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Annotated list of ants (Hymenoptera: Formicidae) of Uzbekistan

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ABSTRACT. A list of ants from Uzbekistan, based on a comprehensive analysis of scientific literature, long-term collections, as well as analysis of online databases (AntWeb and GABI), is presented. The checklist includes 114 species and subspecies from 31 genera and six subfamilies. Three species are recorded here for the first time. These are *Tetramorium concaviceps* (Radchenko, 1992), previously known from Kazakhstan and Mongolia, *Formica mesasiatica* Dlussky, 1964, recorded in Kazakhstan, Kyrgyzstan, China, and Mongolia, and the exotic species *Hypoponera punctatissima* (Roger, 1859). This work is the result of literature review and collection of material throughout Uzbekistan since 2010.

Keywords	ants, faunistic inventory, taxonomy, Uzbekistan
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INTRODUCTION

The first systematic knowledge about ants in Central Asia was developed in the late 19th century by Gustav Mayr (Mayr, 1877), who studied and described ants collected by A. P. Fedchenko during his expedition to Turkestan (present-day Central Asian region) in 1869-1871. Later, many myrmecologists worked on material from Central Asia, among them the most impactful contributions were made by M.D Ruzsky, N. N. Kuznetsov-Ugamsky, K. V. Arnol'di, and G. M. Dlussky (summarized in Table 1). Other important studies on the ant fauna of the Palearctic zone, included the territory of Uzbekistan, were made by A. G. Radchenko. His works offer excellent taxonomic analysis of ants from the genera *Camponotus* (1996e,1997c, d), *Cardiocondyla* (1995g), *Cataglyphis* (11997e,1998a) and *Strongylognathus* (1991a). Additionally, Radchenko's research on the genus *Myrmica* (Radchenko, 1994 j, 1996a, b, Radchenko and Elmes, 2010) is of great importance. European myrmecologists also made significant contributions to the understanding of Central Asian ant fauna such as with Csősz who reviewed the Palaearctic *Tetramorium* (Csősz et al., 2007, Csősz and Schulz, 2010, Csősz et al., 2014). In addition, DuBois (DuBois, M. B. 1998b) has done very valuable work on ants of the genus *Stenamma* from the Palearctic and Oriental

realms. Other relevant studies on ants of Central Asia which dererve a mention include Schulz and Seifert (2007), Seifert and Schulz (2009 a, b), Wagner et al. (2017), Seifert (2023a), Kirschner et al. (2023), Seifert et al. (2024).

Recently, V. A. Zryanin studied the ant fauna of southern Uzbekistan, covering the southern part of the Kyzylkum desert, and provided the first country records for seven species (Zryanin, 2018). In addition, A. A. Akhmedov published a series of articles introducing a number of ant species newly recorded in Uzbekistan (Akhmedov, 2018, 2019, 2020, 2023). Exotic ant species, such as *Hypoponera eduardi* (Forel, 1894), *H. punctatissima* (Roger, 1859), and *Ponera testacea* Emery, 1895 have been recorded in Uzbekistan (Akhmedov, 2019, 2023) In total, over the past 6 years, more than 15 new species have been recorded on the territory of Uzbekistan, and the species checklist of the country is likely to further expand.

Despite numerous studies available on the ants of Central Asia, the ant fauna of Uzbekistan remains insufficiently studied, with numerous regions lacking proper surveys. This study is the first stage of work on ants in Uzbekistan and covers 114 species and subspecies from 31 genera and six subfamilies. Here, the authors collected a significant amount of material, providing a more comprehensive understanding of ant distribution patterns within the region. Based on this material and the critical analysis of modern literature, the authors compiled a list of species currently known from Uzbekistan.

MATERIALS AND METHODS

This work includes the results of material collected by the first author between 2010 and 2023 in most of the territory of the Republic of Uzbekistan (Fig.1). Ants were frequently collected from their nests following the method developed by Gilev et al. (2009). This technique is the most optimal, since all collected individuals belong to the same colony, which reduces confusion, and allows obtaining a sufficient number of ants of all castes. Other sampling methods were also used, including light traps, Barber traps (soil cups), and an aspirator for collecting insects. Species were identified in a laboratory using an SMZ-161-TL stereoscopic microscope. Keys by Radchenko (1991b, 1992a, 1998a), Dlussky & Radchenko (1994a), Seifert & Schultz (2009 a,b), and Seifert (2020a, 2023a) were used. In addition to the samples directly collected, we carried out a comprehensive critical analysis of most of the available literature.

One of the challenges in compiling the list of ants recorded from Uzbekistan was the lack of precise descriptions of type localities for species described from this region. Thus, some species were described or noted from locations that currently are placed in other, usually neighboring Central Asian countries. For example, the species *Cataglyphis bucharica* was described by Emery (1925) from a locality called Bukhara. This undoubtedly referred to the territory of Eastern Bukhara in modern Tajikistan, and not to the city of Bukhara, in the territory of the Kyzylkum desert in Uzbekistan. This is confirmed by Arnoldi (1964), who recorded this species in the Gissar range in Tajikistan and in the adjacent regions of Afghanistan. Arnold notes that this species is widespread in Tajikistan, where it has completely displaced other large ant species from the genus *Cataglyphis*. Often, when authors in the literature indicate the Ferghana Valley as a type locality, this is automatically interpreted as the territory of Uzbekistan. However, the Ferghana Valley used to include the territory of present-day Tajikistan and Kyrgyzstan. Despite the fact that species' distributions are restricted to natural zones and not to the territory of a state, such uncertainties can often significantly change the understanding of the habitat preferences and distribution patterns of species. Since the authors of this work are familiar with the territory of Central Asia, including the old names used, we undertook a critical analysis of all known data and attempted to correct assignments to specific territories.

RESULTS AND DISCUSSION

Based on the analyses of the collected material and available literature sources we list 114 ant species and subspecies from 31 genera and 6 subfamilies currently known from Uzbekistan.

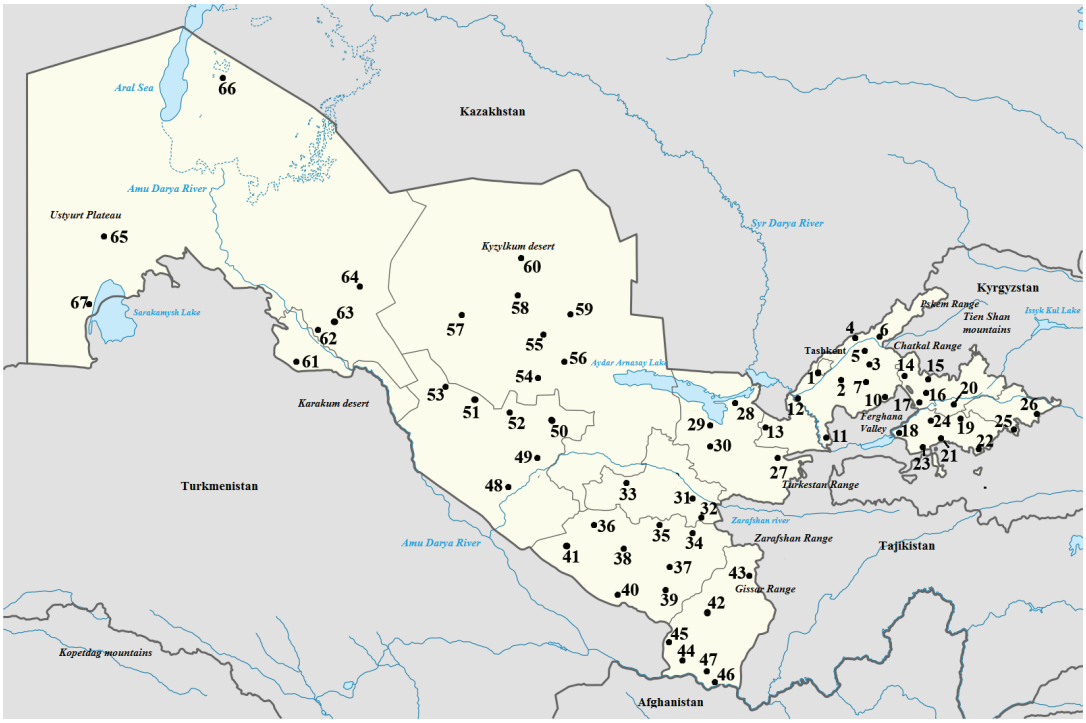

Fig. 1. A map of collection points in Uzbekistan. The numbers correspond to the collection points described in the table S1.

Table 1. List of ant species known to inhabit Uzbekistan based on personal collections or the literature. * Recorded for the first time from Uzbekistan.

