Russian Entomol. J. 35(1): 92–99

Preliminary data on the ant fauna (Hymenoptera: Formicidae) of the Chechen Republic (North-Eastern Caucasus, Russia)

Предварительные данные по фауне муравьев (Hymenoptera: Formicidae) Чеченской республики (Северо-Восточный Кавказ, Россия)

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KEY WORDS: ants, Formicidae, Chechen Republic, North-Eastern Caucasus, Russia.
КЛЮЧЕВЫЕ СЛОВА: муравьи, Formicidae, Чеченская Республика, Северо-Восточный Кавказ, Россия.

ABSTRACT. The article presents preliminary data on the ant fauna of the Chechen Republic (North-Eastern Caucasus), which currently includes 28 species, 15 genera, and 3 subfamilies. *Formica caucasicola* Seifert et Schultz, 2021 is reported as new to the fauna of Russia, and *Tetramorium diomedeum* Emery, 1908 is new to the fauna of both Russia and the Caucasus. Another species from the genus *Lasius*, currently identified only to genus level due to limited comparative material, is similar to *Lasius schulzi* Seifert, 1992. All species listed are recorded for the first time in the Chechen Republic.

РЕЗЮМЕ. В статье приводятся предварительные данные по фауне муравьев Чеченской Республики (Северо-Восточный Кавказ), на данный момент включающей 28 видов, 15 родов, 3 подсемейства. *Formica caucasicola* Seifert et Schultz, 2021 — указан как новый для фауны России, *Tetramorium diomedeum* Emery, 1908 — новый для фауны России и Кавказа. Еще один вид рода *Lasius*, точно не определен (ввиду недостаточного количества сравнительного материала), сходен с *L. schulzi* Seifert, 1992. Все виды приведены для Чеченской Республики впервые.

Introduction

Ants (Hymenoptera: Formicidae) are among the most common and widespread insect groups globally. They exhibit high species diversity, as well as a wide range of morphological and biological traits. Currently, more than

How to cite this article: Yusupov Z.M., Avtaeva T.A., Saparbaeva L.M., Rusina L.Yu., Rusin A.I., Dubovikoff D.A. 2026. Preliminary data on the ant fauna (Hymenoptera: Formicidae) of the Chechen Republic (North-Eastern Caucasus, Russia) // Russian Entomol. J. Vol.35. No.1. P.92–99. doi: 10.15298/rusentj.35.1.05

14,000 extant species are recognised, belonging to 343 genera and 16 subfamilies [Bolton, 2025]. In the Caucasus region, approximately 250 species from 43 genera and 8 subfamilies are known [Dubovikoff, 2006; Yusupov, unpublished data]. Of these, in the North Caucasus, more than 186 species from 39 genera and 5 subfamilies have been recorded [Dubovikoff, Yusupov, 2017; Yusupov, unpublished data].

To date, the ant fauna of the Chechen Republic has not been specifically studied, and no published data is available on this region. All of the above motivated us to address this gap in knowledge.

Material and methods

The material for this study is based on collections by T.A. Avtaeva, L.M. Saparbaeva, conducted in 2019 and 2021–2022, as well as collections by L.Yu. Rusina and A.I. Rusin, in 2023, all within the territory of the Chechen Republic. Field collections were carried out in the Ciscaucasia (Alkhanchurtskaya Valley — Pobedinskoye village; Groznenskaya Plain — Avtury and Prigorodnoye villages; Tersko-Kumskaya Lowland — Verkhny Naur, Oraz-aul and Paroboch villages; Tersko-Sunzhensky Ridge — Komarovo and Tolstoy-Yurt villages) and on the northern macroslope of the Greater Caucasus (Lesisty Ridge — Niki-Khita village; Andysky Ridge — Khoy village; Glavny Kavkazsky Ridge — Dai village).

