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Moth flies (Diptera, Psychodidae) new for Lithuanian fauna

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The paper presents new data on moth flies (Diptera, Psychodidae) of Lithuania. The list of species, some notes on the ecology of the most abundant species, the localities of finding are given. Only three species of Psychodidae were detected in Lithuania till 2000.

There were detected 39 species of Psychodidae new for Lithuanian fauna. According to the list of species, the Lithuanian fauna of Psychodidae is similar to that of Belgium and Denmark. The highest abundance of Psychodidae imagines was defined early in May and late in August. The dominating species depended on locality. *Ulomyia cognata*, *U. fuliginosa*, *Clytocerus rivosus* and *Satchelliella nubila* were most abundant species in river valleys. *Psychoda albipennis*, *P. pusila* were dominating in a moist deciduous forest. The highest number of species was detected in the moist deciduous forest and the lowest in a pine forest.

Key words: Diptera, Psychodidae, Lithuania, fauna

INTRODUCTION

Psychodidae are small (1.8–5 mm) insects, completely covered with long hairs. Their wings are often folded roof-like over the body, hence the name moth flies. All Psychodidae pass a life cycle consisting of the stages of egg, four larval instars and pupal. The larvae are aquatic or live in wet, decaying matter. The main larval requirements are food, a substratum in which they can move, and more or less permanent contact with atmospheric oxygen. They are univoltine or polyvoltine, depending on the species [5].

More than 500 species of moth flies are known in Palaearctic [7]. There are 50 species of Psychodidae detected in Denmark, 30 species in Norway, 22 species in Sweden, 19 species in Finland [5], 72 species are detected in Belgium [1] and 143 species in Germany [6].

Only 3 species of Psychodidae were known in Lithuania [2]: *Psychoda phallaenoides* (Linnaeus, 1758), *Philosepedon humeralis* Meigen, 1818, and *Telmatoscopus britteni* Tonnoir, 1940.

This paper will replenish the list of Lithuanian fauna of dipterous insects.

MATERIAL AND METHODS

Material was collected with handnet in 1999–2001. Material from Strėva was collected by G. Cibaitė, from Karoliniškės and Vaičiukiškė by Dr. V. Jonai-

tis, material from the other localities was collected by the author. Psychodidae imagines were collected two times per month with handnet (400 gestures each time) in Daubėnai (Vilnius District, 54°36'N 25°26'E), Puvočiai (Varėna District, 54°07'N 24°18'E) and Verkiai (Vilnius, 54°45'N 25°17'E). Moth flies were determined according to Tanasijchuk, 1969 [8]; the species were checked in Catalogue of Palaearctic Diptera [4]. The specimens are now deposited in the Institute of Ecology, Vilnius, Lithuania.

INFORMATION ON OTHER LOCALITIES:

Ariogala (Raseiniai District), 55°18'N 23°26'E
Čepkeliai strict Nature Reserve (Varėna District), 24°01'N 24°26'E
Karoliniškės (Vilnius), 54°41'N 25°13'E
Mančiagirė (Varėna District), 54°06'N 24°28'E
Pavilnys (Vilnius), 54°41'N 25°18'E
Punia (Alytus District), 54°31'N 24°06'E
Rūgšteliškis (Utena District), 55°27'N 26°01'E
Strėva (Trakai District), 54°35'N 24°42'E
Tilžė (Zarasai District), 55°39'N 26°36'E
Vaičiukiškė (Švenčionys District), 55°14'N 26°13'E
Žirmūnai (Vilnius), 54°42'N 25°18'E.

