ISEA PAS

Acta zoologica cracoviensia, 60(1) 2017
Kraków, 15 December, 2017

ISSN 2299-6060, e-ISSN 2300-0163
https://doi.org/10.3409/azc.60_1.17

Hypogastruridae (Collembola: Hexapoda) from the Republic of Moldova

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Received: 12 January 2017. Accepted: 30 September 2017. Available online: 15 December 2017.

BUŞMACHIU G., WEINER W.M. 2017. Hypogastruridae (Collembola: Hexapoda) from the Republic of Moldova. *Acta zool. cracov.*, **60**(1): 17-27.

Abstract. Moldovan fauna of hypogastrurid Collembola currently contains 30 species belonging to nine genera, of which two genera and five species are new records. The list of all species with their localities, distribution and life forms is also included.

Key words: genera, species, localities, distribution, checklist.

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I. INTRODUCTION

The first checklist of Collembola from the Republic of Moldova published by BUŞMACHIU (2010) included 25 species (without data on localities, for example) from seven genera of the family Hypogastruridae. However, the first data on hypogastrurid species appeared in the doctoral thesis of STEGĂRESCU in 1967. Species *Hypogastrura purpurescens* (LUBBOCK, 1867) and *Orogastrura parva* (GISIN, 1949) from the vineyards were

listed in this study, but their presence has not yet been proved. In the present study, full data sets of 30 species and the description of recent localities are presented.

II. MATERIAL AND METHODS

Extraction method and identification

Samples of moss, soil and litter were collected from different forest types, an urban park, banks of the Dniester River and agricultural fields in the Republic of Moldova during the period 2001-2015. (They included 36 specimens of newly recorded species).

Microarthropods were extracted from soil with the use of a modified flotation method (BUŞMACHIU et al. 2015). Specimens were stored and preserved in 96% ethyl alcohol. They were cleared in the lactic acid and KOH and mounted on slides in a Marc Andre II medium. Identification was conducted mainly with a phase contrast microscope LEICA 2500, using standard determination keys and recently published Synopses on Palaearctic Collembola (BABENKO et al. 1994; FJELLBERG 1998; THIBAUD et al. 2004). The collection of slides is housed in the Entomological Museum of the Institute of Zoology, Academy of Sciences of Moldova.

List of localities and studied habitats

The Iagorlâc (Yagorlyk) Scientific Reserve (Fig. 1) was created in1988 for the purpose of protecting the water and terrestrial ecosystems in the River Dniester basin. The high value of the Iagorlâc Reserve is due to the presence of a wide variety of rare and endangered species of plants, constituting a unique phytocoenosis, located on the calcareous slopes of the left bank of Iagorlâc River and some other streams. The terrestrial ecosystems are represented by steppe communities, meadows, forests and wetlands.

Chişinău Dendrarium Park (urban park, Fig. 2), was founded as a continuation of the Botanical Garden of the Academy of Sciences. At present, the area of the park amounts to 83 ha. There are sectors with elements of forest vegetation from Moldova, including collections of seeds of vegetables, oilseeds, and Rosaceae. The conifer plant collection includes more than 50 taxa from different floristic regions of the world.

Talmaza and Leuntea, localities which belong to the forest tract Talmaza Wetland (Fig. 3) are situated at Lower Dniester River. The area is a part of a forest-steppe region with a floodplain and a forest belt dominated by oak (*Quercus pubescens*).

Chişcăreni locality, an agricultural field (Fig. 4) about 4 ha in size, is situated on the shore of Platina Lake, and covered with winter oil rape (*Brassica napus*).

Ivancea National Park (Fig. 5), contains natural deciduous-mixed forest with a predominance of oak trees **(***Quercus petraea* and *Quercus robur*), in combination with lime (*Tilia tomentosa, Tilia cordata*), ash (*Fraxinus excelsior*) and hornbeam (*Carpinus betulus*).

Rudi, a part of the Rudi-Arioneşti Landscape Reserve (Fig. 6) with an area of 855 ha, is situated in the Northern part of Moldova. It includes a large area covered with a natural mixed forest, with a predominance of oak (*Quercus robur*) and the presence of hornbeam (*Carpinus betulus*) and ash (*Fraxinus excelsior*) on calcareous slopes on the bank of Dniester River, constituting a specific environment for rare and relict plants and animals.

