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Pseudoscorpions (Arachnida: Pseudoscorpiones) of the Republic of Mordovia (European Russia)

Ложноскорпионы (Arachnida: Pseudoscorpiones) Республики Мордовия (Европейская часть России)

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КЛЮЧЕВЫЕ СЛОВА: распространение, фаунистика, Мордовский государственный природный заповедник, Национальный парк «Смольный».

ABSTRACT. To date, no special studies of the pseudoscorpion fauna of the Republic of Mordovia have been conducted. The only pseudoscorpion species previously known from this territory was *Dendrochernes cyrneus* (L. Koch, 1873). During the present research, seven species belonging to six genera and two families were discovered. All findings were mapped, and habitus photographs were taken of the identified species. The results obtained have supplemented the knowledge of the pseudoscorpion fauna of the Republic of Mordovia, as well as that of European Russia and Eastern Europe.

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РЕЗЮМЕ. На сегодняшний день специальных исследований фауны ложноскорпионов Республики Мордовия не проводилось. Единственным видом ложноскорпионов, ранее известным на этой территории, был *Dendrochernes cyrneus* (L. Koch, 1873). В ходе настоящего исследования было обнаружено семь видов, относящихся к шести родам и двум семействам. Все находки были нанесены на карту, а также проиллюстрированы габитусы выявленных видов. Полученные результаты дополнили знания о фауне ложноскорпионов Республики Мордовия, а также Европейской части России и Восточной Европы.

Introduction

Pseudoscorpions are a globally distributed order of arachnids, absent only in Antarctica, with more than 4,300 species. However, only slightly more than 50 species have been recorded in the fauna of Russia [WPC, 2025]. Given that Russia is the largest country in the world by area (17,098,246 km²), this recorded diversity appears disproportionately low, especially when compared with neighboring Eastern European countries such as Finland (338,145 km², 17 species) and Poland (312,658 km², 38 species) [WPC, 2025].

Russia's vast territory spans from Eastern Europe to Western Asia, from the Arctic Ocean in the north to the Caucasus in the southwest, and extends eastward across the steppes, semi-deserts, and deserts of southern Siberia to the Pacific Ocean. It is also the coldest country in the world, with approximately 65% of its territory covered by permafrost. Situated primarily north of 50° N latitude, Russia encompasses Arctic,

subarctic, temperate, and partially subtropical climatic zones [Lazarevich, 2007].

The most thoroughly studied regions of Russia in terms of pseudoscorpion diversity include the Caucasus (e.g., Dashdamirov [1999]; Kolesnikov *et al*. [2019, 2022]; Nassirkhani *et al*. [2019, 2020, 2022]), the Far East (e.g., Redikorzev [1918, 1922, 1934]; Schawaller [1995]), and, to a lesser extent, the Urals (e.g., Redikorzev [1924a, b]; Domínguez *et al*. [2008]; Kozminykh [2017, 2019]). In contrast, the pseudoscorpion fauna of the European part of Russia (e.g., Krajčovičová *et al*. [2018]; Turbanov *et al*. [2019]) and Siberia (e.g., Schawaller [1986, 1989]) remains insufficiently explored.

To date, the only pseudoscorpion species recorded in the Republic of Mordovia is *Dendrochernes cyrneus* (L. Koch, 1873), reported twice for the Mordovian State Nature Reserve [Redikorzev, 1938; Schawaller, 1986]. The present faunistic study conducted in Mordovia, located in the European part of Russia, significantly enhances our knowledge of the diversity and ecology of pseudoscorpions in Eastern Europe.