Species	Collected within the framework of this work	Known only from literature sources	Non-native species
SUBFAMILY DOLICHODERINAE FOREL, 1878			
Bothriomyrmex kusnezovi Emery, 1925	+		
Bothriomyrmex sp.			
Tapinoma sinense Emery 1925		+	
Tapinoma erraticum (Latreille, 1798)	+		
Tapinoma karavaievi Emery 1925	+		
SUBFAMILY DORYLINAE LEACH, 1815			
Lioponera desertorum (Dlussky, 1990)	+		
SUBFAMILY FORMICINAE LATREILLE, 1809			
Alloformica aberrans (Mayr, 1877)	+		
Alloformica flavicornis (Kuznetsov-Ugamsky, 1926)		+	
Camponotus aethiops (Latreille, 1798)		+	
Camponotus buddhae Forel, 1892	+		
Camponotus interjectus Mayr, 1877	+		
Camponotus fedtschenkoi Mayr, 1877	+		
Camponotus lameerei Emery, 1898	+		

Camponotus oasium Forel, 1890		+
Camponotus reihardti Arnoldi, 1967	+	
Camponotus semirufus Emery 1925	+	
Camponotus turkestanicus Emery, 1887	+	
Camponotus turkestanus André, 1882	+	
Camponotus xerxes Forel, 1904	+	
Cataglyphis aenescens (Nylander, 1849)	+	
Cataglyphis bergiana Arnol'di, 1964	+	
Cataglyphis bucharica Emery, 1925	+	
Cataglyphis cinnamomea (Karavaiev, 1910)	+	
Cataglyphis emeryi (Karavaiev, 1911)	+	
Cataglyphis nodus (Brullé, 1833)		+
Cataglyphis oxiana Arnol'di, 1964	+	
Cataglyphis pallida Mayr, 1877	+	
Cataglyphis piligera Arnol'di, 1964	+	
Cataglyphis setipes (Forel, 1894)	+	
Formica clara Forel, 1886	+	
Formica glauca Ruzsky, 1896	+	
Formica fusca Linnaeus, 1758		+
Formica mesasiatica Dlussky, 1964	+	
Formica orangea Seifert & Schultz, 2009		+
Formica pratensis Retzius, 1783	+	
Formica sanguinea Latreille, 1798	+	
Formica subpilosa Ruzsky, 1902	+	
Formica truncorum Fabricius, 1804	+	
Lasius alienus (Foerster, 1850)	+	
Lasius flavescens Forel, 1904	+	
Lasius neglectus Van Loon *et al*., 1990	+	
Lasius obscuratus Stitz 1930*	+	
Lasius uzbeki Seifert, 1992	+	
Lepisiota frauenfeldi ferganica (Kuznetsov-Ugamsky, 1929)		+
Lepisiota semenovi (Ruzsky, 1905)	+	
Plagiolepis pallenscens Forel, 1889	+	
Polyergus rufescens (Latreille, 1798)	+	
Proformica coriacea Kuznetsov-Ugamsky, 1927	+	
Proformica epinotalis Kuznetsov-Ugamsky, 1927		+
Proformica mongolica (Emery, 1901)		+
Proformica nitida Kuznetsov-Ugamsky, 1923		+
Proformica similis Dlussky, 1969		+
SUBFAMILY LEPTANILLINAE EMERY, 1910		
Leptanilla alexandri Dlussky, 1969		+

SUBFAMILY MYRMICINAE LEPELETIER DE SAINT-FARGEAU, 1835		
Aphaenogaster raphidiiceps (Mayr, 1877)		+
Cardiocondyla koshewnikovi Ruzsky, 1902	+	
Cardiocondyla sahlbergi Forel, 1913		
Cardiocondyla ulianini Emery, 1889	+	
Crematogaster bogojawlenskii Ruzsky, 1905	+	
Crematogaster subdentata Mayr, 1877	+	
Messor aralocaspius (Ruzsky, 1902)	+	
Messor aralocaspius infumatus Kuznetsov-Ugamsky, 1929	+	
Messor clypeatus Kuznetsov-Ugamsky, 1927		+
Messor denticulatus Santschi, 1927	+	
Messor intermedius Santschi, 1927	+	
Messor excursionis (Ruzsky 1905)	+	
Messor kisilkumensis Arnol'di 1970	+	
Messor lamellicornis Arnol'di 1968	+	
Messor rufus Emery, 1922		+
Messor cf. *structor* Latr. 1798 (dark morph)	+	
Messor cf. *structor* Latr. 1798 (light morph)	+	
Messor sp.	+	
Messor subgracilinodis Arnol'di, 1970	+	
Messor variabilis Kuznetsov-Ugamsky, 1927	+	
Messor vicinus Kuznetsov-Ugamsky, 1927	+	
Monomorium barbatulum Mayr, 1877	+	
Monomorium flavum Collingwood, 1961		+
Monomorium kugitangi Dlussky, 1990	+	
Monomorium kusnezowi Santschi, 1928	+	
Monomorium ruzskyi Dlussky & Zabelin, 1985		+
Myrmica bergi Ruzsky, 1902		+
Myrmica dshungarica Ruzsky, 1905		+
Myrmica juglandeti Arnol'di, 1976		+
Myrmica salina Ruzsky, 1905	+	
Myrmica scabrinodis Nylander, 1846		+
Myrmica tenuispina Ruzsky, 1905		+
Pheidole koshewnikovi Ruzsky, 1905	+	
Solenopsis deserticola Ruzsky, 1905		+
Solenopsis fugax (Latreille, 1798)	+	
Solenopsis knuti Pisarski, 1967		+
Stenamma picetojuglandeti Arnol'di, 1975		+
Stenamma sogdianum Arnol'di, 1975		+
Strongylognathus minutus Radchenko, 1991		+
Temnothorax desertorum Dlussky & Soyunov, 1988	+	

Temnothorax melleus (Forel, 1904)	+		
Temnothorax semenovi (Ruzsky, 1903)		+	
Tetramorium armatum Santschi, 1927	+		
Tetramorium chefketi Forel, 1911	+		
Tetramorium concaviceps Bursakov, 1984*	+		
Tetramorium ferox Ruzsky, 1903		+	
Tetramorium feroxoides Dlussky & Zabelin, 1985	+		
Tetramorium cf. *indocile*	+		
Tetramorium inerme Mayr, 1877	+		
Tetramorium kisilkumense Dlussky, 1990		+	
Tetramorium nitidissimum Pisarski, 1967	+		
Tetramorium reticuligerum Bursakov, 1984	+		
Tetramorium schneideri Emery, 1898	+		
Tetramorium cf. *staerckei*	+		
Tetramorium striativentre Mayr, 1877	+		
Tetramorium sulcinode Santschi, 1927	+		
Tetramorium vernicosum Radchenko, 1992		+	
*Trichomyrmex destructo*r (Jerdon, 1851)	+		
SUBFAMILY PONERINAE LEPELETIER DE SAINT-FARGEAU, 1835			
Hypoponera eduardi (Forel, 1894)	+		+
Hypoponera punctatissima (Roger, 1859)*	+		+
Ponera testacea Emery, 1895	+		+

SUBFAMILY FORMICINAE LATREILLE, 1809

Tribe Plagiolepidini Forel, 1886

1. Genus *Plagiolepis* Mayr, 1861

1.1 *Plagiolepis pallescens* Forel, 1889

Plagiolepis pygmaea var. *pallescens* Forel, 1889: 265 (type-locality: "the islands of Rhodes and Karpathos" [Greece]).

Material examined. 1-49, 55, 61, 63. leg. A.A.

Distribution. With many errors made previously about this species identity and taxonomy, it is now difficult to specify its actual distribution (Salata et al., 2018, Kirschner et al., 2023).

Remarks. It is a common species in Uzbekistan. The 3rd segment of the funiculus is elongated, equal or only slightly shorter than 4th segment. The first tergite of gaster has very sparse pilosity.

Unfortunately, the taxonomy of this species is still largely unclear. this is illustrated by the closely related species *Plagiolepis taurica* Santschi, 1920 which was considered a junior synonym of *Plagiolepis pallescens*. However, Kirschner and collaborators (2023) recently resurrected *Plagiolepis taurica* Santschi, 1920 as a valid species but their separation is challenging. We do not think that the evidence presented is sufficient to conclusively demonstrate that *P. taurica* is an independent species distinct from *P. pallenscens*. Although the authors have shown significant intraspecific variability of *P. taurica,* including population structure, this in itself does not necessarily justify separation at the species level.

2. Genus *Lepisiota* Santschi, 1926

2.1 *Lepisiota frauenfeldi ferganica* (Kuznetsov-Ugamsky, 1929)

Acantholepis frauenfeldi subsp. *ferganica* Kuznetsov-Ugamsky, 1929c: 490 (type locality: "Namangan" (N.N. Kuznetsov-Ugamsky). [Uzbekistan]

Distribution. Uzbekistan.