RESULTS AND LIST OF SPECIES

315 specimens were investigated. 41 species of Psychodidae were detected, 39 of them are new to Lithuanian fauna. All the species detected belong to

16 genera. Most abundant were *Psychoda albipennis*, (13.1% from all the imagines investigated), *Ulomyia cognata*, (9.6%), *Ulomyia fuliginosa* (8.6%), *Satchelliella nubila* (7.6%), *Clytocerus rivosus* (6.7%), *Psychoda pussilla*, (5.4%) and *Psychoda cinerea*, (5.1%). Some species were very rare: *Berdeniella manicata*, *Satchelliella mutua*, *Pericoma diversa*, *Tinearia alternata*, *Psychoda gemina*, *Panimerus goetghebueri*, *Panimerus intellegus*, *Telmatoscopus labeculosus*, *Telmatoscopus morulus*, *Clogmia rothschildi*, *Clogmia tristis*, *Peripsychoda fusca*.

Imagines of Psychodidae were most abundant early in May and late in August (Fig. 1).

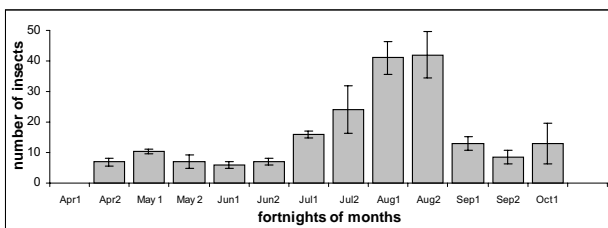


Fig. 1. Average number of *Psychodidae* insects per one catching by handnet (400 gestures)

The check-list of Psychodidae species is represented. The countries where the species are detected are given: B – Belgium, D – Denmark, G – Germany, F – Finland, N – Norway, S – Sweden, P – Poland.

Subfamily Psychodinae

Tribe Pericomini

Berdeniella manicata (Tonnoir, 1919)

B, G. The larvae live in clear, cold water [7]. The only specimen was found in Lithuania. Daubėnai, 17 08 2000.

Ulomyia annulata (Tonnoir, 1919)

B, G. The larvae of the genus *Ulomyia* are found in clean flowing water, in moss carpets. They are indicators of clean water [7]. The only specimen was found. Daubėnai, 05 05 2001.

Ulomyia cognata (Eaton, 1893)

B, G. Frequent species in Lithuania. Imagines were caught in Daubėnai, Verkiai and Pavilnys in May and in late July – early September (Fig. 2).

Ulomyia fuliginosa (Meigen, 1818)

B, D, G, P. Frequent species in Lithuania. Imagines were caught in Daubėnai, Puvočiai, Pavilnys, some imagines were found in Verkiai. The species was found in May and in late June – early September, *U. fuliginosa* was most abundant in July. (Fig. 2).

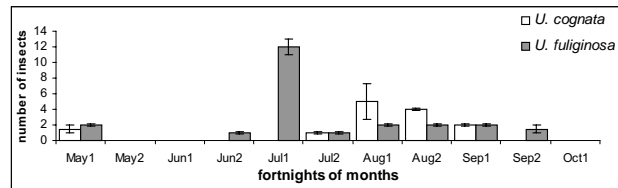


Fig. 2. Average number of *Ulomyia* insects per one catching by handnet (400 gestures)

Satchelliella canescens (Meigen, 1818)

B, D, G, S. Most larvae of *Satchelliella* live in riversides in leaves and plants [7]. The larvae of *S. canescens* live on rock surface with thin layers of swift flowing water [5]. It is a frequent species in Lithuania. It was found in Daubėnai, Karoliniškės, Puvočiai and Verkiai. *S. canescens* was collected in April – May and in August (Fig. 3).

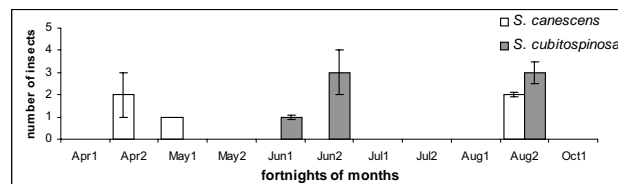


Fig. 3. Average number of *Satchelliella canescens* and *S. cubitospinosa* insects per one catching by handnet (400 gestures)

Satchelliella cubitospinosa (Jung, 1954)

D, G. Imagines were found only in Daubėnai in June and August (Fig. 3).