Study area

The Republic of Mordovia, located in central European Russia (Fig. 1) at the intersection of forest and forest-steppe zones, covers approximately 26,200 km². It features diverse habitats, including coniferous and mixed forests in the west and northwest, broadleaved forests in the center and east, and forest-steppe landscapes in the eastern and southeastern areas. The Republic of Mordovia includes two main geographical features: the hilly Volga Uplands (up to 320 m) in the east, and the flatter Oka–Don Lowlands (up to 180 m) in the west. The region includes two major protected areas: Mordovia State Nature Reserve and National Park "Smolny" (Fig. 1). The average temperature of the coldest month, January, ranges from –11.5° to –12.3 °C, while that of the warmest month, July, ranges from 18.9° to 19.8 °C. The average annual air temperature ranges from 3.5° to 4.0 °C. The main climatic characteristics are determined by the influence of three types of air masses: Arctic, temperate, and tropical, with the latter predominating. Both continental and marine air masses are present. The average annual precipitation in the Republic of Mordovia amounts to 480 mm. During long-term observations, fluctuations between periods of higher and lower humidity were recorded. Precipitation during the warm season dominates the annual cycle, with 80% of the total annual precipitation falling between April and October. In July, an average of approximately 65 mm of precipitation is observed, while February typically has the lowest monthly precipitation (15–30 mm) [Yamashkin *et al*., 2004; Yamashkin, 2012].

National Park "Smolny"

The National Park "Smolny" (363.85 km²) is located within the Ichalki and Bolshoe Ignatovo districts. Its forests include secondary oak and linden stands in the north, pine and mixed forests on sandy soils in central and southern parts, and aspen, alder, and broadleaved forests near the Alatyr River. Open habitats occur in clearings, post-fire areas, and along power lines. The park lies at the junction of mixed broadleaved forest and forest-steppe zones, with coniferous forests dominated by *Pinus sylvestris* L. and *Picea abies* (L.) H. Karst, often mixed with *Betula pendula* Roth [Kirillov, Kirillova 2021].

Mordovia State Nature Reserve

The Mordovia State Nature Reserve (321.62 km²) is located in the Temnikov District and is a forest reserve (almost 90% forested). Its dominant forest type is *Pinus sylvestris*, forming pure and mixed communities. Secondary *Betula pendula* stands prevail in areas previously logged or affected by fires (notably in 2010 and 2021). *Tilia cordata* Mill. and *Quercus robur* L. forests occupy smaller areas, mainly in the northern and floodplain regions. *Picea abies* and *Alnus glutinosa* (L.) Gaertn forests are mostly confined to floodplains and small river valleys. Meadow ecosystems are located along the Moksha River in the southwest [Khapugin *et al*., 2016; Ruchin, Khapugin, 2019].

Design of research, position of samples, and identification

Traditional collection methods were employed. Individual sampling, light traps (250 kW lamp and a white screen), Malaise traps, and beer traps were applied [Golub *et al*., 2012; Ruchin *et al*., 2020]. Beer traps were constructed from five-liter plastic containers, in which a single window was cut to facilitate insect attraction at a distance of 10 cm from the bottom. Fermented beer mixed with sugar was used as bait in the beer traps. With the help of a load, a rope with a tied trap was thrown onto a tree branch at a height of 5 to 12 m above the ground. Numerous pseudoscorpions were found among the collected insects, potentially employing phoresy; however, none were attached to hosts and were found loose among the insect samples.

Specimens were cleared in lactic acid and examined on temporary slide mounts. Afterwards, they were rinsed in water and returned to 75% ethanol. The specimens were studied using a Leica DM1000 compound microscope with an ICC50 camera module (LAS EZ v. 3.4.0). Whole-specimen images were taken with a Canon EOS 5D Mark II camera mounted on a Zeiss Axio Zoom V16 stereomicroscope. Image stacks were created manually and merged using Zerene Stacker software (v.1.4). Spatial data used in the map were converted from the original coordinates and visualized in QGIS (v. 3.36.2). Figures were edited in Adobe Photoshop CC (v. 25.6.0). Pseudoscorpions were identified using the key in Krajčovičová *et al*. [2022], and data from Christophoryová *et al*. [2023] were applied for identification within the genus *Lamprochernes*. The material is deposited in the zoological collection of the Department of Zoology, Comenius University in Bratislava, Slovakia.

List of study plots (Fig. 1)

Republic of Mordovia, Ichalki District, National Park "Smolny"

1. Barakhmanovskoe forestry: 54.7450° N, 45.5029° E; 110 m a.s.l.; deciduous forest; collected individually in leaf-litter, leg. Gennady Semishin.

2. Barakhmanovskoe forestry: 54.7670° N, 45.5828° E; 105 m a.s.l.; mixed forest; collected individually together with insects, leg. G. Semishin.