2.2 *Lepisiota semenovi* (Ruzsky, 1905)
Acantholepis frauenfeldi var. *semenovi* Ruzsky, 1905: 461 (type locality: "Transcaspia, Gyausr station" 3.V.1889 (A.P. Semenov) [Turkmenistan]).
Material examined. 1-5, 18-20, 27-42, 46-47, 50-62. leg. A.A.
Distribution. Armenia, Azerbaijan, Iran, Uzbekistan, Kazakhstan, Russia, Turkey, Turkmenistan, Afghanistan.
Remarks. Kuznetsov-Ugamsky (1929c) described from Uzbekistan many forms and subspecies of *Acantholepis* (now *Lepisiota*). The described taxa show the following colour variation: completely black (*A. frauenfeldi karawaiewi*, *A. frauenfeldi spinnisquama*), red thorax and head (*A. frauenfeldi transcaspiensis*, *A. frauenfeldi deserticola*, *A. frauenfeldi semenovi*), black thorax with red spots (*A. frauenfeldi latisquama*, *A. frauenfeldi coriacea*), red thorax with black spots (*A. frauenfeldi mediorubra*, *A. frauenfeldi intersquamata*, *A. frauenfeldi littoralis*, *A. frauenfeldi turkmena*, *A. frauenfeldi halinae*), brown body (*A. frauenfeldi ferganica*, *A. frauenfeldi surchanica*). They also vary in petiole structure. Later, Pisarski (1967) identified 4 species from this genus in Afghanistan: black *L. karawajevi* and *L. spinnisquama*, which differ sharply in the structure of the petiole, *L. melanogaster* (*L. transcarpiensis*) with a red thorax, and *L. semenovi* with a bicolour thorax. This interpretation was accepted until 1990, when Dlussky et al. (1990), after studying diverse private collections from terrae tipica and other material, stated that all these taxa were junior synonyms of *L. semenovi*. We agree with G. M. Dlussky. However, some authors, such as Collingwood et al. (2011), Khalili-Moghadam et al. (2019), and Sharaf et al. (2016, 2020), recognize these forms as individual species. Additional research is needed to confirm the taxonomic status of these species.

Tribe Lasiini Ashmead, 1905

3. Genus *Lasius* Fabricius, 1804
3.1 *Lasius alienus* (Foerster, 1850)
Formica aliena Förster, 1850a: 36 (type-locality: neotype worker, "Eifel, 37 km SE Aachen, Schleiden", 7.IX.1991 (*B. Seifert*) [Germany]).
Material examined. 42. leg. A.A. The definition is confirmed Dr. Bernhard Seifert.
Distribution. Albania, Andorra, Armenia, Austria, Azerbaijan, Belarus, Belgium, Bulgaria, Channel Islands, China, Croatia, Czechia, Denmark, Estonia, Finland, France, Georgia, Germany, Greece, Hungary, Iberian Peninsula, Iran, Israel, Italy, Japan, Kazakhstan, Kyrgyzstan, Latvia, Lithuania, Malta, Mongolia, Montenegro, Netherlands, North Macedonia, Pakistan, Poland, Portugal, Republic of Korea, Moldova, Romania, Russian Federation, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkmenistan, Turkey, United Kingdom, Uzbekistan.

3.2 *Lasius flavescens* Forel, 1904
Lasius niger r. *flavescens* Forel, 1904c: 386 (type-locality: "*Buchara oriental*: Sardym, fl. Gunt,", 10♀, 16.VIII.1897; "Kara-gurum – Mazar", 3♀, 24.VII.1897; "Roschan, Col de Mardžani", 4♀, 19.VIII.1897; (Kaznakov) [Tajikistan]).
Material examined. 7. leg. A.A.
Distribution. Uzbekistan, Kyrgyzstan, Tajikistan, Afghanistan, Iran.

3.3 *Lasius neglectus* Van Loon *et al*., 1990
Lasius (Lasius) neglectus Van Loon *et al*., 1990: 350. (type-locality: "Hungary: Bucharest" 1.VII.1988.)
Material examined. 1-10, 12-15, 18, 22 ,24, 27, 30-35, 37-38, 42-43, 46, 55, 61. leg. A.A. Only in humid biotopes. Identified Dr. Bernhard Seifert and Dr. A.G. Radchenko.
Distribution. Bulgaria, Iran, Israel and Palestine, Italy, France, Germany, Great Britain, Greece, Kazakhstan, Kyrgyzstan, Netherlands, Portugal, Poland, Romania, Spain, Serbia, Russia, Tajikistan, Turkey, Ukraine, Uzbekistan.
Remarks. Earlier, one author suggested that the native range of this species is Uzbekistan (Stukalyuk et al., 2020).

In his work, Seifert (2024) suggests that *L.frequens* rather than *L.neglectus* lives in Uzbekistan. However, three tubes with *L. neglectus* samples were sent to Seifert. As a result, he confirmed our identifications of several samples as *L. neglectus*. Only one sample was in doubt, where *L.frequens* could possibly be present. However, since there were only two individuals in the test tube, Dr. Bernhard Seifert doubts the correctness of the definition, and therefore we do not add *L.frequens* to the list of species for Uzbekistan

until the habitat of this species in Uzbekistan is confirmed. The results of the determination of samples from these three tubes are shown below. 1.UZB: 41.27271, 69.22750, 429 m, Tashkent. 14. XI.2010 polygynous, city, few trees, three workers investigated: ***Lasius neglectus***

2.UZB: 40.30884,67.32944, 1017 m, nr. Maktab. 13.VIII.2019, steppe near creek, three workers analyzed: ***Lasius neglectus***

3.UZB: 41.19386, 70.39974, 1876 m, Uzbekistan, nr. Ertash 13.X.2021 polygynous, dry mountain steppe, only two workers available: ***Lasius frequens*.**

3.4 *Lasius obscuratus* Stitz, 1930

Lasius brunneus var. obscurata Stitz 1930. (type-locality: "Dschailgan" (Karateghin, 75) 1800 m., 7.X.1928, Alai-Pamir Expd. (Reimig). [Tajikistan]).

Material examined. 32, 34. leg. A.A. Identified Dr. Bernhard Seifert

Distribution. Asia Minor, Great Caucasus, Armenia, Iran (Elburz Mountains), Tadzhikistan, Mongolia and NE Tibet, for Uzbekistan, it is indicated for the first time.

3.5 *Lasius uzbeki* Seifert, 1992

Lasius uzbeki Seifert, 1992b: 25 (type-locality: "Chimgan near Tashkent", 2400 m, 6.V.1978 (J. Visa) [Uzbekistan]).

Material examined. 3-6. leg. A.A.

Distribution. Kazakhstan, Kyrgyzstan, Uzbekistan

Tribe Camponotini Forel, 1878

4. Genus *Camponotus* Mayr, 1861

4.1 *Camponotus aethiops* (Latreille, 1798)

Formica aethiops Latreille, 1798: 35 (type-locality: "Brive (Latreille). [France]).

Distribution. North Africa, Middle East, Southern and Central Europe, Southern part of Eastern Europe, Caucasus and Transcaucasia, Iran, Turkmenistan, Tajikistan, Uzbekistan?

Distribution in Uzbekistan. In Uzbekistan, it is known from literature as *Camponotus aethiops concavus*, Forel, 1888, inhabiting a territory from the western part of the Hissar Range to the Tashkent area (Arnol'di, 1967:1829).

Remarks. We were unable to confirm its presence in Uzbekistan. The Uzbek part of the Hissar Range (Surkhandarya and Kashkadarya regions) has not been sufficiently surveyed. Thus, this species may still be discovered in the country in the future. Nevertheless, we have conducted quite extensive studies in Tashkent and the Tashkent region and have not found this species in the territory in question.

4.2 *Camponotus buddhae* Forel, 1892

Camponotus buddhae Forel, 1892k: 238 (type-locality: "Lahoul, Tibetan frontier" [India]).

Material examined. 45. leg. A.A

Distribution. Afghanistan, Iran, Kashmir, Kyrgyzstan, Nepal, Pakistan, Tajikistan, Turkey, Turkmenistan, Uzbekistan.

4.3 *Camponotus interjectus* Mayr, 1877

Camponotus interjectus Mayr, 1877a: 4 (type-locality: "Samarkand", 27.II., 21.III., 2.VII.1869, (A.P. Fedchenko) [Uzbekistan]).

Material examined. 3, 34 ,42, 55. leg. A.A.

Distribution. Afghanistan, China, Iran, Israel and Palestine, Kazakhstan, Kyrgyzstan, Russia, Uzbekistan.

4.4 *Camponotus fedtschenkoi* Mayr, 1877

Camponotus fedtschenkoi Mayr, 1877a: 3 (type-locality: "Samarkand", 6-11. IV.1869, (A.P. Fedchenko [Uzbekistan]).

