or brownish on apex, second flagellar segment yellowish to dull brown. Other flagellar segments dull brown. **Thorax**: Mesonotum two colored, middle part brown and lateral parts pale to yellow. Scutellum brown with pale setae and with two dark bristles in apical part. Propleuron and pronotum yellow, both with two bristles. Other pleural parts light to dark brown. Halteres pale. **Wings**: Transparent. Radial veins brown, other veins pale. Wing length 2.5-3.2 mm. Vein rm about 1.3 times as long as stem of fork M_1+M_2. **Legs**: Coxae, femora and tibia yellow. Tarsal segments brown. Fore and mid tibia about 1.02 times as long as fore and mid basitarsus. Hind tibia about 1.24 times as long as hind basitarsus. Mid tibia with 17-24a, 2-4d, 3-7pd, 3-5p. Hind tibia with 6-7ad and 5-7d. **Abdomen**: brown, with yellow lateral spots expanding to posterior margins of tergites in III, IV and V tergites. **Genitalia** (Figs 2, 4, 6): Yellow, except the brown lateral lobe of gonostylus. **Total length**: 3.5-4.1 mm.

Female

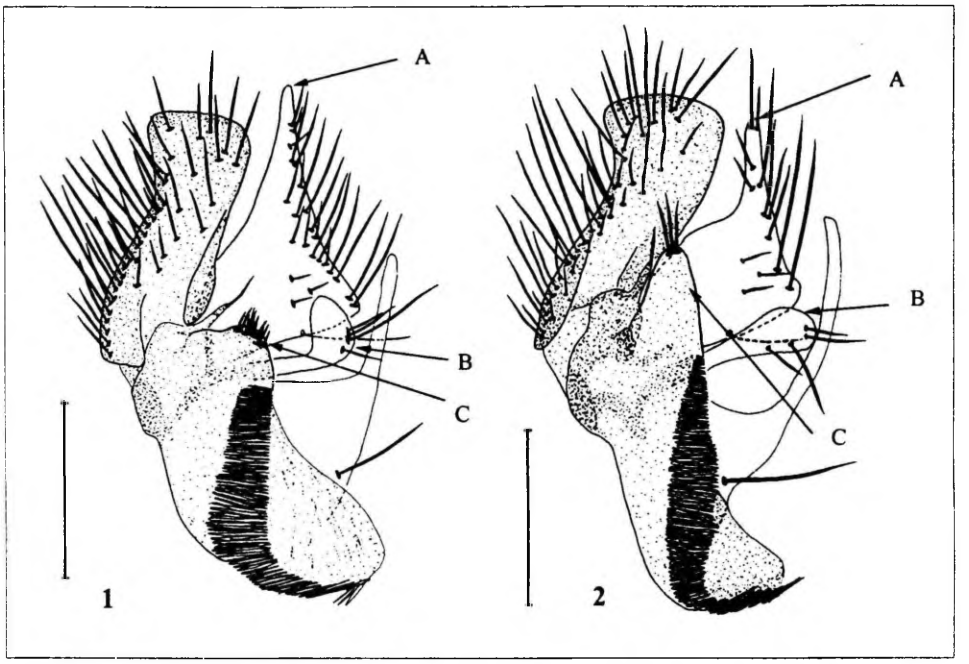
Unknown.