3. Barakhmanovskoe forestry: 54.8263° N, 45.5321° E; 156 m a.s.l.; mixed forest; collected individually together with insects, leg. G. Semishin.

4. Kemlyanskoe forestry: 54.7387° N, 45.3855° E; 106 m a.s.l.; mixed forest; collected individually together with insects, leg. G. Semishin.

5. Kemlyanskoe forestry: 54.7392° N, 45.3833° E; 111 m a.s.l.; mixed forest; collected individually in leaf-litter, leg. G. Semishin.

6. Smolny settlement: 54.7247° N, 45.3012° E; 111 m a.s.l.; mixed forest; collected individually together with insects, leg. Alexander Ruchin.

Fig. 1. Map showing study plots within protected areas and the occurrences of pseudoscorpions (orange circles) within them. For the codes, refer to the List of study plots.

Рис. 1. Карта исследованных участков на особо охраняемых природных территориях и места обнаружения ложноскорпионов (оранжевые круги). Нумерацию участков см. в разделе «List of study plots».

7. Smolny settlement: 54.7249° N, 45.2909° E; 115 m a.s.l.; one-storey wooden house; collected individually in the house, leg. A. Ruchin.

Republic of Mordovia, Temnikov District, Mordovia State Nature Reserve (if not stated otherwise, material collected by Alexander Ruchin)

8. 54.7197° N, 43.2283° E; 130 m a.s.l.; mixed forest; beer trap.

9. 54.7202° N, 43.2303° E; 135 m a.s.l.; deciduous forest; beer trap.

10. 54.7211° N, 43.2242° E; 134 m a.s.l.; mixed forest; beer trap.

11. 54.7265° N, 43.1425° E; 112 m a.s.l.; mixed forest; collected individually in leaf-litter.

12. 54.7274° N, 43.1517° E; 108 m a.s.l.; mixed forest; collected individually in trash.

13. 54.7276° N, 43.1476° E; 112 m a.s.l.; mixed forest; beer trap.

14. 54.7644° N, 43.1875° E; 130 m a.s.l.; mixed forest; beer trap.

15. 54.7664° N, 43.4684° E; 166 m a.s.l.; deciduous forest; collected individually together with insects.

16. 54.7697° N, 43.3692° E; 164 m a.s.l.; mixed forest; beer trap.

17. 54.7702° N, 43.3713° E; 165 m a.s.l.; mixed forest; beer trap.

18. 54.7707° N, 43.4034° E; 178 m a.s.l.; mixed forest; beer trap.

19. 54.7722° N, 43.2353° E; 138 m a.s.l.; mixed forest; beer trap.

20. 54.7723° N, 43.2532° E; 146 m a.s.l.; mixed forest; beer trap.

21. 54.7725° N, 43.3798° E; 169 m a.s.l.; mixed forest; beer trap.

22. 54.7750° N, 43.3954° E; 177 m a.s.l.; deciduous forest; beer trap.

23. 54.7796° N, 43.3622° E; 151 m a.s.l.; mixed forest; beer trap.

24. 54.7912° N, 43.1765° E; 135 m a.s.l.; mixed forest; beer trap.

25. 54.8286° N, 43.2032° E; 128 m a.s.l.; mixed forest; collected individually together with insects.

26. cordon Inorskiy: 54.7277° N, 43.1510° E; 108 m a.s.l.; forest glade on the lake shore; beer trap and Malaise trap, leg. A. Ruchin, Mikhail Esin.

27. Pushta settlement: 54.7194° N, 43.2240° E; 123 m a.s.l.; one-storey wooden house; collected individually in the house.

28. Pushta settlement: 54.7198° N, 43.2267° E; 124 m a.s.l.; one-storey wooden house; collected individually in the house.