A total of over 819 ant specimens were collected. Most of the material was preserved in 96% ethanol. Species identification was conducted by the first author, and the specimens are deposited at the Tembotov Institute of Ecology of Mountain Territories of the Russian Academy of Sciences (IEMT RAS), Nalchik.

Specimens were collected manually using an aspirator, and also by using pitfall traps and expulsion from an eclector. Expulsion was carried out in the biological research department of KNI RAS, using a Berlese–Tullgren thermoeclector. In the eclector setup, a heated electric film (warm floor) was placed above the sample surface to ensure drying. The extraction process lasted four days, until the soil was completely dry.

The following abbreviations are used in the article: w — worker, ♀ — gyne (queen), ♂ — male. The nomenclature follows the World Ant Catalog [Bolton, 2025].

List of species

Family **Formicidae** Latreille, 1802
Subfamily **Ponerinae** Lepeletier de Saint-Fargeau, 1835

Ponera testacea Emery, 1895

MATERIAL. Localities: 4, 9, 10. Number of specimens collected: 65 w, 1 ♀.

DISTRIBUTION. Central and Southern Europe, south of Eastern Europe, Asia Minor, Caucasus, Transcaucasia [Csősz, Seifert, 2003; Seifert, 2007, 2018; Czechowski, Radchenko, 2010; Czechowski *et al*., 2012; Radchenko, 2016; Dubovikoff, Yusupov, 2017; Borowiec, Salata, 2022a, b; Csősz *et al*., 2022].

Subfamily **Formicinae** Latreille, 1809

Camponotus aethiops (Latreille, 1798)

MATERIAL. Localities: 3. Number of specimens collected: 1 w.

Table 1. List of localities (arranged chronologically) in the Chechen Republic where ants were sampled in 2019, 2021–2022, and 2023.
Таблица 1. Список местонахождений муравьев в Чеченской Республике в 2019, 2021–2022, и в 2023 (в хронологическом порядке).

Locality number	Locality	Coordinates	Altitude, m	Habitat	Date of collection
1	approx. 6 km S of the village Dai, Shatoysky District	42.699367°N, 45.858756°E	2330	stony scree	18.VIII–18.X.2019
2	env. of village Pobedinskoye, Groznensky District	43.391714°N, 45.456217°E	180	oil spills, steppe vegetation	29.IX.2019
3	approx. 3 km SE from the village Komarovo, Nadterechny District	43.512903°N, 45.093644°E	400	arid steppe slopes, with a predominance of cereal grasses with islands of shrubs	23.X.2019
4	env. of village Verkhny Naur, Naursky District	43.632194°N, 45.237586°E	82	floodplain deciduous forest of the Terek river	3.VI.2021
5	env. of village Paroboch, Shelkovskoy District	43.467942°N, 46.301886°E	18	floodplain deciduous forest of the Terek river	3.VI.2021
6	env. of village Tolstoy-Yurt, Groznensky District	43.424775°N, 45.752672°E	365	broadleaf forest with a predominance of oak and wild fruit trees	6.VII.2021
7	2 km N from the village Oraz-aul, Shelkovskoy District	43.595474°N, 45.983107°E	48	semi-desert	18.IV.2022
8	2 km S from the village Oraz-aul, Shelkovskoy District	43.541823°N, 45.935797°E	42	semi-desert	18.IV.2022
9	village Avtury, Shalinsky District	43.157477°N, 45.929358°E	311	hornbeam-elm mixed-herb forest	28.IV.2022, 25.VIII.2022
10	village Niki-Khita, Kurchaloevsky District	43.120596°N, 46.065427°E	525	hornbeam-beech forest	28.IV.2022, 24.VIII.2022, 16.IX.2022
11	3 km E from the village Prigorodnoye, Baysangurovsky District	43.256655°N, 45.791510°E	226	grassland	9.IX.2022
12	env. of village Khoy, Vedensky District	42.758146°N, 46.110169°E	1880	subalpine meadow	1.VIII.2023

DISTRIBUTION. Central and Southern Europe, south of Eastern Europe, Northwest Africa, Caucasus, Transcaucasia, Asia Minor, Middle East, Iran, Afghanistan, Central Asia, Kazakhstan [Radchenko, 1996a, 1997a, 2016; Dubovikoff, 2006; Seifert, 2007, 2018; Dubovikoff, Yusupov, 2017; Salata, Borowiec, 2018a; Bracko, 2019; Kiran, Karaman, 2020, 2021].