Material examined. 1-10, 14-15, 30 32, 34, 42, 51, 55, 63. leg. A.A.

Distribution. Afghanistan, Armenia, China, Iran, Kazakhstan, Kyrgyzstan, south of Russia, Turkey, Turkmenistan, Uzbekistan.

Remarks. This species is often confused with *C. buddhae*, from which it differs by the distribution of the setae on the head. *Camponotus fedtschenkoi* has hairs only in the lower part of the head (on the cheeks), while *C. buddhae* has an entire head covered with thick hairs.

4.5 *Camponotus lameerei* Emery, 1898

Camponotus marginatus var. lameerei Emery, 1898c: 150 (type-locality: "Tashkent" [Uzbekistan]).

Material examined. 1-7,10,13, 18, 22, 31, 42. leg. A.A.

Distribution. Kazakhstan, Kyrgyzstan, Turkmenistan, Uzbekistan.

4.6 *Camponotus oasium* Forel, 1890
Camponotus rubripes r.oasium Forel, 1890b (type-locality: "El Hamma oasis", IV.1889 (A. Forel), [Tunisia]).
Material examined. 68. leg. A.A.
Distribution in Uzbekistan. Literature data. *Surkhandarya region*: Baysun city, 12.IX.2017, 12☿ (Zryanin, 2018).
Distribution. Algeria, Afghanistan, Iran, Iraq, Egypt, Kazakhstan, Oman, Qatar, Saudi Arabia, Tajikistan, Turkey, Turkmenistan, United Arab Emirates, Uzbekistan.

4.7 *Camponotus reihardti* Arnoldi, 1967
Camponotus reichardti Arnol'di, 1967: 1824 (type-locality: "Fergana, between Lyangar and Gulcha, 21.VI.1928 (Reichardt) [Kirgizstan]).
Material examined. 3-4. leg. A.A.
A picture of a specimen is available on the website https://www.inaturalist.org/observations/187337250
Distribution. China, Kyrgyzstan, Uzbekistan.

4.8 *Camponotus semirufus* Emery 1925
Camponotus interjectus subsp. *semirufus* Emery, 1925e: 65. (Type-locality: "Tashkent, Bossy", 3.V. (N.N. Kuznetsov, 1923 [Uzbekistan]).
Material examined. 26. leg. A.A.
Distribution in Uzbekistan. *Kashkadarya region*: Karshi, 07.IX.2017, 2☿ (Zryanin, 2018).
Distribution. China, Kazakhstan, Kyrgyzstan, Turkmenistan, Uzbekistan.

4.9 *Camponotus turkestanicus* Emery, 1887
Camponotus sylvaticus st. *turkestanicus* Emery, 1887a: 212 (type-locality: "Turkestan": (no further data) (Fedchenko)).
Material examined. 12, 18, 21, 28-29, 31, 38, 46-47, 50, 61-62, 64, 66-69. leg. A.A.
Distribution. Afghanistan, Armenia, Azerbaijan, China, Georgia, Iran, Kazakhstan, Kyrgyzstan, Russia, Tajikistan, Turkmenistan, Uzbekistan.

4.10 *Camponotus turkestanus* André, 1882
Camponotus sylvaticus var. *turkestanus* Andre, 1882a: 145 (type-locality: "Turkestan, déserts d'Aral" [Kazakhstan or Uzbekistan.]).
Material examined. 36, 40-41, 53-60, 63-67. leg. A.A;
Distribution. Afghanistan, China, Israel, Kazakhstan, Kyrgyzstan, Lebanon, Mongolia, south of Russia, Turkmenistan, Uzbekistan.

4.11 *Camponotus xerxes* Forel, 1904.
Camponotus maculatus r. *xerxes* Forel, 1904g: 424 (type-locality: "Persia: S Meschched, Torok – Bjardzu", 28.III.1898 (Zarudny) [Iran]).
Material examined. 47, 49, 53, 57-58. leg. A.A.
Picture of a specimen is available on the website https://www.inaturalist.org/observations/187347024
Distribution. Afghanistan, Iran, Iraq, Israel, Egypt, Oman, Qatar, Saudi Arabia, Turkey, Turkmenistan, United Arab Emirates, Uzbekistan.

Tribe Formicini Latreille, 1802

5. Genus *Formica* L. 1758
5.1 *Formica clara* Forel 1886
Formica rufibarbis var. *clara* Forel, 1886h: 206 (type-locality: "Damas" (M. le Dr. Lortet) [Syria]).
Material examined. 9, 22, 30, 37, 45. leg. A.A.
Distribution. Afghanistan, Azerbaijan, Austria, Belgium, Bulgaria, Croatia, Czech Republic, China, Georgia, Germany, Greece, India, Iran, Israel, Italy, Hungary, Kazakhstan, Kyrgyzstan, Mongolia, Pakistan, Poland, Syria, Romania, Russia, Slovakia, Slovenia, Spain, Switzerland, Turkey, Turkmenistan, United Kingdom, Uzbekistan.

5.2 *Formica glauca* Ruzsky, 1896
Formica rufibarbis var. *glauca* Ruzsky, 1896: 70 (type-locality: "Perm and Orenburg province, south of Chelyabinsk, Lake Sary-Kul", VIII.1894 (M.D. Ruzsky) [Russia]).
Material examined. 1-10, 18, 24, 31. leg. A.A.
Distribution. Azerbaijan, Armenia, Bulgaria, Georgia, Iran, Kazakhstan, Poland, Romania, Tajikistan, Kyrgyzstan, Southern Siberia, Ukraine, Uzbekistan. It is difficult to determine the current distribution of this species. The taxonomy of this species is highly unclear.
Remarks. The situation with this species is somewhat unclear. Some authors previously considered it *nomen dubium* (Seifert & Shultz, 2009). However, Radchenko (2016) makes a detailed taxonomic analysis of this taxon. In Uzbekistan, this species differs distinctly from

other species of this subgenus, i.e. *F.clara* and *F.subpilosa.* Unlike *F.subpilosa* and *F.clara*, males of *F. glauca* are entirely black, whereas in the previous two species, at least the abdomen of the males is yellow-brown. Occipital part of the head, pronotum and mesonotum of *F.subpilosa* workers, with many setae. Occiput, pronotum and mesonotum of *F.clara* workers, without setae, very rarely with single setae. In *F. glauca*, the upper part of the thorax is usually with single setae, and rarely without them. *Formica glauca* workers are usually larger than *F.clara* workers. The upper part of the head (frons and occiput) of *F.glauca* is brown, in *F.clara* the head is most often entirely red, rarely darkened, but not as much as *F.glauca*. The workers and females of *F.subpilosa* are red with a brown silky gaster. The females of *F.clara* are unknown to us. *F.clara* and *F.subpilosa* can occur together in the same territory, while *F. glauca* does not occur together with the previous two species.

We compared specimens of *F. glauca* with *F.cunicularia*. Thorax of *F.cunicularia* with dark spots, denser. Thorax of *F.glauca* is red, its structure is slenderer. It is possible that *F. glauca* will turn out to be a synonym of *F.cunicularia* in the future. However, this species seems to us to be a genuine species in its own right. For a final conclusion, genetic analyses may be helpful.

5.3 *Formica fusca* Linnaeus, 1758

Formica fusca Linnaeus, 1758: 580 (type-locality: none given, "Habitat in Europae".)

Distribution. Albania, Andorra, Armenia, Austria, Azerbaijan, Belarus, Belgium, Bulgaria, Channel Islands, China, Croatia, Denmark, Estonia, Finland, France, Georgia, Germany, Greece, Hungary, Iberian Peninsula, India, Isle of Man, Italy, Latvia, Lithuania, Luxembourg, Malta, Montenegro, Netherlands, Nepal, North Macedonia, Norway, Pakistan, Poland, Portugal, Moldova, Romania, Russian Federation, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey, Ukraine, United Kingdom, Uzbekistan.

Distribution in Uzbekistan. In Uzbekistan known from the literature (Kuznetsov-Ugamsky, 1923b) "Pskem, Kaptar-Kumysh sai".

Remarks. *Formica fusca* Linnaeus, 1758 in the Khorezm oasis (Khamraev, 2003) was most likely confused with another species from the genus *Formica*. The territories of Karakalpakistan and Khorezm consist of expansive desert zones interspersed with small flat oases that have for a long time been arid, thus we doubt these sites could be inhabited by a mesophilous species, such as *F. fusca*.

5.4 *Formica mesasiatica* Dlussky, 1964

Formica (Coptoformica) mesasiatica Dlussky, 1964: 1030 (type-locality: "Talas Alatay, Aksy-Dzhabagly reserve", 30.VII.1957 (G. Dlussky) [Kazakhstan]).

Material examined. 4. leg. A.A.