Fig. 1. Iagorlâc (Yagorlyk) Scientific Reserve, forest along the banks of the Dniester River. Fig. 2. Chişinău Dendrarium Park, wet meadow with small trees. Fig. 3. Talmaza forest situated in Lower Dniester River. Fig. 4. Chişcăreni, an agricultural field with winter oil rape (*Brassica napus*). Fig. 5. Ivancea National Park, with natural deciduous mixed forest. Fig. 6. Rudi, natural forest.

III. RESULTS

As the result of the present investigations, five species belonging to three genera (*Ceratophysella*, *Mesogastrura* and *Microgastrura*) of the family Hypogastruridae were found for the first time in the fauna of the Republic of Moldova. New records for Moldovan fauna (presented below) include the distribution of the species in Ukraine, because some of the studied localities belong in the same Dniester River basin. Data for the species mentioned in the checklist (BUŞMACHIU 2010) are presented in Table 1.

Table 1

The list of Hypogastruridae from the Republic of Moldova (*dubious record, see introduction). Records new to Moldova are marked in bold.

№	Taxa	Localities, data collection and habitats	Distribution, life form
	Family Hypogastruridae		
	Genus *Ceratophysella* BÖRNER, 1932		
1	*Ceratophysella armata* (NICOLET, 1841)	Cruglic, pasture, soil, 4 ex., 07.06.1995, barley, soil, 2 ex., 23.07.1995; Slobozia-Duşca, alfalfa, soil, 42 ex., soya, soil, 3 ex., 24.07.1995; Bălţi, white beet, soil, 5 ex., 12.09.1998; Temeleuţi, *Robinia pseudoacacia*, litter, 2 ex., 11.08.2003.	Holarctic, hemiedaphic, eurytopic.
2	*Ceratophysella bengtssoni* (ÅGREN, 1904)	Rădenii Vechi, Plaiul Fagului, moss on wood decomposed, 1 ex., 16.02. 2009.	Holarctic, hemiedaphic, silvicolous, bryophilous.
3	*Ceratophysella denticulata* (BAGNALL, 1941)	Purcari, riparian forest, litter, 2 ex., 20.04.2001; Olăneşti, bank of Dniester River, soil, 14 ex., 24.06.2003; Temeleuţi, Plaiul Fagului, forest, litter, 4 ex., *Robinia pseudoacacia,* litter, 32 ex., 11.08.2003; Ivancea, alfalfa, soil, 1 ex., 22.07.2010; Copanca, *Robinia pseudoacacia,* litter, 2 ex., 02.10.2008; Lozova, shore of lake, alfalfa, 3 ex., 13.10.2010.	Cosmopolitan, hemiedaphic, silvicolous, detritophilous.
4	*Ceratophysella engadinensis* (GISIN, 1949)	Lozova, Codrii, forest, litter, 3 ex., 01.06.1994; Slobozia-Duşca, alfalfa, soil, 16 ex., 24.07.1995, soya, soil, 5 ex., 24.07.1995; Copanca, forest, litter, 1 ex., 20.04.2001; Sauca, forest, litter, 27 ex., 02.06.2001; Drăguşani, *Robinia pseudoacacia*, litter, 24 ex., 02.06.2001; Talmaza, *Robinia pseudoacacia,* litter, 2 ex., 24.06.2003; Cimişlia, forest, litter, 2 ex., 11.08.2003; Temeleuţi, Plaiul Fagului, forest, litter, 9 ex., 11.08.2003; Străşeni, *Pinus nigra*, litter, 4 ex., 09.10.2004; Chişinău, strawberries, soil, 22 ex., 10.11.2004; Rădenii Vechi, Plaiul Fagului, meadow, soil, 1 ex., 14.12.2007, moss on wood decomposed, 4 ex., 29.02.2008, 46 ex., 16.06.2008; Bugeac, steppe, soil, 29 ex., 09.05.2009; Lalova, calcareous canyon, soil, 3 ex., 13.11.2009; Saharna, calcareous canyon, litter under lower shrubs, 4 ex., 22.04.2010; Leuntea, alfalfa, soil, 3 ex., 18.11.2010; Băcioi, rapeseed, soil, 2 ex., 06.05.2011, 6 ex., 17.05.2011; Rudi, forest, 1 ex., 07.06.2012; Iagorlâc, litter under shrubs, 2 ex., 09.07.2013; Costeşti, pasture, 10 ex., 09.07.2013; Branişte, forest belt, 14 ex., 09.07.2013; Vâşcăuţi, forest, litter, 2 ex., 10.01.2014; Gordineşti, pasture, 8 ex., 30.01.2015.	Cosmopolitan, hemiedaphic, xerophilous, silvicolous, agrophilous.
5	*Ceratophysella granulata* STACH, 1949	Şaptebani, forest, litter, 4 ex., 30.05.2009.	Palaearctic, hemiedaphic, silvicolous.