Discussion

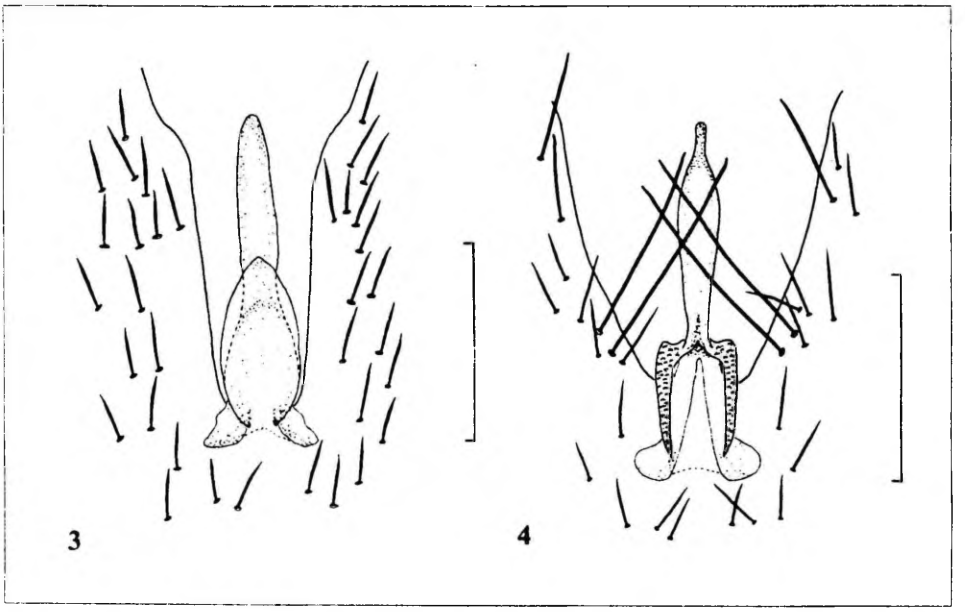
Allodia (*A.*) *zaitzevi* (Figs 2, 4, 6) and *A.* (*A.*) *pyxidiiformis* (Figs 1, 3, 5, 7) are very similar species. They are indistinguishable by coloration and by somatic dimensions. Identification of species can be based only on structure of male genitals. Differences in genitals are presented in Table below.

Table: Differences between male genitals of *Allodia* (*Allodia*) *zaitzevi* spec. nov. and *Allodia* (*Allodia*) *pyxidiiformis* A. ZAITZEV, 1983

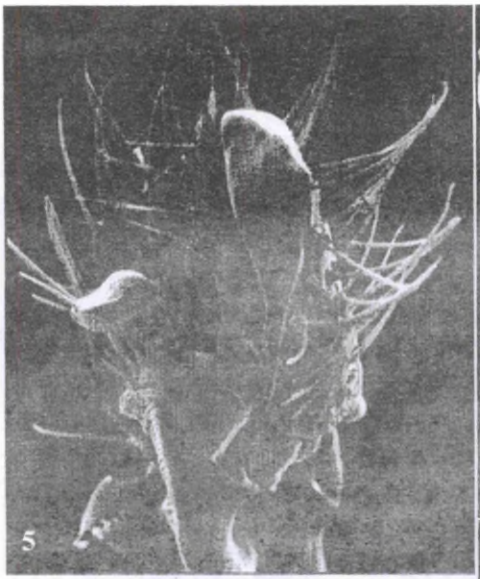
***Allodia* (*A.*) *zaitzevi* spec. nov.**	***Allodia* (*A.*) *pyxidiiformis***
Apex of large medial appendage of gonostylus	
with setae, fig. 2→A;	without setae, fig. 1→A.
Appearance of small medial appendage of gonostylus	
compare fig. 2→B;	compare fig. 1→B.
Basal part of gonostylus mediodistaliy	
with protruding appendage with 3-4 bristles on apex, compare fig. 2→C;	without protruding appendage, basal part of gonostylus with 10-12 strong short bristles, compare fig. 1→C and fig. 7.
Appearance of medioventral appendage of gonocoxid	
compare fig. 4;	compare fig. 3.
Gonocoxid ventrally	
with two pairs of strong long bristles (sometimes with third much shorter pair), compare fig. 4;	without strong long bristles, com pare fig. 3.



Figs 1, 2: Dorsal view of left gonostylus; - **1**: *Allodia (Allodia) pyxidiiformis* A. ZAITZEV, 1983; - **2**: *Allodia (Allodia) zaitzevi* spec. nov. A = apex of large medial appendage, B = small medial appendage, C = basal part of gonostylus mediodistally. Scale 0.1 mm.



Figs 3, 4: Ventral view of medioventral appendage of gonocoxid; - **3**: *Allodia (Allodia) pyxidiiformis* A. ZAITZEV, 1983; - **4**: *Allodia (Allodia) zaitzevi* spec. nov. Scale 0.1 mm.