Distribution. China, Kazakhstan, Kyrgyzstan, Uzbekistan. For Uzbekistan, it is indicated for the first time.

5.5 *Formica orangea* Seifert & Schultz, 2009

Formica orangea Seifert & Schultz, 2009b: 266 (type-locality: KIR: 41.8327°N, 71.1948°E, "Tshatkal valley", 1830 m., 28.VIII.1998-115 (R. Schultz). [Kyrgyzstan]).

Distribution in Uzbekistan. In Uzbekistan known from the literature data (Seifert & Schultz, 2009b).

Distribution. Afghanistan, Iran, Kazakhstan, Kyrgyzstan, Mongolia, Uzbekistan.

5.6 *Formica pratensis* Retzius, 1783

Formica pratensis Retzius, 1783: 75. The description given by Retzius, "rufa, capite abdomineque nigris, petiolo abdominis squamifero" is extremely unsatisfactory. Seifert identified neotypes (type-locality: neotype worker "Daubitz", 51.4048°N, 14.8746°E, -3.3 km. ENE, 162 m., 30.VI.1999-050 (R. Schultz) Seifert, 2021: 160 [Germany]).

Material examined. 3-8. leg. A.A.

Distribution. Albania, Andorra, Austria, Belarus, Belgium, Bulgaria, China, Croatia, Czechia, Denmark, Estonia, Finland, France, Georgia, Germany, Greece, Guernsey, Hungary, Iberian Peninsula, Iran, Italy, Kazakhstan, Kyrgyzstan, Latvia, Lithuania, Luxembourg, Mongolia, Montenegro, Netherlands, Norway, Poland, Portugal, North Macedonia, Moldova, Romania, Russian Federation, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland,Tadjikistan, Turkey, Ukraine, United Kingdom, Uzbekistan.

5.7 *Formica sanguinea* Latreille, 1798
Formica sanguinea Latreille, 1798: 37 (type-locality: "Tulle" (P.A. Latreille) [France]).
Material examined. 10. leg.Yu.V. Dyachkov.
Distribution. Afghanistan, Albania, Andorra, Armenia, Austria, Azerbaijan, Belarus, Belgium, Bulgaria, Canary Islands, China, Croatia, Czechia, North Korea, Denmark, Estonia, Finland, France, Georgia, Germany, Gibraltar, Greece, Hungary, Iberian Peninsula, India, Iran, Italy, Japan, Kazakhstan, Kyrgyzstan, Latvia, Lithuania, Luxembourg, Mongolia, Netherlands, North Macedonia, Norway, Pakistan, Poland, Portugal, Republic of Korea, Moldova, Romania, Russian Federation, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey Ukraine, United Kingdom, Uzbekistan.

5.8 *Formica subpilosa* Ruzsky, 1902
Formica rufibarbis subsp. *subpilosa* Ruzsky, 1902b: 472 (type-locality: "Aral Sea" (L. Berg) [Kazakhstan])
Material examined. 9, 12-13**,** 28-29, 31, 61. leg. A.A.
Distribution. Afghanistan, Armenia, Azerbaijan, China, Georgia, Kazakhstan, Kyrgyzstan, central and southern Russia, Turkey, Turkmenistan, Uzbekistan.

5.9 *Formica truncorum* Fabricius, 1804
Formica truncorum Fabricius, 1804: 403 (type-locality: "Habitat in truncis emortuis Moraviae Dom. Schott". [Czech Republic]).
Material examined. 3. leg. A.A.
Distribution. Austria, Belarus, Belgium, Bulgaria, China, Croatia, Czechia, Denmark, Estonia, Finland, Germany, Hungary, India, Italy, Japan, Kazakhstan, Kyrgyzstan, Latvia, Lithuania, Mongolia, Netherlands, North Korea, Norway, Pakistan, Poland, Republic of Korea, Moldova, Romania, Russian Federation, Slovakia, Slovenia, Sweden, Switzerland, Turkey, Ukraine, Uzbekistan.

6. Genus *Proformica* Ruzsky, 1902
6.1 *Proformica coriacea* Kuznetsov-Ugamsky, 1927.
Proformica coriacea Kuznetsov-Ugamsky, 1927b: 26 (type-locality: "Aktash Mountains, northeast. from Tashkent" 3800 ft. 26.VI.1922 und 28.V.1925 [Uzbekistan]).
Material examined. 4. leg. A.A
Distribution. China, Kazakhstan, Kyrgyzstan, Mongolia, Uzbekistan.

6.2 *Proformica epinotalis* Kuznetsov-Ugamsky, 1927
Proformica epinotalis Kuznetsov-Ugamsky, 1927b: 27 (type-locality: "Suzak, northeastern slope of Kara-tau Geberg in Northern Turkistan". 3.VII.1923 (N.K.-U.) [Kazakhstan]).
Distribution in Uzbekistan. In Uzbekistan known from the literature data. Clay desert near the Tajen border crossing, 4☿, 04.IV.2014 (Zryanin, 2018).
Distribution. China, Georgia, Iran, Kazakhstan, Kyrgyzstan, Turkmenistan, Moldova, Romania, central and southern Russia, Uzbekistan.

6.3 *Proformica mongolica* (Emery, 1901)
Formica nasuta subsp. *mongolica* Emery, 1901m: 159 (type-locality: [Mongolia]).
Distribution. China, Kazakhstan, Kyrgyzstan, Mongolia, North Korea, central Russia, Uzbekistan.
Remarks. In Uzbekistan, it is known only from literature. Dlussky (1969a) mentioned the discovery of one male in Karjantau. The southern part of the Karjantau Range is located in the territory of Uzbekistan, while its northern part lies within Kazakhstan territory. Since there is no exact locality provided by the author, it is unclear whether the record was made on the territory of Uzbekistan or Kazakhstan. Additional research is required to clarify this.

6.4 *Proformica nitida* Kuznetsov-Ugamsky, 1923.
Proformica nitida Kuznetsov-Ugamsky, 1923b: 246 (type-locality: "Ming Bulak Mountain slope to Khojikent" 18.V.1922 [Uzbekistan]).
Distribution. China, Iran, Kazakhstan, Kyrgyzstan, Russia, Uzbekistan.

6.5 *Proformica similis* Dlussky, 1969.
Proformica similis Dlussky, 1969a: 228 (type-locality: "Yakkabag. Kashka-Darya". 30.III.1942, № 42-82, (K. Arnoldi) [Uzbekistan]).
Distribution. Uzbekistan.

7. Genus *Alloformica* Dlussky, 1969

7.1 *Alloformica aberrans* (Mayr, 1877)

Formica aberrans Mayr, 1877a: 7. (type-locality: "Zeravshan valley, Jam". 13.V.1869, "between Jam and Aksai 14.V.1869" [Uzbekistan])

Material examined. 34. leg. A.A

A picture of a specimen is available on the website https://www.inaturalist.org/observations/217852939

Distribution. Tadjikistan, Turkmenistan? Uzbekistan.

Remarks. Agosti (1994), citing Dlussky (1981), specifies that *Alloformica aberrans* and *A. flavicornis* (Kuznetsov-Ugamsky, 1926) inhabit the steppes of Tajikistan. However, Dlussky, in cited work, listed a different species, *A. nitidior* (Forel, 1904), as an inhabitant of Tajikistan, while *A. aberrans* is specific only to Uzbekistan. Dlussky et al. (1990) mentioned some workers collected in the Kugitang Mountains on the territory of Turkmenistan, which are similar to the workers of *A. aberrans*, but differ in the structure of the abdomen. The authors assumed these workers might belong to another species, and male specimens are needed to resolve the taxonomic position of this population.

7.2 *Alloformica flavicornis* (Kuznetsov-Ugamsky, 1926)

Cataglyphis cursor subsp. *flavicornis* Kuznetsov-Ugamsky, 1926b: 72 (type-locality: "Aktash-Gebirge, nordöstl. von Taschkent Usun-Atschak, Mittellauf des Pskem-Flusses, Ugam-Kette etwas nordlich von Kisil-tal (N.N. Kuznetsov-Ugamsky) [Uzbekistan]).

Distribution. Uzbekistan.

8. Genus *Polyergus* Latreille, 1804

8.1 *Polyergus rufescens* (Latreille, 1798)

Formica rufescens Latreille, 1798: 44 (type-locality: [France]).

Material examined. 3,6. leg. A.A.

Distribution. Albania, Austria, Armenia, Belarus, Belgium, Bulgaria, China, Croatia, Czech Republic, France, Georgia, Germany, Greece, Hungary, Italy, Kazakhstan, Kyrgyzstan, Luxembourg, Macedonia, Moldova, Netherlands, Norway, Poland, Portugal, Romania, central and southern Russia, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey, Ukraine, United States, Uzbekistan.