№	Taxa	Localities, data collection and habitats	Distribution, life form
6	***Ceratophysella sigillata*** (UZEL, 1891)	Ivancea, forest, litter and wood decomposed, 6 ex., 10.01.2014.	Holarctic, hemiedaphic, algophagous.
7	***Ceratophysella silvatica*** RUSEK, 1964	Rudi, forest, moss on rock, 2 ex., 07.06.2012.	European, hemiedaphic, silvicolous.
8	***Ceratophysella stercoraria*** STACH, 1963	Talmaza, riparian forest on bank of Dniester River, soil, 5 ex., 25.05.2001; Leuntea, bank of Dniester River, soil, 3 ex., 15.04.2011; Costeşti-Stânca, shore of lake, soil, 2 ex., 06.06.2014; Chişcăreni, Rapeseed, soil, 14 ex., 31.01.2015.	Palaearctic, hemiedaphic, mesophilous.
9	*Ceratophysella succinea* GISIN, 1949	Lozova, Codrii, forest, litter, 27 ex., 21.05.1996; Sărătenii Vechi, pasture, soil, 20 ex., 19.04.2000; Vălcineţ, forest, litter, 8 ex., 18.09.2000; Stejăreni, meadow, soil, 23 ex., 19.05.2004; Gura Bâcului, bank of Dniester River, soil, 12 ex., 22.05.2004; 31 ex., 15.07.2005; Butuceni, calcareous canyon, litter under lower shrubs, 2 ex., 25.06.2005; Rădenii Vechi, Plaiul Fagului, forest, moss on wood decomposed, 5 ex., 10.04.2006, moss, 1 ex., 29.02.2008, 4 ex., 16.02.2009, Braniştе, forest belt, 2 ex., 09.07.2013.	Holarctic, hemiedaphic, mesophilous, antropophilous.
	Genus *Choreutinula* PACLT, 1944		
10	*Choreutinula inermis* (TULLBERG, 1871)	Copanca, forest, litter, 2 ex., 20.04.2001, riparian forest, litter, 3 ex., 21.04.2001, 3 ex., 25.05.2001; Bahmut, forest, litter, 1 ex., 01.04.2001; Talmaza, forest, litter, 3 ex., 04.04.2004; Cremenciug, litter and soil under lower shrubs, 69 ex., 02.05.2004; Otaci, bank of Dniester River, soil, 18 ex., 23.02.2006.	Palaearctic, hemiedaphic, silvicolous, antropophilous.
	Genus *Hypogastrura* BOURLET, 1839		
11	*Hypogastrura assimilis* (KRAUSBAUER, 1898)	Băcioi, compost, 1 ex., 09.07.1995; Brânza, backwater, palustral vegetations, 1 ex., 19.10.2002; Chişinău, compost, 7 ex., 07.1995; Băcioi, rapeseed, soil, 1 ex., 06.05.2011.	Palaearctic, hemiedaphic, detritophilous, antropophilous.
12	*Hypogastrura crassaegranulata* (STACH, 1949)	Ocolina, pasture, soil, 13 ex., 25.04.1995; Băcioi, bank of water canal, soil, 4 ex., 29.05.1995.	Palaearctic, hemiedaphic, bryophilous.
13	*Hypogastrura manubrialis* (TULLBERG, 1869)	Slobozia Duşca, soya, soil, 3 ex., orz, 2 ex., 24.07.1995; Bălţi, white beet, soil, 21 ex., 18.06.1999; Răscăeţi, steppe, soil, 18 ex., 18.04.2001; Drăguşani, *Robinia pseudoacacia*, litter, 6 ex., 02.06.2001; Bugeac, steppe, soil, 11 ex., 11.08.2003, 27 ex., 09.05.2009; Lărguţa, Codrii Tigheci, forest, litter, 12 ex., 11.08.2003; Cremenciug, litter under lower shrubs, 4 ex., 02.05.2004; Sipoteni, vineyards, soil, 11 ex., 09.01.2005; Lalova, canyon, soil, 1 ex., 13.11.2009.	Cosmopolitan, hemiedaphic, fungivorous, in compost.
14	**Hypogastrura purpurescens* (LUBBOCK, 1868)	Vineyards, soil, STEGĂRESCU, 1967	Cosmopolitan, hemiedaphic, eurytopic.
15	*Hypogastrura socialis* (UZEL, 1891)	Vineyards, soil, STEGĂRESCU, 1967; Verejeni, pasture, soil, 28 ex., 22.11.2011; Brânzeni, moss on calcareous rock, 7 ex., 30.01.2015.	Palearctic, hemiedaphic, silvicolous, bryophilous.
16	*Hypogastrura vernalis* (CARL, 1901)	Bahmut, *Robinia pseudoacacia*, litter, 17 ex., 01.04.2001; Lărguţa, Codrii Tigheci, forest, litter, 3 ex., 11.08.2003; Sipoteni, apple orchards, soil, 2 ex., 12.06.2005; Bugeac, steppe, soil, 11 ex., 09.05.2009; Gura Bâcului, bank of Dniester River, soil, 1 ex., 15.07.2005; Rezina, alfalfa, soil, 1 ex., 15.10.2010; Leuntea, alfalfa, soil, 12 ex., 18.11.2010.	Cosmopolitan, hemiedaphic, hygrophilous, riparian.