29. Pushta settlement: 54.7202° N, 43.2263° E; 127 m a.s.l.; mixed forest; light trap.

30. Sosnovka village: 54.7164° N, 43.2857 E; 133 m a.s.l.; meadow; beer trap.

Results

This study presents the first comprehensive faunistic survey of pseudoscorpions in Mordovia. A total of 63 specimens were examined, representing seven species from two families: Cheliferidae and Chernetidae. The most abundant species were *Dendrochernes cyrneus* and *Chelifer cancroides*. Notably, *C. cancroides*, a cosmopolitan and synanthropic species, is recorded here for the first time in the region. Similarly, *Mesochelifer ressli*, *Chernes cimicoides*, *Chernes vicinus*, *Lamprochernes* cf. *chyzeri*, and *Pselaphochernes scorpioides* are all newly documented for the fauna of Mordovia. These records significantly expand the known distribution of several species and provide valuable data for understanding the biogeography of pseudoscorpions in Russia.

Cheliferidae Risso, 1827

Chelifer cancroides (Linnaeus, 1758)
Fig. 2a.

NEW DATA. **1:** 19.6.2021, 1♀; **2:** 25.7.2021, 1♀, 1♂; **3:** 18.8.2021, 1♀; **5:** 8.7.2022, 1♀; **6:** 5.6.2018, 1 tritonymph; **7:** 15.5.2019, 1♂; **11:** 11.6.2018, 1♀; **27:** 1.11.2013, 1♀; **28:** 5.12.2011, 2♀♀; 3.8.2012, 1♀; 17.5.2014, 1♂; 10.9.2021, 1 tritonymph; 15.3.2022, 1 tritonymph.

DISTRIBUTION AND ECOLOGY IN RUSSIA. Cosmopolitan species, often leading a synanthropic lifestyle; less frequently found in beehives, under bark and in tree hollows, in bird and insect nests, and occasionally in leaf litter (e.g., Levi [1948]; Turienzo *et al*. [2010]; Harvey [2014]).

Recorded in Russia from various locations: in Moscow [Dwigubsky, 1802], including in a house [Ellingsen, 1910a], herbarium collections [Schawaller, 1989], and bird nests of *Sturnus vulgaris* Linnaeus, 1758 [Krajčovičová *et al*., 2018]; in Kazan, Republic of Tatarstan [Mayer, 1914]; in multiple sites in Perm, Perm Krai, both synanthropic habitats (house, flour box, insect collection) and natural biotopes (forest); in Monetniy, Sverdlovsk Region in a pine stump; near Lake Turgoyak, Chelyabinsk Region [Redikorzev, 1924a, b]; in Kubekovo, Krasnoyarsk Krai [Schawaller, 1986]; in Valuyki, Belgorod Region [Kulczyński, 1913]; at the "Vorskla Forest" site, Belogorye State Nature Reserve, Belgorod Region, in oak forest; in the Oka State Nature Reserve, Ryazan Region; in Savalskoe Lesnichestvo, Voronezh Region [Schawaller, 1989]; in the Republic of Bashkortostan, found in *Apis mellifera* Linnaeus, 1758 hives [Mukhametova *et al*., 2015]; in Dosang, Astrakhan Region, in bird nests of *Haliaeetus albicilla* (Linnaeus, 1758); in Petrovka, Rostov Region, in bird nests of *Delichon urbica* (Linnaeus, 1758) [Krajčovičová *et al*., 2018]; in Petropavlovsk-Kamchatsky, Kamchatka Krai [Harvey, 2014]; in the Salair Mt. Range (Altai Krai), Yenisey Mountain Range, and Lower Angara region (Krasnoyarsk Krai), found under the bark of coniferous trees and stumps, and in the galleries of bark beetles and longhorn beetles [Kolomiets, Bogdanova, 1980]; and in Bryansk, Bryansk Region in a peat bog in pine stumps [Turbanov *et al*., 2017].

It is also worth noting that Redikorzev [1937, 1949] reported that the collection of the Zoological Institute of the Russian Academy of Sciences, St. Petersburg, contains many *C. cancroides* specimens from almost the entire territory of Russia, ranging from Murmansk to Vladivostok.

Despite its wide distribution in Russia, this species is recorded for the fauna of Mordovia for the first time. A total of 15 specimens were collected, primarily from synanthropic habitats.

REMARKS. Despite the cryptic diversity identified within *Chelifer cancroides* [Just *et al*., 2023], the genus *Chelifer* Geoffroy, 1762 remains monotypic [Harvey, 2014; WPC, 2025]. Therefore, all records should be assigned to *C. cancroides* until a revision is conducted.

Mesochelifer ressli Mahnert, 1981
Fig. 2b.

