

New records of millipedes (Diplopoda) from European Russia and Abkhazia, Caucasus

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ABSTRACT. New faunistic records are provided for 18 millipede species from the European part of Russia or Abkhazia, Caucasus. Among them, a recent, likely anthropochore expansion of the European *Craspedosoma rowlinsii* Leach, 1815 as far east as the city of Nizhny Novgorod is especially noteworthy.

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KEY WORDS: Myriapoda, fauna, distribution.

Новые находки диплопод (Diplopoda) из европейской России и Абхазии (Кавказ)

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РЕЗЮМЕ. Представлены новые фаунистические находки 18 видов двупарноногих многоножек в европейской части России и Абхазии (Кавказ). Среди них особенно примечательна недавняя, очевидно, антропохорная экспансия европейского вида *Craspedosoma rowlinsii* Leach, 1815 на восток до города Нижний Новгород.

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КЛЮЧЕВЫЕ СЛОВА: Myriapoda, фауна, распространение.

Introduction

The millipede fauna of the European part Russia, in contrast to the faunas of Crimea and the Caucasus, has lately received very little attention. Thus, Wytwer *et al.* (2009) provided ecological and chorological multivariate analyses of millipede assemblages of oak woodlands across the Eastern European Plain, ranging from western Ukraine and Moldova in the west to

Cisuralia in the east. Altogether, 30 species of Diplopoda were revealed, treated, and mapped. In addition, Golovatch & Matyukhin (2011) have recently provided random faunistic records of a number of diplopod species, largely those found in bird nests across European Russia south to the northern Caucasus. Finally, Evsyukov & Golovatch (2013), and Zuev (2014) reviewed the millipede faunas of the Rostov-on-Don and Stavropol regions, southern Russia,

respectively, both papers with numerous faunistic records and maps.

Material

The material underlying the present study was casually collected recently by A.G. Koval (St. Petersburg), O.L. Makarova (Moscow), S.A. Kapralov (Nizhny Novgorod) and I.S. Turbanov (Borok, Yaroslavl Region), and handed to me for treatment.

Taxonomic part

Order Polyzoniida
Family Hirudisomatidae

Hirudisoma roseum (Victor, 1839)

MATERIAL. 2 ♀♀ (ZMUM), Abkhazia, Gudauta Distr., above Duripsh, Bzyb Mt. Range, 1500 m a.s.l., forest litter, N 42°15'16", E 40°41'37", 22.VIII.2017, A.G. Koval leg.

REMARK. Subendemic to the Caucasus: Russia, Abkhazia, Georgia, Azerbaijan and northern Turkey (Golovatch *et al.*, 2015, 2021).

Order Glomerida
Family Glomeridae

Hyleoglomeria awchastica (Brandt, 1840)

MATERIAL. 2 juv. (ZMUM), Abkhazia, Gudauta Distr., above Duripsh, Bzyb Mt. Range, 1500 m a.s.l., forest litter, N 42°15'16", E 40°41'37", 22.VIII.2017, A.G. Koval leg.

REMARK. Endemic to the western Caucasus: Russia, Abkhazia and Georgia (Golovatch, 1989).

Trachysphaera costata (Waga, 1857)

MATERIAL. 4 ex. (ZMUM), Abkhazia, Gudauta Distr., above Duripsh, Bzyb Mt. Range, 1500 m a.s.l., forest litter, N 42°15'16", E 40°41'37", 22.VIII.2017, A.G. Koval leg.

REMARK. Since the synonymization of several nominal species with *T. costata*, the latter species appears to be widespread in eastern and southeastern Europe, in the Near East,

Anatolia, Crimea and the Caucasus, up to north-western Iran in the east (Golovatch, 1990, 2008).

Order Julida
Family Blaniulidae

Archiboreoiulus pallidus (Brade-Birks, 1920)

MATERIAL. 1 ♀ (ZMUM), Russia, Yaroslavl Region, Tutaev, bank of Volga River, park, sifted litter, 14.X.2020, O.L. Makarova leg.

REMARKS. This species is widespread across Europe, often supporting parthenogenetic populations. In European Russia, only such populations seem to exist. It also occurs in parklands of Moscow City (S. Golovatch, unpublished).

Nopoiulus kochii (Gervais, 1847)

MATERIAL. 24 ♀♀, juv. (ZMUM), Russia, Yaroslavl Region, Nekouz Distr., near Borok, inside a *Formica truncorum* ant nest, 26.III.2017, I.S. Turbanov, A.S. Sazhnev leg.; 2 ♀♀ (ZMUM), Russia, Yaroslavl Region, Tutaev, bank of Volga River, park, sifted litter, 14.X.2020; 1 ♀ (ZMUM), Russia, Nizhny Novgorod Region, Nizhny Novgorod, Shchelokovsky Khutor, complex *Quercus* forest, sifted litter, 16.X.2020, all O.L. Makarova leg.