Satchelliella extricata (Eaton, 1893)

B, G. Some imagines were caught in different localities: Verkiai, 15 05 2000; Puvočiai, 02 08 2000, 2 specimens; Čepkeliai, 10 08 2000, Strėva, 07 10 2000.

Satchelliella mutua (Eaton, 1893)

B, D, F, G, N. The larvae are found in leaf packs of springs [5]. Only one specimen was detected. Daubėnai, 23 04 2000.

Satchelliella nubila (Meigen, 1818)

B, D, F, G. Imagines were frequently found in Daubėnai, Puvočiai and Verkiai. The species was collected during all summer, but most frequently in autumn (Fig. 4).

Satchelliella palustris (Meigen, 1804)

B, D, F, G, S. Imagines were found in Daubėnai, Puvočiai and Verkiai, in May, August and October (Fig. 4).

Satchelliella pilularia (Tonnoir, 1940)

D, G. Imagines were detected only in Daubėnai in April–May and in July (Fig. 4).

Pericoma (Pericoma) diversa Tonnoir, 1919

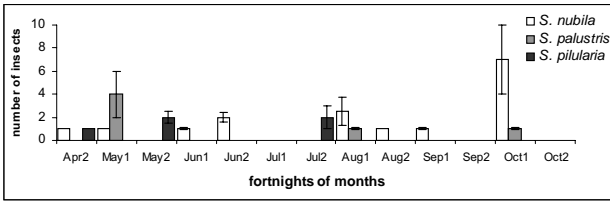


Fig. 4. Average number of *Satchelliella. nubila*, *S. palustris* and *S. pilularia* insects per one catching by handnet (400 gestures)

B, G. Most larvae of *Pericoma* live in wet moss carpets in riversides, near springs, in the littoral zone of lakes [7]. Only one specimen of *P. diversa* was found. Strėva, 07 10 2000.

***Pericoma (Pericoma) trifasciata* (Meigen, 1804)**

B, D, G. The larvae of *P. trifasciata* live in small rivers with a high content of calcium [7]. Verkiai, 29 05 2000, 2 specimens; Vaičiukiškė, 11 06 1999; Daubėnai, 10 08 2000.

***Pericoma (Pachypericoma) blandula* Eaton, 1893**

B, D, F, G, N, S. The larvae live in riversides, on banks of springs [7]. Verkiai, 31 07 2000; Pavilnys 03 08 2001, 2 specimens.

***Clytocyclus (Boreoclytocyclus) ocellaris* (Meigen, 1818)**

B, D, F, G, N. The larvae of the genus live in riversides of small rivers [7]. Imagines were found in Puvočiai, Strėva and Verkiai in May, July and August (Fig. 5).

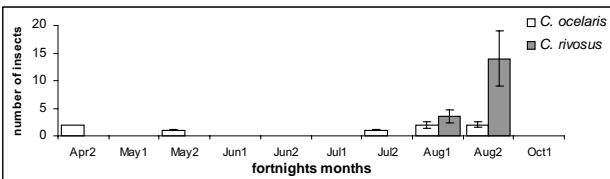


Fig. 5. Average number of *Clytocyclus* insects per one catching by handnet (400 gestures)

***Clytocyclus (Boreoclytocyclus) rivosus* (Tonnoir, 1919)**

B, G. Imagines were found in Daubėnai, Puvočiai and Verkiai. The species was abundant in August (Fig. 5).

***Bazarella subneglecta* (Tonnoir, 1922)**

B, D, G. The larvae live in wet moss carpets [7]. Two specimens were collected in Lithuania. Karoliniškės, 27 04 2000; Verkiai, 15 05 2000.

***Bazarella pulchra* Eaton, 1893**

D, G. Daubėnai, 16 06 2001.

Tribe Psychodini

***Tinearia alternata* (Say, 1824)**

B, D, F, G, N, S. The larvae are caprophilic [7]. Only one specimen was collected. Verkiai, 16 07 2000.