NEW DATA. **9:** 17.5.–26.5.2021, 1♀; **16:** 29.6.–12.7.2021, 1♀; **17:** 29.6.–12.7.2021, 2♀♀; **29:** 12.5.2021, 1♀.

DISTRIBUTION AND ECOLOGY IN RUSSIA. Distributed in Central and Eastern Europe, and also found in Eastern

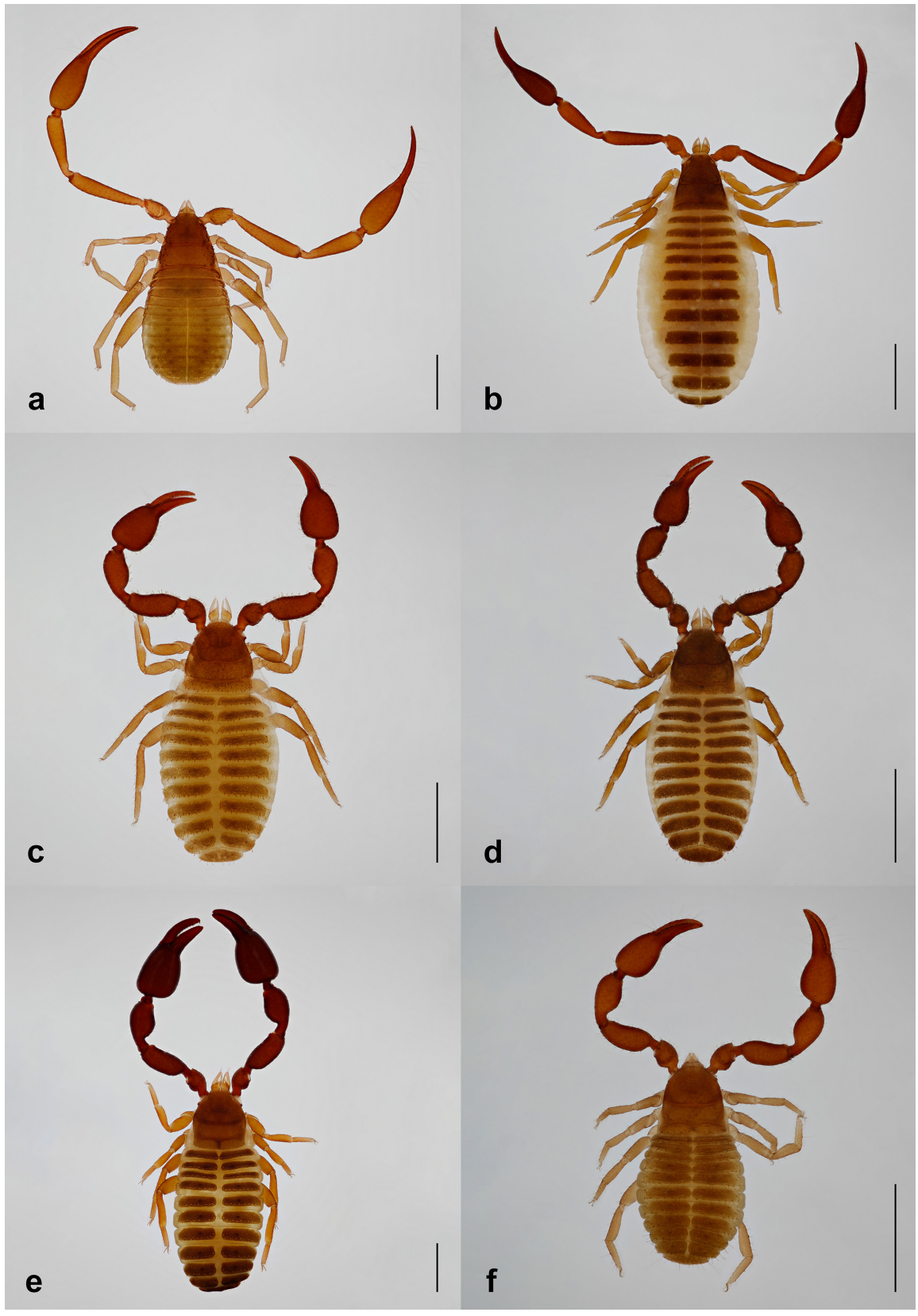

Fig. 2. Pseudoscorpion species from study plots. A — *Chelifer cancroides*; B — *Mesochelifer ressli*; C — *Chernes cimicoides*; D — *Chernes vicinus*; E — *Dendrochernes cyrneus*; F — *Pselaphochernes scorpioides*. Scale bars: 1 mm.