REMARK. This is a ubiquitous synanthropic species common both on open terrain and in hothouses across the world, often eutroglophilic (e.g., Golovatch *et al.*, 2021).

Family Julidae

Cylindroiulus pterophylacum Read, 1992

MATERIAL. 1 juv. (ZMUM), Abkhazia, Gudauta Distr., above Duripsh, Bzyb Mt. Range, 1500 m a.s.l., forest litter, N 42°15'16", E 40°41'37", 22.VIII.2017, A.G. Koval leg.

REMARK. Endemic to the western and central Caucasus: Russia, Abkhazia and Georgia (Read, 1992).

Cylindroiulus ruber (Lignau, 1903)

MATERIAL. 2 ♂♂, 1 ♀, 4 juv. (ZMUM), Abkhazia, Gudauta Distr., above Duripsh, Bzyb

Mt. Range, 1500 m a.s.l., forest litter, N 42°15'16", E 40°41'37", 22.VIII.2017, A.G. Koval leg.

REMARK. Endemic to the northwestern Caucasus: Russia, Abkhazia and Georgia (Read, 1992).

Leptoiulus proximus Nemeč, 1896

MATERIAL. 1 ♂, 3 ♀♀ (ZMUM), Russia, Nizhny Novgorod Region, Nizhny Novgorod, Shchelokovsky Khutor, complex *Quercus* forest, sifted litter, 16.X.2020, leg. O.L. Makarova.

REMARK. This Northern, Central to Eastern European species is a quite hygrophilous forest-dweller, being very common across European Russia, the Tula Region in the south, Karelia and the Vologda Region in the north, and along the Volga River reaching Tatarstan in the east (Lokshina, 1969; Zalesskaja *et al.*, 1982). In the southeast, it has been recorded from the Penza, Ulyanovsk and Saratov regions, as well as the Republic of Mordovia (Volkova, 2018).

Ommatoiulus sabulosus (Linnaeus, 1758)

MATERIAL. 1 ♂ (ZMUM), Russia, Nizhny Novgorod Region, Arzamas Distr., near Pustyn', shore of Lake Velikoe, in a bark crack of a *Populus tremula* tree, 15.VII.2007, S.A. Kapralov leg.

REMARK. This very common and widespread pan-European species (Kime, Enghoff, 2017) ranges in Russia from Karelia, the Leningrad, Novgorod, Pskov, Vologda and Kirov regions in the north to the Tula Region in the south, and from the Kaliningrad Region in the west, through Middle Volga regions, to Tatarstan, Bashkortostan and the Chelyabinsk Region (southern Urals) in the east (Lokshina, 1969).

Rossiulus kessleri (Lohmander, 1927)

MATERIAL. 1 ♀ (ZMUM), Russia, Nizhny Novgorod Region, Perevoz Distr., 3.5 km SW of Ichalki, Ichalkovsky Bor, Cave Butylka, pitfall trapping, 11.VIII.–21.VIII.2004; 1 ♀ 22.VII–

1.VIII.2004; 1 ♀ (ZMUM), same place, Ichalkovsky Bor, Cave Rozhdestvenskaya, entrance part, pitfall trapping, 22.VII.–1.VIII.2004; 1 ♂, 2 ♀♀ (ZMUM), same region, 2.3 km WSW of Ichalki, Kamennoe natural landmark, quarries, cavern B, pitfall trapping, 05.VII–26.VIII.2006; 1 ♀ (ZMUM), same place, Kamennoe natural landmark, quarries, cavern D, pitfall trapping, 15.VI.–5.VII.2006; 1 ♀ (ZMUM), Nizhny Novgorod Region, Buturlino Distr., near Bornukovo, Cave Bolshaya Bornukovskaya, 10.VIII.2006; 1 ♀ (ZMUM), Nizhny Novgorod Region, Arzamas Distr., near Pustyn', shore of Lake Velikoe, *Pinus* and *Picea* forest, litter, 30.VI.2007, all S.A. Kapralov leg.

REMARK. This species is very common and widespread across much of European Russia and eastern Ukraine, ranging from the delta of Severnaya Dvina River (Arkhangelsk) in the north, through the forest, forested steppe and northern steppe belts, to foothills to high mountains of the northern Caucasus (North Ossetia and Dagestan) in the south, and from near Minsk, Belarus in the west to about Ufa, Saratov and Orenburg, Russia in the east (Lokshina, 1969; Kime, Enghoff, 2017). The above records from caves and quarries in central Russia are definitely casual, characteristic of a troglonexene.

Order Polydesmida

Family Polydesmidae

Brachydesmus kalischewskyi (Lignau, 1915)

MATERIAL. 3 ♂♂ (ZMUM), Abkhazia, Gudauta Distr., above Duripsh, Bzyb Mt. Range, 1500 m a.s.l., forest litter, N 42°15'16", E 40°41'37", 22.VIII.2017, A.G. Koval leg.