Figs 5-7: Scanning elektron micrographs. - 5: *Allodia (Allodia) pyxidiiformis* A. ZAITZEV, 1983, dorsal view of gonostylus. Magnification x 570; - 6: *Allodia (Allodia) zaitzevi* spec. nov., dorsal view of gonostylus. Magnification x 500; - 7: *Allodia (Allodia) pyxidiiformis* A. ZAITZEV, 1983, dorsal view of mediodistal margin of basal part of gonostylus. Magnification x 2300.

In the course of work I also studied the seven type specimens of *A. (A.) pyxidiiformis*, deposited in the Zoological Institute of the Russian Academy of Sciences, St.-Petersburg (holotypus and six paratypes). Only one paratypus (♂, Leningrad District, Komarovo, 13. May 1951, leg. STACKELBERG) was identical with the holotypus (Moscow District, surrounding of Pavlovskaja Sloboda, 24. May 1981, leg. A. ZAITZEV). Other five paratpes (2♂♂, Leningrad District, Komarovo, 13. August 1949, leg. STACKELBERG; 1♂, Leningrad District, Komarovo, 1. August 1949, leg. STACKELBERG; 1♂, Leningrad District, Vyritsa, 9. September 1946, leg. STACKELBERG; 1♂, Amur District, 40 km W of Svobodny, Klimoutchy, 25. August 1958, leg. ZINOVJEV) belonging to the species *A. (A.) zaitzevi*. The figure of gonostylus presented by ZAITZEV (1983) represented the species *A. (A.) zaitzevi*, though nobody has figured the genitalia of *A. (A.) pyxidiiformis* so far.

Previously 36♂♂ of *A. (A.) zaitzevi* reared from macrofungi in Estonia in 1989 and 1990 were identified by me as *A. (A.) pyxidiiformis* (KURINA 1991).

The studied material of *A. (A.) pyxidiiformis* includes: 1♂, Oonga, 25. May 1994; 1♂, Oonga, 01. May 1995; 2♂♂, Nigula Nature Reserve, 1 km S of Vanajärve, 23. May 1994; 1♂, Taevaskoja, 20. May 1995; 1♂, Vapramäe,

24. April 1993; 7♂♂, Melliste, Karjasilla, 25. April 1995; 2♂♂, Tiksoja, 09. May 1994; 1♂, Rähni, 11. May 1994. Total 16♂♂.

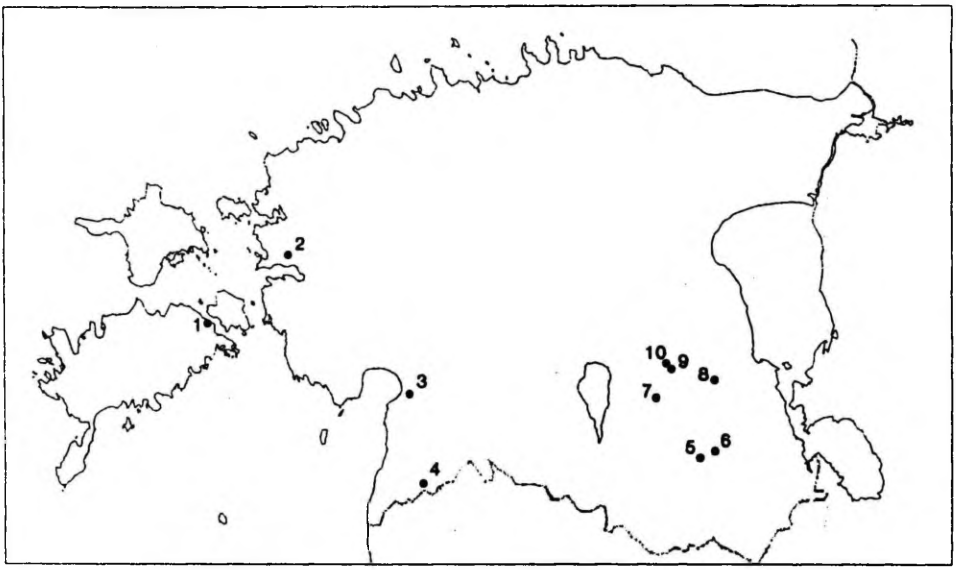


Fig. 8: Sampling localities. - 1: Orissaare on the Island of Saaremaa; - 2: Oonga Southeast of Haapsalu; - 3: Uulu South of Pärnu; - 4: Nigula Nature Reserve; - 5: Kiuma Southwest of Põlva; - 6: Taevaskoja North of Põlva; - 7: Vapramäe Northeast of Elva; - 8: Melliste Southeast of Tartu; - 9: Tiksoja near Tartu; - 10: Rähni near Tartu.