Рис. 2. Внешний вид изученных видов ложноскорпионов. Масштаб 1 мм.

Kazakhstan [Schawaller, 1989; WPC, 2025]. In Russia, it has been recorded in the Ilmensky State Nature Reserve, Chelyabinsk Region, on pine trunks and in forest litter [Domínguez *et al*., 2008]. There are also reports of *Mesochelifer ressli* from several localities in the Saratov Region [Kondratyev, Mironova, 2020]; however, based on the morphological photographs provided, this is a representative of the family Chernetidae [present study].

This is the first reliable record of this species from the European part of Russia and the Republic of Mordovia. Five females were collected using beer and light traps.

Chernetidae Menge, 1855

Chernes cimicoides (Fabricius, 1793)
Fig. 2c.

NEW DATA. **10:** 26.5.–7.6.2021, 1♀; **12:** 17.6.2021, 1♂; **16:** 17.5.–26.5.2021, 1♀; **18:** 5.5.–17.5.2021, 1♀; 26.5.–7.6.2021, 1♀, 1♂; **19:** 15.6.–27.6.2022, 1♀; **20:** 31.5.–15.6.2022, 1♀; **22:** 26.5.–7.6.2021, 1♀; **30:** 7.6.–18.6.2020, 1♂.

DISTRIBUTION AND ECOLOGY IN RUSSIA. A Transpalearctic species [WPC, 2025]. First recorded in Russia by Ellingsen [1910b] in the Urals, though without a specific locality. Subsequent records are more precise: in Egorshino, Sverdlovsk Region, under the bark of a birch forest; in Altynay, Sverdlovsk Region, under the bark of a pine stump; in several localities near Perm, Perm Krai, under the bark of fir, pine, spruce, birch, and also on *Boletus* L., 1753 mushroom; near Chelyabinsk, Chelyabinsk Region, under bark of birch [Redikorzev, 1924a, b; Kozminykh, 2017]; in Tobolsk, Tyumen Region, under bark of a stump [Ermolajev, 1937]; in Svecha and Orichi, Kirov Region, under bark of aspen, pine, and oak [Schawaller, 1989; Yuferev, 2001]; in the Prioksko-Terrasny Nature State Reserve, Moscow Region; in Novosibirsk, Novosibirsk Region, in a rotten birch tree in a floodplain forest [Schawaller, 1986]; near Zvenigorod, Moscow Region, in spruce; near Kaluga, Kaluga Region; in Novosemeykino and Yasnaya Polyana, Samara Region, in a mixed forest (oak, maple, elm); near Yuzhno-Sakhalinsk (Sakhalin Island), Sakhalin Region [Schawaller, 1989]; in Yuzhno-Kurilsk (Kunashir Island), Sakhalin Region; near Boitsovo, Khabarovsk Krai, in a mixed forest (birch, oak, poplar) [Schawaller, 1995]; in Karachizhsko-Krylovskoye Forestry, Bryansk Region, in the cracks of bark on rotting pine stumps in a *Sphagnum* L. bog; near Turgosh, Leningrad Region, under the bark of pine trees and in pine stumps in *Sphagnum* bogs [Turbanov *et al*., 2017]; in Obzha, Republic of Karelia, in a bird nest of *Ficedula hypoleuca* (Pallas, 1764) [Krajčovičová *et al*., 2018]. There is also a record of *Chernes* cf. *cimicoides* near Saratov, Saratov Region, in nests of the ant *Formica rufa* Linnaeus, 1761 [Sazhnev *et al*., 2016].

Despite its wide distribution in Russia, this species is recorded here for the first time in the fauna of Mordovia. Ten specimens were collected, primarily from beer traps placed in a mixed forest.

Chernes vicinus (Beier, 1932)
Fig. 2d.