***Psychoda albipennis* Zetterstedt, 1850**

B, D, G, N, S. The larvae of the genus *Psychoda* live in faeces, preferably of vertebrates, as well as in putrefying moss [7]. The imagines of the species were abundant in Lithuania. They were caught in Puvočiai, Rugštelėškis, Strėva and Verkiai. Some imagines were collected in May, but they were most abundant in August (Fig. 6).

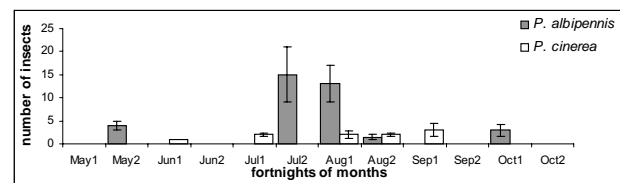


Fig. 6. Average number of *Psychoda albipennis* and *P. cinerea* insects per one catching by handnet (400 gestures)

***Psychoda brevicornis* Tonnoir, 1940**

G, N. Puvočiai, 02 08 2000.

***Psychoda cinerea* Banks, 1894**

B, D, F, V, N, S. The imagines were caught during all the summer (Fig. 6) in Ariogala, Strėva, Tilžė, Verkiai, Žirmūnai. The species develops in moist places in houses or flats.

***Psychoda phallaenoides* (L., 1758)**

B, D, F, G, N, S. Daubėnai, 11 10 2001, 14 06 2000, Verkiai, 16 07 2000.

***Psychoda gemina* (Eaton, 1904)**

B, D, G, N. Daubėnai, 10 08 2000.

***Psychoda grisescens* Tonnoir, 1922**

B, G, N. Tilžė, 15 08 2000.

***Psychoda lobata* Tonnoir, 1940**

B, G, N. Žirmūnai, 30 08 2000.

***Psychoda minuta* (Banks, 1894)**

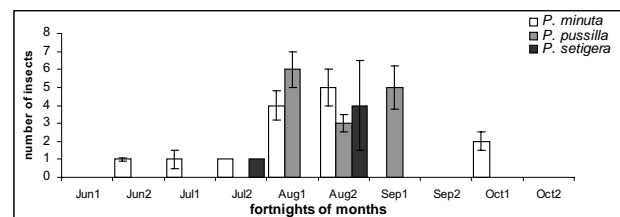


Fig. 7. Average number of *Psychoda minuta*, *P. pussilla* and *P. setigera* insects per one catching by handnet (400 gestures)

B, D, F, G, N, S. The imagines were found during all warm period of the year in Pavilnys, Puvočiai, Verkiiai and very abundantly in Daubėnai (Fig. 7).

Psychoda pussilla Tonnoir, 1922

G. Imagines were found in August and September in Daubėnai, Puvočiai and very abundantly in Verkiiai (Fig. 7).

Psychoda setigera Tonnoir, 1922

B, D, F, G, N, S. Imagines were found in August and September in Daubėnai, Puvočiai and very abundantly in Verkiiai (Fig. 7).

Tribe Telmatoscopini

Paramormia decipiens (Eaton, 1893)

B, D, G. The larvae are found in springs on rock surface [5]. Vaičiukiškė, 11 06 1999; Punia, 16 06 2000, 2 specimens.

Panimerus goetghebueri (Tonnoir, 1919)

B. Most larvae of *Panimerus* live in rivers of slowly flowing water [7]. Verkiiai, 15 05 2000.

Panimerus intellegus (Jung, 1956)

G. Verkiiai, 12 06 2000.

Jungiella (Parafungiella) consors (Eaton, 1893)

B, D, G. Verkiiai, 15 05 2000.

Jungiella (Parafungiella) longicornis (Tonnoir, 1919)

B, D, G, S, P. The larvae of the species live in swamps, lakes, rivers [7]. Verkiiai, 15 05 2000, 4 specimens; Mančiagirė 13 06 2000.