№	Taxa	Localities, data collection and habitats	Distribution, life form
17	*Hypogastrura viatica* (TULLBERG, 1872)	Durleşti, vine, soil, 2 ex., 07.05.1992; Băcioi, compost, 17 ex., 09.07.1995; Cruglic, pasture, soil, 2 ex., 23.07.1995; Slobozia Duşca, barley, soil, 11 ex., 24.07.1995.	Cosmopolitan, hygrophilous, agrophilous.
	Genus *Mesogastrura* BONET 1930		
18	***Mesogastrura ojcovensis*** STACH, 1919	Chişinău Dendrarium, urban park, litter, 1 ex., 23.02.2014.	European, hemiedaphic, cavernicolous, in the nests and trees hollows.
	Genus *Microgastrura* STACH, 1922		
19	***Microgastrura dudecimoculata*** STACH, 1922	Iagorlâc, wood decomposed + soil on the bank of Lake Iagorlâc, 3 ex., 19.11.2014.	European, hemiedaphic, silvicolous.
	Genus *Orogastrura* DEHARVENG & GERS, 1979		
20	**Orogastrura parva* (GISIN, 1949)	Vineyards, soil, STEGĂRESCU 1967.	Central Europe, in the mountains, hemiedaphic.
	Genus *Schoettella* SCHÄFFER, 1896		
21	*Schoettella ununguiculata* (TULLBERG, 1869)	Sărătenii Vechi, pasture, soil, 29 ex., 19.04.2000; Purcari, riparian forest, litter, 4 ex., 20.04.2001; Olăneşti, riparian forest, 3 ex., 03.05.2001; Talmaza, meadow, soil, 6 ex., 25.05.2001, forest, litter, 6 ex., 04.04.2004; Stejăreni, *Betula* sp. plantation, litter, 99 ex., 19.05.2004; Bucovăţ, forest, litter, 1 ex., 01.05.2005; Gura Bâcului, bank of Dniester River, soil, 8 ex., 15.07.2005; Naslavcea, bank of Dniester River, soil, 2 ex., 02.05. 2006; Sipoteni, *Pinus nigra*, litter, 1 ex., 10.04.2007; Hîrbovăţ, *Robinia pseudoacacia*, litter, 4 ex., forest, litter, 1 ex., 20.09.2007; Butuceni, canyon, litter under lower shrubs, 3 ex., 20.10.2007, 16 ex., 22.04.2008; Grădiniţa, forest edge, under shrubs, 1 ex., 30.10.2008, litter under shrubs, 5 ex., 06.11.2008; Lalova, canyon, soil under lower shrubs, 5 ex., 13.11.2009; Holercani, plum orchard, soil, 16 ex., 09.06.2010; Băiuş, forest, moss on soil and wood decompose, 48 ex., 20.11.2013; Ivancea, forest, litter, 2 ex., 10.01.2014; Măşcăuţi, forest, litter with soil, 3 ex., 18.02.2014; Branişte, pasture near the lake, 2 ex., 06.06.2014; Iagorlâc, shore of lake, litter under shrubs, 10 ex., 19.11.2014.	Holarctic, hemiedaphic, termophilous, xerophilous, eurybiont.
	Genus *Xenylla* TULLBERG, 1869		
22	*Xenylla andrzeji* BUŞMACHIU, WEINER, 2008	Ivancea, forest, litter, 3 ex., 25.03.2007; Butuceni, forest, litter, 1 ex., 22.04.2008; Rădenii Vechi, Plaiul Fagului, forest, moss on wood decomposed, 25 ex., 23.04. 2008.	Moldova, hemiedaphic, silvicolous, bryophilous.
23	*Xenylla boerneri* (AXELSON, 1905)	Ivancea, forest, litter, 11 ex., 03.04.2005; Stejăreni, forest, litter, 52 ex., 21.08. 2005; Rădenii Vechi, Plaiul Fagului, forest, litter, 4 ex., 29.02. 2008, moss on wood decomposed, 2 ex., 29.02.2008, litter, 5 ex., 19.04.2008, wood decomposed, 233 ex., 09.10.2008; Butuceni, forest, litter, 24 ex., 22.04.2008; Rudi, forest, moss, 5 ex., 07.06.2012; Vîşcăuţi, wood decomposed, 16 ex., moss on calcareous rock in canyon, 8 ex., 10.01.2014.	Palaearctic, hemiedaphic, silvicolous, bryophilous, corticophilous.