NEW DATA. **26:** 20.5.–25.5.2021, 1♂.

DISTRIBUTION AND ECOLOGY IN RUSSIA. A western Palaearctic species with a disjunct range; reliably recorded from Austria, Belgium, Czechia, Germany, Russia, Slovakia, Sweden, and Switzerland [WPC, 2025]. The species is associated with anthills and, less frequently, with bird nests [Krajčovičová *et al*., 2018]. The only known records of this species in Russia were made in Moscow, in the nests of the birds *Sturnus vulgaris* and *Fringilla coelebs* Linnaeus, 1758 [Krajčovičová *et al*., 2018].

The record of *C. vicinus* in Mordovia represents the first for this region and only the second reliably known record for Russia. A male was present in a beer trap placed in a forest glade near the lake shore.

Dendrochernes cyrneus (L. Koch, 1873)
Fig. 2e.

NEW DATA. **4:** 17.6.2022, 1♂; **8:** 7.6.–18.6.2021, 1♂; **13:** 1.6.–9.6.2021, 1♀; **14:** 31.5.–15.6.2022, 2♂♂; **15:** 13.7.2017, 2♂♂; **16:** 17.5.–26.5.2021, 1♀; **17:** 17.5.–26.5.2021, 1♀; **18:** 5.5.–17.5.2021, 1♀; 26.5.–7.6.2021, 2♀♀; **19:** 31.5.–15.6.2022, 1♀; **20:** 31.5.–15.6.2022, 1♀; **23:** 17.5.–26.5.2021, 1♀; **24:** 21.5.–31.5.2022, 1♀; **25:** 4.7.2021, 1♀.

DISTRIBUTION AND ECOLOGY IN RUSSIA. Transpalearctic species [WPC, 2025]. Redikorzev [1949] reported that the collection of the Zoological Institute of the Russian Academy of Sciences, St. Petersburg, contains a large collection of *D. cyrneus*, citing several regions of Russia without specific locality data: Leningrad, Novgorod, Vologda, Yaroslavl, Vladimir, Penza, Bryansk, Samara, and Omsk regions; the Republics of Karelia, Altai, and Sakha; and Krasnoyarsk, Zabaykalsk, Perm, and Primorsky krai).

Until this study, this was the only reliably known species of pseudoscorpion in the fauna of Mordovia. It was previously recorded for the Mordovian State Nature Reserve under the bark of dry coniferous trees [Redikorzev, 1938; Schawaller, 1986]. Other records from the territory of Russia include: in Perm, Perm Krai [Redikorzev, 1924a]; near Salair, Kemerovo Region, under the bark of coniferous trees and in the tunnels of longhorn beetles, where phoresy was also observed on the body of *Atanycolus initiator* (Fabricius, 1793) (Hymenoptera: Braconidae) [Kolomiets, Bogdanova, 1980]; in Puschino, Moscow Region; in Svecha, Kirov Region, under the bark of pine; in Dagomys, Krasnodar Krai; near Yuzhno-Sakhalinsk (Sakhalin Island), Sakhalin Region [Schawaller, 1989]; near Boitsovo, Khabarovsk Krai, in a mixed forest (birch, oak, poplar) [Schawaller, 1995]; in Segezha, Maselskaya, and Petrozavodsk, Republic of Karelia, under the bark of stumps in swamp; near Bryansk and Karachizhsko-Krylovskoye forestry, Bryansk Region, in the cracks of bark on rotting pine stumps in a *Sphagnum* bog; near Turgosh and Mshinskaya, Leningrad Region, under the bark of pine trees and pine stumps in *Sphagnum* bogs [Turbanov *et al*., 2017].

Although *D. cyrneus* was previously reported for Mordovia, our finding of this species in National Park «Smolny» expands the known distribution within the region. A total of 17 specimens were found in Mordovia, mainly in beer traps placed in a mixed forest.

Lamprochernes* cf. *chyzeri (Tömösváry, 1883)
Fig. 3.

NEW DATA. **26:** 20.5.–25.5.2021, 1♀.