Acknowledgements

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XI

Kurina, O. 1997.
Two species from the genus *Exechia* Winn.
(Diptera, Mycetophilidae) new to Estonia.
Proc. Estonian Acad. Sci. Biol., 46, 4, 256–259.

Proc. Estonian Acad. Sci. Biol. Ecol., 1997, **46**, 4, 257–260

TWO SPECIES FROM THE GENUS *Exechia* Winn. (DIPTERA, MYCETOPHILIDAE) NEW TO ESTONIA

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Abstract. Two Mycetophilid species, *Exechia repanda* Johannsen and *E. repandoides* Caspers, were found in Estonia for the first time. The second record after the initial description of *E. repandoides* Caspers is presented. The male genitalia for the species and for *E. parva* Lundst. are figured.

Key words: Diptera, Mycetophilidae, *Exechia*, Estonia.

Exechia parva Lundström, 1909, *E. repanda* Johannsen, 1912, and *E. repandoides* Caspers, 1984 form a morphologically determinate group in the genus *Exechia* Winn. All three species distinctly differ from other species of *Exechia* in the presence of elongated lateroapical parts of the gonocoxit with the wisps of strong setae on the apexes. Barendrecht (1938) and Krivosheina et al. (1986) gave good figures of the male genitalia of *E. parva* and *E. repanda*. Väisänen (1981) used the figures of Barendrecht (1938), but he obviously interchanged them. Only Caspers (1984) has figured the male genitalia of *E. repandoides*. Nobody has figured the ventral and medial parts of gonostylus.

E. parva (Figs. 1, 2) is the most distinctive among the above-mentioned species. The elongated lateroapical parts of its gonocoxit are setose in the full extent and the dorsal parts of the gonostylus are rounded at basis. The difference between *E. repanda* (Figs. 1, *2*; 2, *2*, *5*) and *E. repandoides* (Figs. 1, *3*; 2, *3*, *6*) can be established especially in dorsal parts of the gonostylus.

E. parva and *E. repanda* have been previously recorded on fruit bodies of *Verpa*, *Armillariella*, *Hypoloma*, *Cortinarius*, and *Inocybe* (Hackman & Meinander, 1979; Krivosheina et al., 1986; Kurina, 1991). Väisänen (1981)

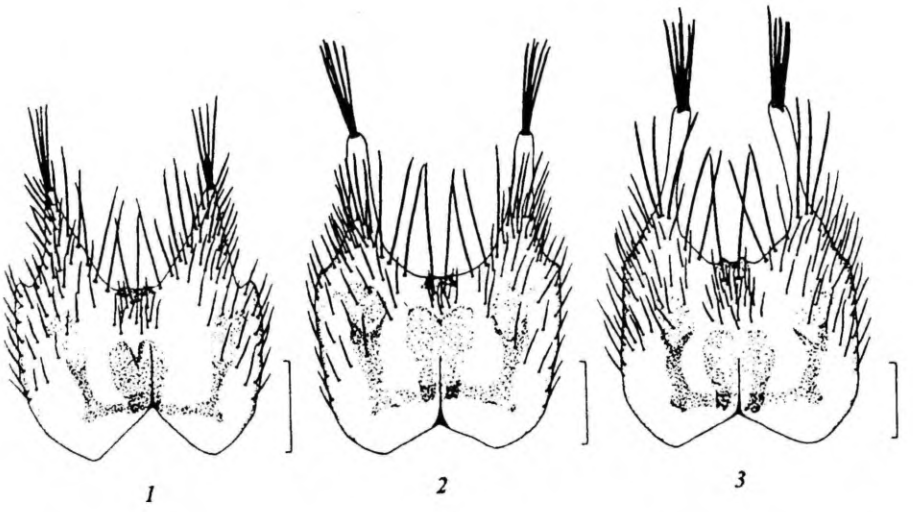

Fig. 1. Ventral view of gonocoxit. *1*, *Exechia parva* Lundst.; 2, *Exechia repanda* Johannsen; *3*, *Exechia repandoides* Caspers. Scale bar = 0.1 mm.