№	Taxa	Localities, data collection and habitats	Distribution, life form
24	*Xenylla brevicauda* TULLBERG, 1869	Lozova, forest, litter, 36 ex., 13.05.1997, 4 ex., 05.10.2013; Condriţa, forest, litter, 124 ex., 27.03.2005, 1 ex., 30.10.2008; Butuceni, forest, litter, 14 ex, 22.04.2008; Holercani, forest, litter, 4 ex., 17.05.2010; Ivancea, forest, litter, 13 ex., 10.01.2014,	Palaearctic, hemiedaphic, meso-xerophilous, silvicolous, bryophilous.
25	*Xenylla brevisimilis brevisimilis* STACH, 1949	Ratuş, meadow, soil, 2 ex., 19.04.2000; Manta, bank of Prut River, litter under lower shrubs, 7 ex., 15.07.2005, 11 ex., 14.09.2005; Lozova, Codrii, forest, litter, 2 ex., 21.08.2005; Gura Bâcului, bank of Dniester River, litter, 7 ex., 15.07.2005; 11 ex., 14.09.2005; Soroca, bank of Dniester River, palustral vegetation, 4 ex., 02.05.2006; Hîrbovăţ, forest, litter, 4 ex., *Robinia pseudoacacia*, litter, 12 ex., 20.09.2007; Butuceni, canyon, bank of Răut River, litter under lower shrubs, 23 ex., 20.10.2007; Talmaza, riparian forest, litter, 1 ex., 28.10.2007; Rădenii Vechi, Plaiul Fagului, forest, moss on wood decomposed, 21 ex., 23.04.2008; Leuntea, riparian forest, litter, 1 ex., 10.09.2008; Răscăeţi, steppe, litter under shrubs, 7 ex., 14.05.2009; Rudi, forest, moss, 2 ex., 07.06.2012; Iagorlâc, wood decomposed, 3 ex., 19.11.2014.	Mediterranean, hemiedaphic, termophilous, mesophilous, silvicolous.
26	*Xenylla corticalis* BÖRNER, 1901	Hîrbovăţ, *Robinia pseudoacacia*, litter, 1 ex., 20.09.2007; Rădenii Vechi, Plaiul Fagului, bark of tree, 1 ex., 29.02.2008, 1 ex., 03.12.2008; Vîşcăuţi, wood decomposed, 19 ex., 10.01.2014.	European, hemiedaphic, silvicolous, corticicolous.
27	*Xenylla maritima* TULLBERG, 1869	Butuceni, bank of Răut River, canyon, litter de under lower shrubs, 2 ex., 22.04.2008; Talmaza, litter under shrubs, 1 ex., 28.10.2007; Grădiniţa, forest, litter, 2 ex., 16.10.2008; Ţipova, canyon, litter under shrubs, 8 ex., 30.03.2010; Vîşcăuţi, moss on wood decomposed, 8 ex., 10.01.2014.	Cosmopolitan, hemiedaphic, mesophilous, silvicolous.
28	*Xenylla uniseta* GAMA, 1963	Saharna, litter under shrubs, 1 ex., moss on calcareous rock, 11 ex., 22.04.2010.	European, hemiedaphic, silvicolous, bryophilous.
	Genus *Willemia* BÖRNER, 1901		
29	*Willemia intermedia* MILLS, 1934	Rădenii Vechi, Plaiul Fagului, forest, soil, 1 ex., 14.12.2007; Leuntea, forest, wood sawdust, 1 ex., 2.10.2008; Băiuş, steppe, soil, 1 ex., 18.07.2011.	Holarctic, euedaphic, interstitial, mycetophagous, acidophilous.
30	*Willemia scandinavica* STACH, 1949	Branişte, bank of Prut River, soil, 18 ex., 11.10.2006; Leuşeni, bank of Prut River, soil, 25 ex., 11.05.2006, 14 ex., 13.10.2006; Grădiniţa, wet meadow, soil, 3 ex., 5.03.2009; Leuntea, alfalfa, soil, 2 ex., 18.11.2010; Rădenii Vechi, spruce plantation, stump decomposed, 30 ex., 15.03.2011; Branişte, forest belt, 2 ex., 09.07.2013; Cantemir, bank of Prut River, 3 ex., 20.11.2013; Nemţeni, wet meadow, 1 ex., 19.12.2014.	Holarctic, euedaphic, troglophilous, eurytopic.