Cataglyphis aenescens (Nylander, 1849)

MATERIAL. Localities: 3. Number of specimens collected: 2 w.

DISTRIBUTION. Southern and Central Europe, south of Eastern Europe, Caucasus, Transcaucasia, Asia Minor, Western, Middle and Central Asia, south of Western Siberia, Kazakhstan, Mongolia, Northern China [Radchenko, 1997b, 1998, 2016; Dubovikoff, 2006; Dubovikoff, Yusupov, 2017; Kiran, Karaman, 2020, 2021].

Formica caucasicola Seifert & Schultz, 2021

Figs 1–3.

MATERIAL. Localities: 1. Number of specimens collected: 1 w.

Fig. 1–3. *Formica caucasicola*, worker: 1 — habitus, lateral view; 2 — habitus, dorsal view; 3 — head, frontal view.
Рис. 1–3. *Formica caucasicola*, рабочий: 1 — общий вид сбоку; 2 — общий вид сверху; 3 — голова, вид спереди.

DISTRIBUTION. Georgia, Azerbaijan [Seifert, Schultz, 2021].

REMARKS. First reported for the fauna Russia.

Formica cunicularia Latreille, 1798

MATERIAL. Localities: 11. Number of specimens collected: 3 w, 1 ♀.

DISTRIBUTION. Europe, Caucasus, Transcaucasia, Asia Minor, south of Western Siberia, mountains of Central Asia, east of Kazakhstan [Dlussky, 1967; Czechowski *et al*., 2002, 2012; Dubovikoff, 2006; Seifert, Schultz, 2009; Dubovikoff, Yusupov, 2017].

Formica fennica Seifert, 2000

MATERIAL. Localities: 12. Number of specimens collected: 33 w.

DISTRIBUTION. Scandinavian Peninsula, Caucasus, Transcaucasia [Seifert, 2000, 2019; Dubovikoff, 2006; Schultz, Seifert, 2007; Dubovikoff, Yusupov, 2017; Seifert, Schultz, 2021].

Formica foreli Bondroit, 1918

MATERIAL. Localities: 12. Number of specimens collected: 70 w.

DISTRIBUTION. Europe, Caucasus, Transcaucasia, Asia Minor, Iran, eastern Kazakhstan [Dlussky, 1967; Seifert, 2000; Czechowski *et al*., 2002, 2012; Schultz, Seifert, 2007; Kiran, Karaman, 2020; Seifert, Schultz, 2021].

Formica picea Nylander, 1846

MATERIAL. Localities: 1. Number of specimens collected: 9 w.

DISTRIBUTION. Europe, Caucasus, Transcaucasia, east to the Urals, Tibet [Dlussky, 1967; Czechowski *et al*., 2002, 2012; Seifert, 2004; Dubovikoff, 2006; Dubovikoff, Yusupov, 2017; Zhigulskaya *et al*., 2022].

Formica pratensis Retzius, 1783

MATERIAL. Localities: 12. Number of specimens collected: 37 w.

DISTRIBUTION. From the Atlantic to Transbaikalia, Caucasus, Transcaucasia, mountains of Central Asia [Dlussky, 1967; Czechowski *et al*., 2002, 2012; Dubovikoff, 2006; Radchenko, 2016; Seifert, 2021].

Lasius bombycina Seifert et Galkowski, 2016

MATERIAL. Localities: 2, 3. Number of specimens collected: 7 w, 1 ♀.