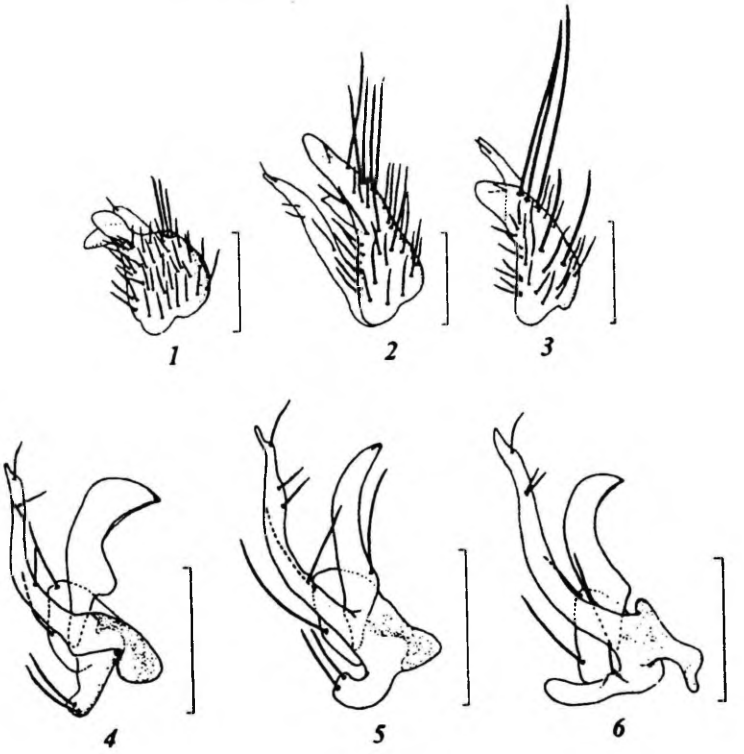

Fig. 2. Dorsal (*1*, 2, *3*) and ventral and medial parts of gonostylus (*4*, *5*, *6*). *1*, *4*, *Exechia parva* Lundst.; 2, *5*, *Exechia repanda* Johannsen; *3*, *6*, *Exechia repandoides* Caspers. Scale bar = 0.1 mm.

studied their overwintering in the broken umbelliferous stems. Nothing is known on the biology of *E. repandoides*.

E. parva and *E. repanda* are widely distributed in Europe (Hackman, 1988). Before the current record *E. repandoides* has been found only once, in Austria (Caspers, 1984).

E. parva has been previously registered in Estonia (Lackschewitz, 1937; Kurina, 1991). *E. repanda* and *E. repandoides* were found in Estonia for the first time.

The material for the present work was collected by sweep netting and also with an exhauster from broken umbelliferous stems. The material is deposited at the Institute of Zoology and Botany, Tartu, Estonia.

MATERIAL

Exechia parva Lundström, 1909
1♂, Oonga, southeast of Haapsalu, 04.10.1995; 3♂♂, Tiksoja near Tartu, 09.05.1994 and 19.09.1995; 4♂♂, Nigula Nature Reserve, 03.08.1990, 23.05.1994, 02.07.1994, and 27.08.1995; 23♂♂, Nigula Nature Reserve, 13.04.1996 (from broken umbelliferous stems); 78♂♂, Tartu, 09.03. and 10.03.1996 (from broken umbelliferous stems). Total 109♂♂.

Exechia repanda Johannsen, 1912
1♂, Rähni near Tartu, 11.05.1994; 67♂♂, Nigula Nature Reserve, 13.04.1996 (from broken umbelliferous stems); 253♂♂, Tartu, 09.03. and 10.03.1996 (from broken umbelliferous stems). Total 321♂♂.