New species for Moldovan fauna

Ceratophysella sigillata (UZEL, 1891)

Ivancea, deciduous forest, 6 ex., 10.01.2014, leg. G. BUŞMACHIU.

UZEL (1891) described the species from the litter and surface of snow in Bohemia. STACH (1949), found numerous specimens (collected in January 1923) also on snow in West Ukraine. According to STACH (1949): "*C. sigillata* (UZEL) seems to be a winter ani-

mal which appears in winter-time on snow, sometimes in great numbers as well as in lowland and in mountains". THIBAUD et al. (2004) cited the species as mostly occurring in mountain areas. In Ukraine, according to KAPRUS' et al. (2006), rare specimens appeared in the litter of riparian forest as well as in meadow soils.

Ceratophysella silvatica RUSEK, 1964

Rudi, forest, moss, 2 ex., 07.06.2012, leg. G. BUŞMACHIU.

The species was described from Central Slovakia – Krupinská Vrchovina, in a beech forest. According to THIBAUD *et al*. (2004), the species inhabits mainly litter in European mountain forests. In Ukraine, this silvicolous species is rare, yet it was found also in moss and under bark (KAPRUS' et al. 2006).

Ceratophysella stercoraria STACH 1963

Talmaza, riparian forest on bank of Dniester River, soil, 5 ex., 25.05.2001; Leuntea, bank of Dniester River, sol, 3 ex., 15.04.2011; Costeşti-Stânca, shore of lake, soil, 2 ex. 06.06.2014, Chişcăreni, *Brassica napus*, 14 ex., 31.01.2014, leg. G. BUŞMACHIU.

This species was described from guano from the Gaoukouch cave in Afghanistan and redescribed by SKARŻYŃSKI (2000). This species occurs in Eastern Europe: Bulgaria, Ukraine, Russia and Central Asia, and inhabits forest litter, compost, river-bank detritus or garden soil (SKARŻYŃSKI 2000). In Ukraine, rare specimens were found in litter, caves, and on the shores of the Black Sea (KAPRUS' et al. 2006). Moldovan specimens occur in the soil of winter oil rape (*Brassica napus*) and all of them possess strongly granulated, semicircular swelling in the middle of the abdominal tergum V.