Telmatoscopus labeculosus (Eaton, 1893)

B, D. The larvae of the genera are found near springs in wet moss carpets and leaf packs [7]. Verkiiai, 15 05 2000.

Telmatoscopus morulus (Eaton, 1893)

B, G. Verkiiai, 15 05 2000.

Clogmia rothschildi (Eaton, 1912)

B, G. Puvočiai, 22 07 2000.

Clogmia tristis (Meigen, 1830)

G. Verkiiai, 12 06 2000.

Peripsychoda fusca (Macquart, 1826);

B, D, F, G. The larvae live in riversides of small rivers [7]. Verkiiai, 12 06 2000.

Threticus lucifugus (Walker, 1856)

B, D, G. Rūgšteliškis, 23 07 2000, 4 specimens.

Philosepodon humeralis (Meigen, 1818)

B, D, G, N. Verkiiai, 03 07 2001, 25 04 2000. One more specimen was found in Rusnė, 23 07 1995 [3].

According to the list of species, the fauna of Psychodidae of Lithuania is similar to that of Belgium (Jacard index of similarity 30.4) and Denmark (Jacard index of similarity 28.9). The greatest differences in Psychodidae fauna are observed between Lithuania and Sweden (Jacard index of similarity 16.1) as well as Finland (Jacard index of similarity 18.6).

The abundance and biodiversity of moth flies were investigated in three localities (Daubėnai, Puvočiai and Verkiiai). The material was collected in the valley of a small river in a pine forest in Puvočiai. Daubėnai and Verkiiai are in deciduous forests. There are some springs and small clear rivers in Daubėnai, and an old pond and a small slowly flowing river in Verkiiai. Verkiiai is in the territory of the city of Vilnius. There were detected 13 species of Psychodidae in Puvočiai, 18 in Daubėnai and 27 in Verkiiai. The most abundant species in Puvočiai were *U. fuliginosa*, *C. rivosus* and *S. nubila*. Larvae of these species live in clear rivers and riversides. The most abundant species in Daubėnai were *U. cognata*, *U. fuliginosa*, the larvae of which are found in clear water, and *S. palustris*, *S. cubitospinosa*, with the larvae living in riversides. A great number of species whose larvae used to live in decaying organic matter, in the riversides of slowly flowing water, in swamps, were detected in Verkiiai. Imagines of the genera *Tinearia*, *Panimerus*, *Peripsychoda*, *Telmatoscopus* were detected only in this locality. The most abundant species were *P. albipennis*, *P. pusila* in Verkiiai. The fauna of Psychodidae depends on conditions where larvae can develop.

The list of species of moth flies can be replenished after more detail investigations in more various biotops.

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**NAUJOS LIETUVOS FAUNAI KANDINIŲ UODELIŲ
(DIPTERA, PSYCHODIDAE) RŪŠYS**

S a n t r a u k a

Straipsnyje pateikiami nauji duomenys apie Lietuvos kandinius uodelius (Diptera, Psychodidae). Nurodomas rūšių

sąrašas, kai kurie gausiausių rūšių ekologijos bruožai, retų rūšių radvietės. Iki 2000 m. Lietuvoje buvo paskelbtos 3 Psychodidae rūšys.

Nustatytos 39 naujos Lietuvos faunai kandinių uodelių rūšys. Remiantis rūšių sąrašu Lietuvos Psychodidae fauna artimiausia Belgijos ir Danijos kandinių uodelių faunai. Didžiausias kandinių uodelių suaugėlių gausumas stebėtas gegužės pradžioje ir rugpjūčio pabaigoje. Skirtingose vietovėse skiriasi vyraujančios rūšys. Upių slėniuose vyravo *Ulomyia cognata*, *U. fuliginosa*, *Clytocerus rivosus* ir *Satchelliella nubila*. Drėgname lapuočių miške vyravo *Psychoda albipennis* ir *P. pusila*. Daugiausia rūšių (28) rasta lapuočių miške, mažiausiai (17) – pušyne.