Exechia repandoides Caspers, 1984
2♂♂, Oonga, southeast of Haapsalu, 01.06.1990 and 27.04.1995; 1♂, Tõstamaa, 30.09.1995. Total 3♂♂.

ADDITIONAL COMPARATIVE MATERIAL STUDIED

Exechia parva Lundst.
1♂, Helsinge, 02.10.1909, R. Frey leg., C. Lundström det., Spec. typ. No. 4254 (paratypus) at the Zoological Museum, Helsinki, Finland.

Exechia repanda Johannsen
1♂, Helsinki, 01.01.1981, R. Väisänen leg. et det., material deposited at the Zoological Museum, Helsinki, Finland; 1♂, Leningrad District, Udel'naya, 21.09.1937, Stackelberg leg. et det., material deposited at the Zoological Institute of the Russian Academy of Sciences, St. Petersburg, Russia.

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PEREKONNA *Exechia* Winn. (DIPTERA, MYCETOPHILIDAE) KAHE LIIGI ESMASLEIUD EESTIST

Olavi KURINA

On esitatud andmed kahe Eestist esmakordselt leitud seenesääsklase – *Exechia repanda* Johannsen ja *E. repandoides* Caspers – kohta. Liigi *E. repandoides* puhul on tegu esimese taasleiuga pärast selle kirjeldamist Caspersi poolt 1984. aastal. On esitatud kahe mainitud liigi ja liigi *E. parva* Lundst. isaste genitaaljoonised.

XII

Kurina, O.
Notes on fungus gnats (Diptera, Mycetophilidae)
reared from macrofungi in Estonia.
Lepid. Inform., accepted.

Notes on Fungus Gnats (Diptera, Mycetophilidae) reared from Macrofungi in Estonia

Olavi Kurina

Täiendusi makroseentest väljakasvatatud seenesääsklastele (Diptera, Mycetophilidae) Eestis

Artiklis on esitatud andmed, kuue mütsetofaagse seenesääsklase kohta, mis on saadud nende väljakasvatamise teel makroseentest. Väljakasvatamise metoodikat on tutvustatud 1991. a. ilmunud artiklis (Kurina, 1991). Väljakasvatatud kuuest liigist osutusid viis - *Sciophila nonnisilva* Hutson, *Mycetophila flava* Winn., *Brachypeza (P.) obscura* Winn., *Cordyla nitidula* Edw. and *Rymosia spinipes* Winn. - esmasleidudeks Eestis.

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There are 62 fungivorous fungus gnats known in Estonia (Kurina, 1991, 1992, 1994). In this paper additional material on six fungivorous species is presented; five of them are new to Estonia. The method of rearing is described in an earlier paper (Kurina, 1991). The material for the present paper was collected at four sites in Estonia: Laelatu, near Virtsu, 1991 (649: 30, FK59); Rannametsa, South of Pärnu, 1995 (644: 359); The Nigula Nature Reserve, 1993 (643: 36); Uue-Saaluse, Southeast of Võru, 1995 (640: 50).

The material has been deposited at the Institute of Zoology and Botany, Tartu, Estonia. Asterisks before Mycetophilid names in the species list indicate new species to Estonia.

List of species

* ***Sciophila nonnisilva*** Hutson, 1979

Earlier known from Great Britain (Hutson, 1979), Azerbaidzhan (Zaitzev, 1982) and from the Nearctic region (Zaitzev, 1982). According to Zaitzev (1982), the larvae of *S. nonnisilva* were recorded on the surface of rotting wood, on mycelium. By Chandler (1987) the species has been reared from *Hirneola auricula-judae*.

Material: Laelatu (649: 30, FK59), *Phellinius igniarius*, 30. 08. 1991, 1♂ emerged 13. 04. 1992.

* *Mycetophila flava* Winnertz, 1863

The species has been previously recorded from Finland, Sweden (Laštovka, 1988) and from Russia: Karelia, Leningrad District, Moscow District (Krivosheina et al., 1986). Formerly recorded on *Lentinus*, *Peziza, Amanita*, *Kuehneromyces*, *Cortinarius, Inocybe* and *Leccinum* (Hackman, Meinander, 1979; Krivosheina et al., 1986; Yakovlev, 1994)

Material: Rannametsa (644: 359), *Lentinus lepideus*, 28. 08. 1995, 38♂♂ 60♀♀ emerged 05. 09. and 09. 09. 1995.