DISTRIBUTION AND ECOLOGY IN RUSSIA. European–Asian species [WPC, 2025]. Previously recorded in Russia: near Egorshino, Sverdlovsk Region, in a birch forest under alder bark [Redikorzev, 1924a]; in Svecha, Kirov Region, under the bark of rotting trees [Yuferev, 2001]. Redikorzev [1949] also reported that the collection of the Zoological Institute of the Russian Academy of Sciences, St. Petersburg, contains material of *L. chyzeri* from several regions of Russia,

Fig. 3. Pseudoscorpion *Lamprochernes* cf. *chyzeri* from Mordovia State Nature Reserve. Scale bar: 1 mm.

Рис. 3. Внешний вид ложноскорпиона *Lamprochernes* cf. *chyzeri* из Мордовского государственного природного заповедника. Масштаб 1 мм.

including Leningrad, Moscow, Bryansk, and Samara regions, as well as Perm Krai.

The record of *Lamprochernes* cf. *chyzeri* in Mordovia represents the first for this region. A female was found in a beer trap. As the species is known to be phoretic [Christophoryová *et al.*, 2023], this may explain its presence.

REMARKS. Christophoryová *et al.* [2023] applied an interactive approach combining molecular DNA barcoding, cytogenetic analysis, and multivariate statistical methods to investigate species boundaries within the genus *Lamprochernes*. This study led to the identification of a cryptic species, *L. abditus* Christophoryová, Krajčovičová, Šťáhlavský, Španiel et Opatova, 2023, which can be reliably distinguished from *L. chyzeri* based on molecular and cytogenetic evidence. The female specimen from Russia examined in the present study was not subjected to molecular analysis; therefore, the presence of *L. abditus* in the study area cannot be ruled out.

Pselaphochernes scorpioides (Hermann, 1804)
Fig. 2f.

NEW DATA. **8:** 26.5.–7.6.2021, 1♀; 7.6.–18.6.2021, 1♂; **18:** 26.5.–7.6.2021, 5♀♀; **21:** 26.5.–7.6.2021, 2♀♀; **22:** 26.5.–7.6.2021, 2♀♀; **23:** 17.5.–26.5.2021, 1♀; **26:** 3.6.–7.6.2021, 2♀♀.

DISTRIBUTION AND ECOLOGY IN RUSSIA. Transpalearctic species, also recorded in the USA (likely introduced or misidentified) [WPC, 2025]. Previously recorded in Russia: in Moscow; at the "Vorskla Forest" site, Belogorye State Nature Reserve, Belgorod Region, in the nest of the vole *Microtus* Schrank, 1798 [Schawaller, 1989]; near Boitsovo, Khabarovsk Krai, in a mixed forest (birch, oak, poplar) [Schawaller, 1995]; in Svecha, Kirov Region, on sunflowers and in rotten vegetables [Yuferev, 2001]; in Moscow, in nests of birds *Passer montanus* (Linnaeus, 1758) [Krajčovičová *et al*., 2018]; in Verkhnekurjinsky Nature Reserve, Perm, Perm Krai, caught in pitfall traps in a pine forest [Kozminykh, 2019]. Redikorzev [1924a] also recorded this species from Siberia, without specifying the locality.

The discovery of this species in Mordovia represents the first records for the region. A total of 14 specimens were found in beer and Malaise traps.

Conclusion

This study presents the first comprehensive faunistic investigation of pseudoscorpions in the Republic of Mordovia. The documented diversity, discovered even within well-surveyed protected areas such as the Mordovia State Nature Reserve and National Park "Smolny", emphasizes the importance of continued arachnological surveys across other, less-explored regions of European Russia. These results suggest that the actual pseudoscorpion diversity is likely higher than currently known, and that the group remains a substantially understudied component of the regional invertebrate fauna.

Effective nature conservation depends on a comprehensive understanding of biodiversity, especially within protected areas that serve as global biodiversity hotspots. In this context, monitoring pseudoscorpions contributes not only to regional biodiversity assessments but also to broader ecological monitoring programs. Because pseudoscorpions can serve as indicators of microhabitat health and ecosystem integrity, their documentation aids in evaluating the conservation status of forest ecosystems in the European part of Russia.

Compliance with ethical standards

CONFLICT OF INTEREST: The authors declare that they have no conflict of interest.

Ethical approval: No ethical issues were raised during our research.

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