9. Genus *Cataglyphis* Foerster, 1850

9.1 *Cataglyphis aenescens* (Nylander, 1849)

Formica aenescens Nylander, 1849: 37 (type-locality: "E Rossia meridionali" (D. V. Motschulsky). [Russia]).

Material examined. 1-13, 16-24, 27-33, 35, 38-39, 43-47, 50, 55, 61-63, 66.

Distribution. Albania, Armenia, Afghanistan, Azerbaijan, Georgia, Greece, Hungary, Iran, Italy, Kazakhstan, Kyrgyzstan, China, Mongolia, Pakistan, Romania, central and southern Russia, Serbia, Tajikistan, Turkmenistan, Ukraine, Uzbekistan.

9.2 *Cataglyphis bergiana* Arnol'di, 1964

Cataglyphis setipes subsp. *bergiana* Arnol'di, 1964: 1805 (type-locality: "Station Mashat, Kara Tau" (L.C. Berg) [Kazakhstan]).

Material examined. 28.

Distribution. Afghanistan, Iran, Kazakhstan, Kyrgyzstan, Turkmenistan, Uzbekistan.

9.3 *Cataglyphis bucharica* Emery, 1925

Cataglyphis altisquamis var. *bucharica* Emery, 1925d: 264 (type-locality: "Buchara" [Tajikistan]).

Material examined. 43,68. leg. A.A.

A picture of a specimen is available on the website https://www.inaturalist.org/observations/187344262

Distribution. Afghanistan, Iran, Tajikistan.

Remarks. Emery (1925) described it as a species from a locality named "Buchara". Most likely, the name "Buchara" meant Eastern Bukhara on the territory of present-day Tajikistan, not the city of Bukhara in Uzbekistan. This is confirmed by Arnoldi (1964), who recorded this species in the Hissar Range in Tajikistan and adjacent areas in Afghanistan. Arnoldi pointed out that this species is abundant in the territory of Tajikistan, where it completely replaced other large ants from the genus *Cataglyphis.* We also confirmed numerous records of this species on the territory of Tajikistan. In Uzbekistan, it was found close to the border with Tajikistan, at the foot of the Hissar Range.

9.4 *Cataglyphis cinnamomea* (Karavaiev, 1910)
Myrmecocystus albicans subsp. *cinnamomeus* Karavaiev, 1910: 269 (type-locality: "Syr-Darinskaya, vic. railway station" (W. Karawajew) [Uzbekistan]).
Material examined. 28-29, 48-60. leg. A.A.
A picture of a specimen is available on the website https://www.inaturalist.org/observations/18734839 1
Distribution. Afghanistan, Iran, Kazakhstan, Saudi Arabia, Turkmenistan, Uzbekistan.

9.5 *Cataglyphis emeryi* (Karavaiev, 1911)
Myrmecocystus emeryi Karavaiev, 1911a: 34. (type-locality: "vic. Ashgabat", 1907, no. 1714 (W. Karawajew) [Turkmenistan]).
Material examined. 28-29, 48-60, 64-65. leg. A.A.
Distribution. Afghanistan, Iran, Kazakhstan, Turkmenistan, Uzbekistan.
A picture of a specimen is available on the website https://www.inaturalist.org/observations/187348015

9.6 *Cataglyphis nodus* (Brullé, 1833)
Formica nodus Brullé, 1833: 326. (type-locality: "Morea" [Greece]).
Distribution. Afghanistan, Albania, Arabian Peninsula, Armenia, Azerbaijan, Bulgaria, Bosnia and Herzegovina, Croatia, Georgia, Greece, Egypt, Hungary, Iran, Israel, Iraq, Montenegro, North Macedonia, Romania, Russia (North Caucasus), Serbia, Slovakia, Syria, Turkey, Turkmenistan, Uzbekistan
Distribution in Uzbekistan. It is known only from literature sources: southwestern Uzbekistan as *Cataglyphis nodus mesasiatica* (Arnol'di, 1964)

9.7 *Cataglyphis oxiana* Arnol'di, 1964
Cataglyphis foreli subsp. *oxiana* Arnol'di, 1964: 1813. (type-locality: "Sundukli" 7.V.1911 (Golbek). [Turkmenistan]).
Material examined. 48-54, 56. leg. A.A.;
A picture of a specimen is available on the website https://www.inaturalist.org/observations/186972597
Distribution. Turkmenistan, Uzbekistan.

9.8 *Cataglyphis pallida* Mayr, 1877
Cataglyphis pallida Mayr, 1877a: 9. (type-locality: "Kyzyl-kum" (A.P. Fedchenko). [Uzbekistan and Kazakhstan]).
Material examined. 11, 19-20, 29, 47-49, 53, 58-59. leg. A.A.
Distribution. Afghanistan, China, Iraq, Kazakhstan, Kyrgyzstan, southern Russia, Turkmenistan, Uzbekistan.

9.9 *Cataglyphis piligera* Arnol'di, 1964
Cataglyphis foreli subsp. piligera Arnol'di, 1964: 1813 (type-locality: Mubarek, 1963 (G. Dlussky). [Uzbekistan]).
Distribution. Turkmenistan, Uzbekistan.
Material examined. 36, 40, 49. leg. A.A;
A picture of a specimen is available on the website https://www.inaturalist.org/observations/186973716

9.10 *Cataglyphis setipes* (Forel, 1894)
Myrmecocystus viaticus r. setipes Forel, 1894c: 401 (type-locality: "Rajputna, Nusseerabad" (Glardon) [India]).
Material examined. 2, 11, 29, 45-66, leg. A.A.
Distribution. Afghanistan, India, Iran, Kazakhstan, Kyrgyzstan, southern Russia, Turkey, Turkmenistan, Uzbekistan.
Remarks. By Eichwald's description (1841), it is difficult to define characters unique for a *Cataglyphis* species described under *Formica longipedem*. In addition, the type specimens of the species have not been preserved. The original description is as follows: *"Ex Hymenopteris caucasus et caspiis adhue minor specierum copia innotuit; observavi ipse prope Bacuam Evamam caspiam (*) et Formica longipedem m., capite magno rufo, antennis elongatis, filiformibus, geniculalis, thorace rufescente quasi albo-sericeo, abdomino nigro, pedibus longissimis, nigris. Hab. in arenosis Krasnowodskiensibus."* In our opinion, this vague description could match both *C. setipes* and *C. nodus.* Therefore, we think it is incorrect to suggest the priority of the name *C. longipedem* over *C. setipes*. A. G. Radchenko (personal comment) suggested interpreting the name *C. longipedem* as *incertae sedis.* This idea was also suggested by Wachkoo & Bharti (2015a) and we fully support this approach.

SUBFAMILY MYRMICINAE LEPELETIER DE SAINT-FARGEAU, 1835

Tribe Myrmicinae Lepeletier de Saint-Fargeau, 1835

1. Genus *Myrmica* Latreille, 1804

1.1 *Myrmica bergi* Ruzsky, 1902

Myrmica bergi Ruzsky, 1902b: 473 (type-locality: "Tas-Bulak am Westufer des Aralsees; Mundung des Syr-Darja; Ack-Dshulpas am nordostlichen Ufer des Aralsees 1900-1901; surroundings of the Aral Sea", (L.S. Berg). [Kazakhstan and Uzbekistan])

Distribution in Uzbekistan. "The bank of the Chirchik river above v. Kuylyuk 9. IV" now Tashkent (Kuznetsov-Ugamsky, 1923b); (Radchenko & Elmes, 2010); *Surkhandarya region*: Derbent village, 25☿, 14.IX.2017 (Zryanin, 2018)

Distribution. Azerbaijan, Armenia, Iraq, Iran, Kazakhstan, Kyrgyzstan, Romania, central and southern Russia, Tajikistan, Turkey, Ukraine, Uzbekistan.

Remarks. Kuznetsov-Ugamsky (1923) specified that this species inhabits Tashkent, particularly, the river banks of the Chirchik river. However, our survey revealed another species in Tashkent and its surroundings, *Myrmica salina* Ruzsky, 1905.

1.2 *Myrmica dshungarica* Ruzsky, 1905

Myrmica rugosa subsp. *dshungarica* Ruzsky, 1905b: 66 (type-locality: "Semirechenskaya oblast, Yui-Tas River valley, S slope Dzhungarian Alatau", 2000 m., 29.VII.1902 (Saposhnikov) [Kazakhstan]).

Distribution in Uzbekistan. as *Myrmica minuta iskanderi* "Southwest Uzbekistan Baysun-tau" (Arnol'di, 1976a); (Radchenko & Elmes, 2010)

Distribution. Kazakhstan, Kyrgyzstan, Tajikistan, Uzbekistan.