Mycetophila ocellus Walker, 1848
Lackschewitz, 1937: 43

Widely distributed in Europe, also known from Japan and the Nearctic region (Laštovka, 1988). According to the literature (Edwards, 1925; Hackman, Meinander, 1979; Yakovlev, 1994) it feeds on *Hypoxylon, Cylindrobasidium, Coniophora, Chondrosterenum, Schizophora, Panellus, Phlebia, Sprassis, Pleurotus* and *Pleurocybella*. By Chandler (1978) *M. ocellus* is polyphagous on lignicolous fungi

Material: Nigula Nature Reserve (643: 36), *Cortinarius* sp., 22. 08. 1993., 5♂♂ emerged 06. 09. and 07.09.1993.

* *Brachypeza (Paracondyla) obscura* Winnertz, 1863

Previously recorded from Germany, Denmark, Poland (Hackman, 1988). The species has been widely distributed in Russia (Krivosheina et al., 1986; Hackman, 1988). Earlier registered on *Verpa*, *Ptychoverpa, Polyporus*, *Pleurotus*, *Lentinus*, *Lactarius*, *Leccinum* and *Suillus* (Krivosheina et al., 1986; Yakovlev, 1994).

Material: Rannametsa (644: 359), *Lentinus lepideus*, 28. 08. 1995, 2♂♂ 1♀ emerged 20. 09. and 25. 09. 1995.

* *Cordyla nitidula* Edwards, 1925

Widely distributed in Europe (Krivosheina et al., 1986; Hackman, 1988). In the literature there is much data about feeding on *Russula* (e. g. Edwards, 1925; Dely-Draskovits, 1974; Ostroverhova, 1979; Ribeiro, 1990). Known also from *Lactarius*, *Suillus* and *Boletus* (Eisfelder, 1955; Ostroverhova, 1979; Saharova, 1977).

Material: Uue - Saaluse (640: 50). *Russula* sp., 03. 09. 1995, 2♂♂ emerged 15. 09. 1995.

* *Rymosia spinipes* Winnertz, 1863

The species has been widely distributed in Europe and recorded also from Afghanistan (Hackman, 1988). *R. spinipes* has been reared from *Entoloma*, *Laccaria, Cortinarius, Inocybe* and *Tricholoma* (Ribeiro, 1990; Yakovlev, 1994). Registered also on *Tremellales* (Yakovlev, 1994).

Material: Laelatu (649: 30, FK59), *Inocybe bongardii*, 30. 08. 1991, 3♂♂ emerged 17. 09. and 20. 09. 1991.

Acknowledgements. I express my thanks to the Estonian Science Foundation for financial support, Grant No. 128. I am greatly indebted to Mr. Mart Jüssi and Mr. Robert Oetjen for reading the manuscript.

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1984–1991 student, University of Tartu, Faculty of Biology and Geography Diploma paper: " Fungivorous Diptera in Estonia"
1991–1993 M. Sc. student, University of Tartu, Faculty of Biology and Geography, M. Sc. thesis: "Tipuloidea and Mycetophiloidea (Diptera: Nematocera) with fungivorous larvae in Estonia"
1993–1998 Ph. D. student, University of Tartu, Faculty of Biology and Geography, Ph. D. thesis: "Fungus gnats in Estonia (*Diptera: Bolitophilidae, Keroplatidae, Macroceridae, Ditomyiidae, Diadocidiidae, Mycetophilidae*)"

Professional employment

1991–1993 and 1996 senior research assistant at the Institute of Zoology and Botany.

Scientific work

Fields of research: faunistics of flies (*Diptera: Nematocera*) in Estonia; ecology, zoogeography, faunistics of Diptera with fungivorous larvae; systematics, faunistics and zoogeography of fungus gnats (*Diptera: Mycetophiloidea*) in Estonia.

Results have been presented at international conferences and seminars in Finland (Helsinki), Russia (St. Petersburg) and in Estonia (Tartu).

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Organisation activities

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Teaduspublikatsioonide üldarv: 13

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