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

Sergei I. Golovatch

Institute for Problems of Ecology and Evolution, Russian Academy of Sciences, Leninsky pr. 33, Moscow 119071 Russia. E-mail: sgolovatch@yandex.ru

ABSTRACT. New faunistic records are provided for 18 millipede species from the European part of Russia or Abkhazia, Caucasus. Among them, a recent, likely anthropo-chore 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.

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 42º15′16″, E 40º41′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 awchasica* (Brandt, 1840)

**Material.** 2 juv. (ZMUM), Abkhazia, Gudauta Distr., above Duripsh, Bzyb Mt. Range, 1500 m a.s.l., forest litter, N 42º15′16″, E 40º41′37″, 22.VIII.2017, A.G. Koval leg.

**Remark.** Endemic to the western Caucasus: Russia, Abkhazia, Georgia (Golovatch, 2015, 2021).

*Trachysphaera costata* (Waga, 1857)

**Material.** 4 ex. (ZMUM), Abkhazia, Gudauta Distr., above Duripsh, Bzyb Mt. Range, 1500 m a.s.l., forest litter, N 42º15′16″, E 40º41′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 northwestern 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, 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 42º15′16″, E 40º41′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* Nemec, 1896

MATERIAL. 1 ♀, 3 ♂ (ZMUM), Russia, Nizhny Novgorod Region, Nizhny Novgorod, Shchelokovskiy 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 (Volkov, 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, Ichalkovskiy Bor, Cave Butylka, pitfall trapping, 11.VIII.–21.VIII.2004; 1 ♀ (ZMUM), same place, Ichalkovskiy Bor, Cave Rozhestvenskaya, 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, 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 troglobine.

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.** 1 ♀, 1 ♀, 1 ♀ (ZMUM), Russia, Yaroslavl Region, Uglich, bank of Volga River, park, sifted litter, 13.X.2020; 1 ♂, 1 ♀, juv. (ZMUM), Russia, Yaroslavl Region, Tutaev, bank of Volga River, park, sifted litter, 14.X.2020; 1 ♂, 1 ♀, 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.** 1 ♂, 1 ♀, 1 ♀, 1 ♀ (ZMUM), Russia, Nizhny Novgorod 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.** 1 ♂, 1 ♀, 1 ♀ (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.

**REMARKS.** This Western to Central European species seems to have only recently been
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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