DISTRIBUTION. Balkans, south of Eastern Europe, Asia Minor, Transcaucasia [Seifert, Galkowski, 2016; Dubovikoff, Yusupov, 2017; Bracko, 2019; Kiran, Karaman, 2020; Seifert, 2020].

REMARKS. All previous records of *L. paralienus* Seifert, 1992 in the North Caucasus should be attributed to *L. bombycina*. First reported for the North Caucasus.

Lasius flavus (Fabricius, 1782)

MATERIAL. Localities: 4. Number of specimens collected: 2 w.

DISTRIBUTION. In the Palearctic it is found from the Atlantic to Japan, absent from the desert zone [Czechowski *et al*., 2002, 2012; Borowiec, 2014; Radchenko, 2016; Dubovikoff, Yusupov, 2017].

Lasius illyricus Zimmermann, 1935

MATERIAL. Localities: 4. Number of specimens collected: 3 w.

DISTRIBUTION. Balkans, Crimea, Asia Minor, Transcaucasia, Iran [Borowiec, Salata, 2013; Dubovikoff, Yusupov, 2017; Bracko, 2019; Schifani, Massa, 2020; Seifert, 2020].

REMARKS. All early records of *L. emarginatus* (Olivier, 1792) in the Caucasus should be attributed to *L. illyricus*. First reported for the North Caucasus.

Lasius sp.

Figs 4–6.

MATERIAL. Localities: 7. Number of specimens collected: 4 w.

REMARKS. This species is most similar to the Anatolian *L. schulzi* [Seifert, 1992], but additional material is needed to make a final decision on this issue.

Plagiolepis taurica Santschi, 1920

MATERIAL. Localities: 2. Number of specimens collected: 1 w.

DISTRIBUTION. Eastern Europe, Italy, Balkans, Asia Minor, Caucasus, Transcaucasia, Central Asia, Kazakhstan [Radchenko, 1989, 1996b, 2016; Dubovikoff, Yusupov, 2017; Salata *et al*., 2018; Kiran, Karaman, 2020; Borowiec, Salata, 2022a, b; Kirschner *et al*., 2023].

Subfamily **Myrmicinae** Lepeletier de Saint-Fargeau, 1835

Aphaenogaster subterranea (Latreille, 1798)

MATERIAL. Localities: 4, 5, 6. Number of specimens collected: 71 w.

DISTRIBUTION. Central and Southern Europe, Asia Minor, Middle East, Caucasus, Transcaucasia, Iran [Arnol'di, 1976; Arakelian, 1994; Czechowski *et al*., 2002, 2012; Dubovikoff, 2006; Seifert, 2007, 2018; Dubovikoff, Yusupov, 2017; Salata, Borowiec, 2018b; Bracko, 2019; Galkowski *et al*., 2019; Kiran, Karaman, 2020; Zięcina *et al*., 2024].

Messor muticus (Nylander, 1849)

MATERIAL. Localities: 3. Number of specimens collected: 6 w.

DISTRIBUTION. South of Eastern Europe, Caucasus, Transcaucasia, Asia Minor and Central Asia, Kazakhstan [Arnol'di, 1977; Dlussky *et al*., 1990; Arakelian, 1994; Dubovikoff, Yusupov, 2017; Steiner *et al*., 2018; Bracko, 2019; Kiran, Karaman, 2020].

REMARKS. Apparently, the majority of *M. structor* (Latreille, 1798) records in the Caucasus should be attributed to *M. muticus*.

Myrmecina graminicola (Latreille, 1802)

MATERIAL. Localities: 4, 9, 10. Number of specimens collected: 53 w.

DISTRIBUTION. Europe, Northwest Africa, Middle East, Asia Minor, Caucasus, Transcaucasia [Rigato, 1999; Czechowski *et al*., 2002, 2012; Dubovikoff, 2006; Radchenko, 2016; Dubovikoff, Yusupov, 2017; Kiran, Karaman, 2020, 2021].