1.3 *Myrmica juglandeti* Arnol'di, 1976

Myrmica juglandeti Arnol'di, 1976a: 549 (type locality: "Chatkal mt. range, Lake Sary-Chelek", 1945, (Arnol'di), [Kyrgyzstan]).

Distribution in Uzbekistan. From the literature data "Chatkal mt. range", (Arnol'di, 1976a), "SW Tien Shan" (Tarbinsky, 1976), (Radchenko & Elmes, 2010)

Distribution. Kyrgyzstan, Uzbekistan.

1.4 *Myrmica salina* Ruzsky, 1905.

Myrmica scabrinodis var. *salina* Ruzsky, 1905b: 687 (type locality: "Orenburgskaya Gub., Chelyabinsk, vic. lake Sary-Kul", 2-5. VIII.1894 [Russia]).

Material examined. 1,6 ,10, 12, leg. A.A.

A picture of a specimen is available on the website https://www.inaturalist.org/observations/187224425

Distribution. Iran, Romania, Kazakhstan, Russia (Siberia), Turkey, Ukrane, Uzbekistan

1.5 *Myrmica scabrinodis* Nylander, 1846

Myrmica scabrinodis Nylander, 1846a: 930 (type locality: Finland (no further data) (W. Nylander)

Distribution in Uzbekistan. From the literature data: "Aravan River in the Ferghana region" Karavaiev, 1916a.

Distribution. Albania, Andorra, Armenia, Austria, Azerbaijan, Balearic Islands, Belarus, Belgium, Bulgaria, Channel Islands, China, Croatia, Czechia, Denmark, Estonia, Finland , France, Georgia, Germany, Greece, Hungary, Iberian Peninsula, Italy, Jersey, Kazakhstan, Kyrgyzstan, Latvia, Liechtenstein, Lithuania, Luxembourg, Montenegro, Netherlands, North Macedonia, Norway, Poland, Portugal, Republic of Korea, Moldova, Romania, Russian Federation, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey, Ukraine, United Kingdom, Uzbekistan. Invasive in Canada (British Columbia) (Seifert, 2018)

Remarks. It may be confused in some places with the closely related species *Myrmica salina* Ruzsky, 1905.

1.6 *Myrmica tenuispina* Ruzsky, 1905

Myrmica laevinodis var. *tenuispina* Ruzsky, 1905b: 670 (type-locality: lectotype (by designation of Radchenko & Elmes, 2001b: 258) "E Bukhara, Tabi-dara-Zagyrdesht", 15☿, 17.VI.1897 (Kaznakov)[Tajikistan]).

Distribution in Uzbekistan. From the literature data "Southern Uzbekistan, Kashka-Darya: Ishkent, Khan-Takhta". 2000-2500 m (Arnol'di, 1976a); (Radchenko & Elmes, 2010).

Distribution. Afghanistan, Kyrgyzstan, Tajikistan, Uzbekistan.

Tribe Stenammini Ashmead, 1905

2. Genus *Messor* Forel, 1890

2.1 *Messor aralocaspius* (Ruzsky, 1902)

Aphaenogaster barbara var. aralocaspia Ruzsky, 1902c: 20 (type-locality: "The northern shore of Perovsky Bay, on clay soil" 21.IV.1900 [Kazakhstan]).

Material examined. 19, 23, 36-38, 44, 46-66, leg. A.A.

Distribution. Afghanistan, Iraq, Iran, Kazakhstan, Kyrgyzstan, China, Tajikistan, Turkmenistan, Saudi Arabia, Yemen, Uzbekistan.

2.2 *Messor aralocaspius infumatus* Kuznetsov-Ugamsky, 1929

Messor barbarus subsp. infumatus Kuznetsov-Ugamsky, 1929d: 19 (type-locality: "Kata-tau, Kara-sai, Balykchi, Chushka-bulak, Bad"zhi-bel, entrance to the Ikan-su gorge, Dombra-syrnai, Karabulak to the north Turlana, Karabas-tau. Jetysu: from the village Kugaly to Tsaritsyn pass, from Gavrilovka to Abakumovsky settlement, Baskunchi of Dzharkent district. Bugun, between Tamerlanovka and Shymkent, Karnak, Ali-karnak, Gilga, Aulie-ata, Kelte-mashat, Chulak-kurgan-Kizil-kul, Chul-kur-gan, Turt-chii, Ibata, Kengrak" [Kazakhstan and Kyrgyzstan]).

Material examined. 39, 44. leg. A.A.;

Distribution. Afghanistan, Kazakhstan, Kyrgyzstan, China, Tajikistan, Uzbekistan.

2.3 *Messor clypeatus* Kuznetsov-Ugamsky, 1927

Messor similis var. clypeatus Kuznetsov-Ugamsky, 1927a: 93 (type-locality: "Railway stations Obrutschevo (now Dashtobod) and Syr-Darjinskaya" [Uzbekistan]).

Distribution. Kazakhstan, Uzbekistan.

Remarks. The conducted surveys did not confirm its presence in Uzbekistan.

2.8 *Messor denticulatus* Santschi, 1927

Messor minor st. laboriosus Santschi, 1927d: 240 (type-locality: "Merv, Dushak, Bajram-ali, Karabata, Babadurmaz, Utsch-Adshi, Ashgabat, Geok Tepe" [Turkmenistan], "Namangan, Andijan, Samarkand, Tashkent, Zaamin, Dshizak, Katta-Kurgan, Iskandar" [Uzbekistan], "Konibodom, Machram" [Tajikistan], Bishkek, Osh, Suzak [Kyrgyzstan], "Dshilga, Kasykurt, Tulkibas, Ikan, Shymkent, Bala Bugun, Ikansu, Turkestan" [Kazakhstan]

Material examined. 1-47, 55, 60-63. leg. A.A.

Distribution. China, Iran, Kazakhstan, Kyrgyzstan, southern Russia, Tajikistan, Turkey, Turkmenistan, Uzbekistan.

Remarks. We do not have samples of Santschi, and we cannot reliably judge the synonymy of these species, however, after studying the literature, we understand the following. It seems highly probable to us that these taxa are conspecific, as suggested by earlier authors (Santschi, Kuznetsov-Ugamsky, Arnol'di, and Dlussky, *et al.*, all give *Messor denticulatus* as senior synonym, but *Messor laboriosus* has priority). Nevertheless, the name *laboriosus* takes precedence as previously published, although it has not been used as a valid one for a long time. The nomenclature status of the species requires one of two formal decisions: either the establishment of *laboriosus* as a senior subjective synonym, or a change in priority in accordance with Article 23.9 of the Code (https://code.iczn.org/validity-of-names-and-nomenclatural-acts/article-23-principle-of-priority/?frame=1). Until the publication of the relevant nomenclature act, we use the name *denticulatus* as the generally accepted name for this species.

2.5 *Messor intermedius* Santschi, 1927.

Messor semirufus var. intermedius Santschi, 1927d: 229 (type-locality: "Mezzé, Doumar, Anti-Lebanon" (G. de Kerville) [Syria]).

Material examined. 36, 44, 51-52. leg. A.A.

A picture of a specimen is available on the website https://www.inaturalist.org/observations/187764289

Distribution. Iran, Israel, Oman, Turkmenistan, Turkey, Saudi Arabia, Syria, Uzbekistan.

Remarks. For Uzbekistan, we previously erroneously identified it as *Messor incorruptus karakattinus* (Akhmedov, 2020).

2.6 *Messor excursionis* (Ruzsky 1905)

Aphaenogaster (Messor) lobuliferus var. excursionis Ruzsky, 1905b: 739 (type-locality: "surroundings of lake Balkhash, mountains Kulan-basy" 14.IX.1903, "Balgurai, lower reaches of the river Ili" 10.IX.1903 (Berg), [Kazakhstan] "Zakasniuskaya obl., railway stations Gyaurs" 2.V.1889, "railway stations Repetek" 15-29.V.1889

(A. Semenov) [Turkmenistan]).
Material examined. 49, 65. leg. A.A.
A picture of a specimen is available on the website https://www.inaturalist.org/observations/187338587
Distribution. Afghanistan, China, Iran, Kazakhstan, Kyrgyzstan, Mongolia, Turkmenistan, Uzbekistan

2.7 *Messor kisilkumensis* Arnol'di 1970
Messor kisilkumensis Arnol'di, 1970a: 84 (type-locality: "Central and Southern Kyzil-Kum" [Kazakhstan], "southern Kyzil-Kum, Kuldzhyk-Tau" (G. Dlussky) [Uzbekistan]).
Material examined. 29,55
A picture of a specimen is available on the website https://www.inaturalist.org/observations/187341084
Distribution. Kazakhstan, Uzbekistan.

2.8 *Messor lamellicornis* Arnol'di 1968
Messor lamellicornis Arnol'di, 1968b: 1807 (type-locality: "Tamdy-Bulak" 19.IV.1935 (A. Andrushko), "Shafrikhan" (Dlussky) [Uzbekistan]
Material examined. 53, 58. leg. A.A.
Distribution. Turkmenistan, Uzbekistan.