Mesogastrura ojcoviensis (STACH, 1919)

Chişinău Dendrarium Park (urban park), decomposing wood with soil, 1 ex., 23.02.2014, leg. G. BUŞMACHIU.

The species was described from the cave in Ojców National Park by STACH (1949) who recognised it "as a relict species from ancient times, probably the warm Pliocene period". According to THIBAUD et al. (2004), *M. ojcoviensis* occurs in guano from caves of several countries in Europe (from Spain to Georgia), in the nests of rodents (France), and has been found in an abandoned garden in Portugal by GAMA (1964) in the moss and in the soil of flowerpots in a greenhouse. The species occurs in the cave of Meridional Carpathians (IONESCU 1922). It is rather rare in the caves of Piatra Craiului National Park in Romania, found on guano patches covered with mould (POPA & GRUIA 2006), and in the old tree hollows in Poland (SKARŻYŃSKI & SMOLIS 2005). Until now, the species has not been found in Ukrainian fauna.

Microgastrura dudecimoculata STACH, 1922

Iagorlâc Nature Reserve, decomposing wood and soil on the bank of Lake Iagorlâc, 3 ex., 19.11.2014, leg. G. BUŞMACHIU.

The species was described from humus and litter in Albania, but today its distribution includes Spain, Portugal, Poland and Russia. This silvicolous species was found in

Ukraine, mostly in litter of Carpathian region of upper Dniester River (KAPRUS' et al. 2006), and according to BABENKO et al. (1994), in some localities in Caucasus.

Rare species for Moldovan fauna

The distribution and ecology of the most interesting and rare species from the family Hypogastruridae in the fauna of the Republic of Moldova are commented below.

Ceratophysella bengtssoni (ÅGREN, 1904)

This species occurs in open habitats and forests (THIBAUD et al. 2004). According to MARTYNOVA (1964), it appears during winter in compost. In Ukraine, the species was found in soil, litter and moss of mountain and lowland forests, riparian habitats and nests of small mammals (KAPRUS' et al. 2006).

Ceratophysella granulata STACH, 1949

The species was found in litter in coniferous and deciduous forests (FJELLBERG 1998), and in moss, litter and nests of rodents in Ukraine (KAPRUS' et al. 2006).

Hypogastrura socialis (UZEL, 1891).

Massive occurrence and migration was observed usually on snow (THIBAUD et al. 2004). The species is recognised as "a winter species", however juveniles are known to occur in summer (MARTYNOVA 1964).

The species was mentioned for the first time by STEGĂRESCU (1967), who based her study on samples from the soil of Moldovan vineyards. This is the second record of this species in the Republic of Moldova. In both cases, the specimens were collected in the cold period of the year.

IV. CONCLUSION

Despite a large spectrum of well studied habitats, only 30 species from the family Hypogastruridae have been found so far in the Republic of Moldova, and in accordance with the present taxonomy, they belong to nine genera, of which two genera and five species are new records for the fauna of the Republic of Moldova. The genus *Ceratophysella* includes 9 species, *Hypogastrura* and *Xenylla* include seven species of each. Only two species of the genus *Willemia* were found, and the genera *Choreutinula*, *Orogastrura*, *Schoettella, Mesogastrura* and *Microgastrura* are represented only by one species each. Most of the species have preference to humid silvicolous ecosystems and are active in winter-time. The most common species from the family Hypogastruridae, identified in various habitats such as forests, agricultural fields, pasture and meadows, are *Ceratophysella engadinensis* (GISIN, 1949) and *Hypogastrura manubrialis* (TULLBERG, 1869). Different types of forests and riparian habitats in the Republic of Moldova host *Ceratophysella succinea* GISIN, 1949 and *Schoettella ununguiculata* (TULLBERG, 1869).

A c k n o w l e d g e m e n t s . We are very grateful to our colleagues, Vlad POSTOLACHI and Alina LARION for the collection of the part of the material. The work was supported by the cooperation between the Moldovan and the Polish Academies of Sciences.

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