Myrmica hellenica Finzi, 1926

MATERIAL. Localities: 4. Number of specimens collected: 2 w.

DISTRIBUTION. Balkans, Italy, Asia Minor, Iran, Caucasus, Transcaucasia [Radchenko, Elmes, 2004, 2010; Seifert

et al., 2009; Radchenko, 2016; Dubovikoff, Yusupov, 2017; Bracko, 2019; Kiran, Karaman, 2020, 2021].

Myrmica lobicornis Nylander, 1846

MATERIAL. Localities: 1. Number of specimens collected: 187 w, 4 ♀♀, 2 ♂♂.

DISTRIBUTION. It has a vast range and is distributed from the Atlantic to Transbaikalia. In the countries of Central and Southern Europe, the Caucasus, Transcaucasia, Asia Minor and Central Asia, it lives only in the mountains [Seifert, 1988; Radchenko, 1994a, b; Czechowski *et al*., 2002, 2012; Dubovikoff, 2006; Radchenko, Elmes, 2010;

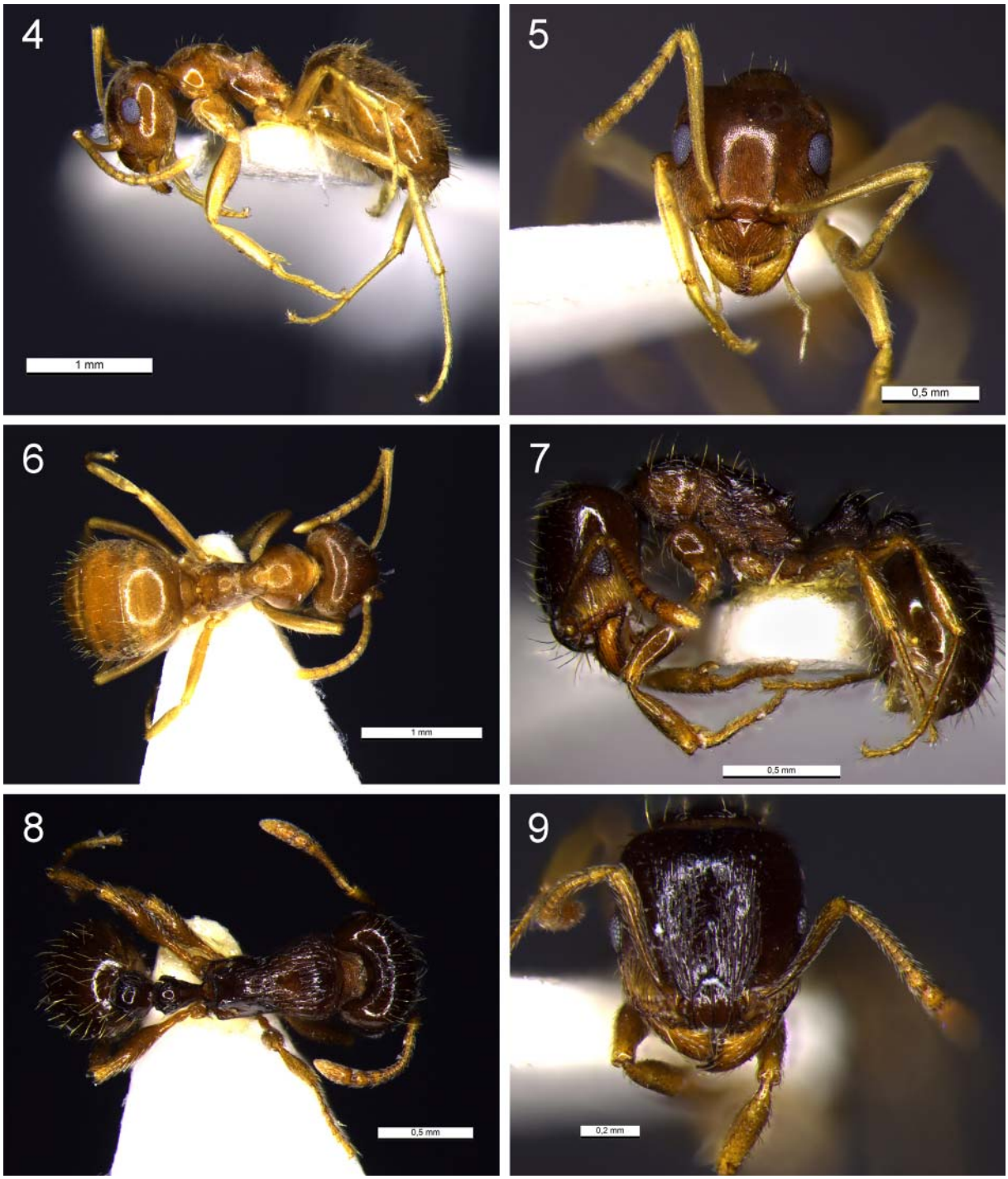

Fig. 4–9. *Lasius* sp., worker (4–6), *Tetramorium diomedeum*, worker (7–9): 4, 7 — habitus, lateral view; 5, 9 — head, frontal view; 6 — habitus, dorsal view, 8.
Рис. 4–9. *Lasius* sp., рабочий, *Tetramorium diomedeum*, рабочий (7–9): 4, 7 — общий вид сбоку; 5, 9 — голова, вид спереди; 6, 8 — общий вид сверху.

Dubovikoff, Yusupov, 2017; Bracko, 2019; Kiran, Karaman, 2020].

Myrmica scabrinodis Nylander, 1846

MATERIAL. Localities: 1. Number of specimens collected: 1 ♀.