REMARK. This polymorphous species is subendemic to the Caucasus: Russia, Abkhazia, Georgia, Armenia, Azerbaijan, northern Turkey and Iran (Golovatch *et al.*, 2016).

?*Brachydesmus* sp.

MATERIAL. 4 juv. (ZMUM), Crimea, Sevastopol, Kazachya Bay, in soil and sand among halophytic vegetation on seashore, 10.VII.2017, I.S. Turbanov leg.

REMARKS. In the absence of adult male material, the above sample could not be identified closer to species. Even the generic identity is uncertain.

Polydesmus abchasius Attems, 1898

MATERIAL. 1 ♀, 1 juv. (ZMUM), Abkhazia, Gudauta Distr., above Duripsh, Bzyb Mt. Range, 1500 m a.s.l., forest litter, N 42°15'16", E 40°41'37", 22.VIII.2017, A.G. Koval leg.

REMARK. Endemic to the western and central Caucasus: Russia, Abkhazia and Georgia (Golovatch *et al.*, 2016).

Polydesmus complanatus (Linnaeus, 1761)

MATERIAL. 1 ♀ (ZMUM), Russia, Nizhny Novgorod Region, Ardatov Distr., 2.5 km SW of Balakhonikha, Cave Balakhonikhskaya, 13.VII.2006, S.A. Kapralov leg.

REMARK. This is a very common species widespread across Central, Eastern and Southern Europe, known also from Turkey, introduced to the Nearctic (Kime, Enghoff, 2011). In European Russia, it ranges from about Petrozavodsk and Vologda in the north to Tula in the south, and from the Kaliningrad, Bryansk and Smolensk regions east to Tatarstan and Bashkortostan (Lokshina, 1969).

Polydesmus denticulatus C.L. Koch, 1847

MATERIAL. ♂♂, ♀♀, juv. (ZMUM), Russia, Yaroslavl Region, Uglich, bank of Volga River, park, sifted litter, 13.X.2020; ♂♂, ♀♀, juv. (ZMUM), Russia, Yaroslavl Region, Tutaev, bank of Volga River, park, sifted litter, 14.X.2020; ♂♂, ♀♀, juv. (ZMUM), Russia, Nizhny Novgorod Region, Nizhny Novgorod, Shchelokovsky Khutor, complex *Quercus* forest, sifted litter, 16.X.2020; 1 ♀ (ZMUM), Moscow Region, Mytishchi, bank of Yauza River, reed thicket, 19.IV.2021, all O.L. Makarova leg.

REMARK. This species is common throughout Europe, introduced to western Siberia and North America. In European Russia, it is very common in broadleaved forests and parklands

south of the taiga belt, often synanthropic (Lokshina, 1969; Zalesskaja *et al.*, 1982; Kime, Enghoff, 2011).

Polydesmus inconstans Latzel, 1884

MATERIAL. ♂♂, ♀♀, juv. (ZMUM), Russia, Yaroslavl Region, Tutaev, bank of Volga River, park, sifted litter, 14.X.2020, O.L. Makarova leg.

REMARK. This species is quite common in parklands and deteriorated forest habitats of central European Russia (Lokshina, 1969; Zalesskaja *et al.*, 1982; Golovatch, Matyukhin, 2011; Kime, Enghoff, 2011), introduced to western Siberia (Nefediev *et al.*, 2016).

Family Paradoxosomatidae

Strongylosoma stigmatosum Eichwald, 1830

MATERIAL. 1 ♀ (ZMUM), Russia, Nizhny Novgorod Region, Arzamas Distr., near Pustyn', shore of Lake Velikoe, wet leaf litter in a karst funnel, 15.VII.2007; 1 ♂, 1 ♀ (ZMUM), same place, *Pinus* and *Picea* forest, litter, 30.VI.2007, all S.A. Kapralov leg.

REMARKS. This species is common and widespread across Eastern Europe, the northern range limit running from about Riga, Latvia eastwards through Velikiye Luki, Tver and Rybinsk to its eastern limit in the Kirov Region. The southern limit runs through Kazan in the east to Kursk in the west and then south through Ukraine (Lokshina, 1969; Kime, Enghoff, 2011).

Order Chordeumatida

Family Craspedosomatidae

Craspedosoma rowlinsii Leach, 1815

MATERIAL. ♂♂, ♀♀, juv. (ZMUM), Russia, Nizhny Novgorod Region, Nizhny Novgorod, Shchelokovsky Khutor, complex *Quercus* forest, sifted litter, 16.X.2020; 1 juv. (ZMUM), Moscow Region, Mytishchi, bank of Yauza River, reed thicket, 19.IV.2021, all O.L. Makarova leg.

REMARKS. This Western to Central European species seems to have only recently be-

come established in Moscow City (Golovatch, Matyukhin, 2011). Its expansion over most of city parks in Moscow has since been documented (I. Belyaeva, in litt.), whence it could have colonized the Moscow Region and the city of Nizhny Novgorod, presently the easternmost record.

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