DISTRIBUTION. Europe, Asia Minor, Caucasus, Transcaucasia, Western Siberia, Kazakhstan [Radchenko, 1994c, 2016; Czechowski *et al*., 2002, 2012; Radchenko, Elmes, 2010; Seifert *et al*., 2014; Dubovikoff, Yusupov, 2017; Kiran, Karaman, 2020, 2021; Seifert, 2024].

Pheidole koshewnikovi Ruzsky, 1905

MATERIAL. Localities: 2. Number of specimens collected: 1 w, 1 s.

DISTRIBUTION. Balkans, Asia Minor, Caucasus, Transcaucasia, Middle East, Iran, Central Asia, Afghanistan, Kazakhstan [Dlussky, 1981; Dlussky *et al*., 1990; Dubovikoff, 2006; Seifert, 2016; Dubovikoff, Yusupov, 2017; Salata, Borowiec, 2018b; Bracko, 2019; Borowiec, Salata, 2020; Kiran, Karaman, 2020, 2021].

REMARKS. Previous records of *Ph. pallidula* (Nylander, 1849) in the Caucasus should be attributed to *Ph. koshewnikovi*.

Solenopsis fugax (Latreille, 1798)

MATERIAL. Localities: 4, 6, 7, 8. Number of specimens collected: 83 w, 2 ♀♀.

DISTRIBUTION. Central and Southern Europe, south of Eastern Europe, Asia Minor, Caucasus, Transcaucasia, Middle East, Iran, Central Asia, Afghanistan, south of Western Siberia, Kazakhstan [Dlussky, 1981; Dlussky *et al*., 1990; Dlussky, Radchenko, 1994; Reznikova, 2003; Dubovikoff, 2006; Radchenko, 2016; Dubovikoff, Yusupov, 2017; Bracko, 2019; Kiran, Karaman, 2020, 2021; Csősz *et al*., 2023].

Stenamma lippulum (Nylander, 1849)

MATERIAL. Localities: 9. Number of specimens collected: 3 w.

DISTRIBUTION. Caucasus, Transcaucasia [Arnol'di, 1975; DuBois, 1998; Dubovikoff, 2006; Dubovikoff, Yusupov, 2017].

Temnothorax crasecundus Seifert et Csősz, 2015

MATERIAL. Localities: 4, 9, 10. Number of specimens collected: 109 w, 1 ♀.

DISTRIBUTION. Balkans, south of Eastern Europe, Asia Minor, Caucasus, Transcaucasia [Seifert, Csősz, 2015; Csősz *et al*., 2015; Dubovikoff, Yusupov, 2017; Bracko, 2019; Kiran, Karaman, 2020, 2021].

Temnothorax parvulus (Schenck, 1852)

MATERIAL. Localities: 9, 10. Number of specimens collected: 28 w.

DISTRIBUTION. Central and Southern Europe, south of Eastern Europe, Northwest Africa, Asia Minor, Caucasus, Transcaucasia, Iran, Kopetdag [Dlussky *et al*., 1990; Radchenko, 1994d, 1995a, 2016; Czechowski *et al*., 2002, 2012; Dubovikoff, 2006; Ghahari, Collingwood, 2013; Csősz *et al*., 2015; Dubovikoff, Yusupov, 2017; Bracko, 2019; Kiran, Karaman, 2020, 2021].

Temnothorax unifasciatus (Latreille, 1798)

MATERIAL. Localities: 6. Number of specimens collected: 4 w.

DISTRIBUTION. Europe, Northwest Africa, Asia Minor, Caucasus, Transcaucasia, Iran, Kopetdag [Dlussky *et al*., 1990; Radchenko, 1994d, 1995b, 2016; Czechowski *et al*., 2002, 2012; Dubovikoff, 2006; Dubovikoff, Yusupov, 2017; Kiran, Karaman, 2020, 2021; Schifani, 2022; Csősz *et al*., 2024].

Tetramorium diomedeum Emery, 1908

Figs 7–9.

MATERIAL. Localities: 7, 8. Number of specimens collected: 14 w.

DISTRIBUTION. Italy, Balkans, south of Ukraine, Asia Minor [Csősz, Schulz, 2010; Radchenko *et al*., 2012; Kiran, Karaman, 2020, 2021; Schifani, 2022].

REMARKS. First reported for the fauna Russia and Caucasus.

Tetramorium feroxoides Dlussky et Zabelin, 1985

MATERIAL. Localities: 7, 8. Number of specimens collected: 21 w.

DISTRIBUTION. South of European part of Russia, Caucasus, Transcaucasia, Asia Minor, Iran, Central Asia, Kazakhstan [Radchenko, 1992; Csősz, Schulz, 2010; Dubovikoff, Yusupov, 2017; Kiran, Karaman, 2020, 2021].

Results and Discussion

At present, the ant fauna of the Chechen Republic includes 28 species, 15 genera, and 3 subfamilies. Most of the identified species are widespread across the European-Caucasian region. Among them, *Formica caucasicola* is recorded for the first time for the fauna of Russia, and *Tetramorium diomedeum* is reported as new to the fauna of both Russia and the Caucasus. All species identified in this study are newly recorded for the Chechen Republic. Given that this list is preliminary and far from exhaustive (the actual number of species is estimated at no less than 85), we consider it premature to conduct a full zoogeographical analysis of the fauna in this publication.

Competing interests. The authors declare no competing interests.

Acknowledgements. The authors express their sincere gratitude to Dr. Aishat Zeudyevna Dzhamalova, Head of the Biological Research Department of KNI RAS, and to Dr. Aslanbek Magomedovich Batkhiev, Head of the BEBS Laboratory, for their assistance in organising field expeditions for material collection. We also extend our appreciation to Dr. Konstantin Bronislavovich Gongalsky, Deputy Director for Science and Head of the Laboratory for Soil Ecological Functions, A.N. Severtsov Institute of Ecology and Evolution, Russian Academy of Sciences, for his valuable advice in designing the eclector and planning the study. The authors are also grateful to Dmitry Mikhailovich Shevchenko (SSC RAS, Rostov-on-Don, Russia) for the original photographs of ants.

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