2.9 *Messor rufus* Emery, 1922.
Messor rufus Kuznetsov-Ugamsky, 1927 (type-locality: "Fergana region" (V. Sovinsky). [Uzbekistan]).
Distribution. Mountains of Central Asia and southern Kazakhstan, Syria, Lebanon (Tohme & Tohme, 2014)

2.10 *Messor* cf. *clivorum*
Aphaenogaster (Messor) structor var. clivorum Ruzsky, 1905b: 735 (type-locality: Kazanskaya gub., Chistopodsk, 8.vii.1892 (no collector's name; perhaps M. Ruzsky) [Russia].
Material examined. 1-12, 14-26 leg. A.A.
Remarks. We collected representatives of two species belonging to the *Messor "structor"* group on the territory of Uzbekistan that we define here as *M.* cf. *clivorum* and *M.* cf. *structor*.

In *Messor* cf. *clivorum* the colour of the head and thorax varies from light brown to almost red or dark brown. The abdomen is always darker. The body sculpture is heavily wrinkled. The wrinkles on the head are thick, not diverging or slightly diverging to the sides of the head. The whole body is covered with thick light golden setae. The scape broadens at the base and has a small tooth. The first segment of the antenna is broader and is shorter or (more rarely) equal in length to the 2nd and 3rd ones taken together. The propodeum is always smoothly rounded, even in large workers. This form is common throughout the Tashkent region, from the Syr Darya River to its northernmost parts. The individuals of presumably the same species stored in the Museum of Nature and Institute of Zoology are designated as *Messor clivorum.*

2.11 *Messor* cf. *structor*
Formica structor Latreille, 1798 (type-locality: 300 m. E Gignac, S Brive-la-Gaillarde (45°0'N, 1°28'E), 1.X.2006, FR020 (Galkowski) [France]. Neotype worker (by designation of Steiner et al., 2018: 399)
Material examined. 27-43. leg. A.A.
Remarks. This species is uniformly black or dark brown and matte. The head is squarer. The first segment of the antenna is shorter than the 2nd and 3rd ones taken together. The wrinkles on the head almost always diverge to the side corners of the head. The abdomen is less abundantly covered with hairs. The body hairs are whitish. The propodeum is more angular. This form is common in the lowlands and dry foothills south of the Syr Darya River.

Steiner et al. (2018) conducted a revision of the *Messor "structor"* species and divided it into five different species. Previously, several subspecies from the "*structor*" group were described from the territory of Uzbekistan. Among them are *Messor structor turanicus* Kuznetsov-Ugamsky, 1927 and *Messor structor subpolitus* Kuznetsov-Ugamsky, 1927. Steiner et al. (2018) believe that they may refer to *M. muticus* (Nylander, 1849) or *M. clivorum* (Ruzsky, 1905). Without additional research, we cannot reliably include the species we have discovered in any of these groups.

2.11 *Messor* sp. (*lobicornis* group)
Material examined. 57.
Remarks. A species from the *lobicornis* group. We collected only 10 workers and one female. Outwardly, this species is similar to others from this

group – *Messor excursions, Messor lamellicornis,* and *Messor variabilis*. It is particularly close to *Messor lamellicornis.* The antenna blade is large and rounded. The first lobe of the antenna is neither broader nor swollen. (Figure 2). The body is abundantly covered with hairs. The eyes are large. Propodeum without teeth.

More samples are needed for a more detailed study. We assume that the samples we have collected may belong to a new species. If confirmed though the help of genetic analyses, we plan to publish the results in a separate study focusing on the ants of the genus *Messor* encountered in Uzbekistan.

2.12 *Messor subgracilinodis* Arnol'di, 1970

Messor subgracilinoclis Arnol'di, 1970a: 73 (type-locality: "Dzhebel", 9.VI.1934 (V. Popov). [Turkmenistan]).

Material examined. 62. leg. A.A.

Distribution. China, Iran, Turkmenistan, Uzbekistan.

Fig. 2. Head from lateral and frontal view and latero-dorsal Lateral view of *Messor* sp.

Remarks. For Uzbekistan, it was noted earlier by Akhmedov (2020).

2.13 *Messor variabilis* Kuznetsov-Ugamsky, 1927
Messor variabilis Kuznetsov-Ugamsky, 1927a: 94 (type-locality: "Railway station Geok-Tepe, Geok-Syur, Dort-Kuju, Ashgabat, Takir, Bagir village nr Ashgabat" [Turkmenistan]).
Material examined. 41, 48-66. leg. A.A.
A picture of a specimen is available on the website https://www.inaturalist.org/observations/187339705
Distribution. Afghanistan, Iran, Kazakhstan, Turkmenistan, Uzbekistan.

2.14 *Messor vicinus* Kuznetsov-Ugamsky, 1927
Messor vicinus Kuznetsov-Ugamsky, 1927a: 94 (type-locality: "Railway stations Geok-Tepe" [Turkmenistan]).
Material examined. 36, 41. leg. A.A.
Distribution. Afghanistan, Turkmenistan, Uzbekistan.

3.Genus *Aphaenogaster* Mayr, 1853
3.1 *Aphaenogaster raphidiiceps* (Mayr, 1877).
Ischnomyrmex rhaphidiiceps Mayr, 1877a: 12 (type-locality: "ZarafshanValley" 30.V.1869 A. Fedtshenko). [Uzbekistan and Tajikistan]).
Distribution in Uzbekistan. Literature data "Varganza, the upper reaches of the Kashkadarya River" (Dlussky et al. 1990).
Distribution. Afghanistan, Iran, Tajikistan, Turkmenistan, Uzbekistan.

4. Genus *Stenamma* Westwood, 1839
4.1 *Stenamma picetojuglandeti* Arnol'di, 1975
Stenamma picetojuglandeti Arnol'di, 1975: 1821 (type-locality: "Ridges of the Tien Shan, Ferghana, Chatkal, Karzhantau". [Kazakhstan, Kyrgyzstan, Uzbekistan.] "Chatkal, Arkit" IX.1954 (K. Arnol'di) [Kyrgyzstan], "near Khumsan" (Yanushev 1974) [Uzbekistan.]).
Distribution. Kazakhstan, Kyrgyzstan, Uzbekistan.

4.2 *Stenamma sogdianum* Arnol'di, 1975
Stenamma sogdianum Arnol'di, 1975: 1824 (type-locality: Takhta-Karacha Pass, near Aman-Kutan, S Samarkand", 1700 m., 28.V.1942 (K. Arnol'di). [Uzbekistan]).
Distribution. Kyrgyzstan, Uzbekistan.

Tribe Crematogastrini Forel, 1893

5. Genus *Tetramorium* Mayr, 1855
5.1 *Tetramorium armatum* Santschi, 1927
Tetramorium inerme st. armatum Santschi, 1927b: 57 (type-locality: "Annau" 1804 (Karavaiev) [Turkmenistan]).
Material examined. 1, 17, 29, 46, 55. leg. A.A.
Distribution. Afghanistan, China, Iran, Kirgizstan, Turkmenistan, Uzbekistan.

5.2 *Tetramorium chefketi* Forel, 1911
Tetramorium caespitum var. chefketi Forel, 1911f: 332 (type-locality: "Bosphore européen" Bou Youk Déré, 1910 (A. Forel) [Turkey]).
Material examined. 1, 4. leg. A.A.
Distribution. Armenia, Azerbaijan, Bulgaria, Greece, Kazakhstan, Kyrgyzstan, Macedonia, Romania, central and southern Russia, Turkey, Turkmenistan, Ukraine, Uzbekistan.

5.3 *Tetramorium concaviceps* Bursakov, 1984
Tetramorium concaviceps Bursakov, 1984:204 (type-locality: "The average flow of the Ili river Between the Chulak Mountains and the Kapchagai reservoir" 800 m., 15.VI.1978, №109 (Bursakov). [Kazakhstan]).
Material examined. 60. leg. A.A.
Distribution. Kazakhstan, Mongolia, Uzbekistan.
Remarks. This is the first record of this species in Uzbekistan. Our team collected only five workers. The colour of the workers is yellow-brown. The head is shiny, entirely smooth or with rare and delicate sculptures. The dorsum of the thorax is smooth, the lateral sides feature a shagreen structure. The abdomen is smooth. The chaetotaxy is not well developed. Propodeal teeth small. The metanotal groove is absent.

5.4 *Tetramorium ferox* Ruzsky, 1903
Tetramorium caespitum var. ferox Ruzsky, 1903b: 309 (type-locality: "Saratov" (Ruzsky). [Russia]).
Distribution in Uzbekistan. *Kashkadarya region*: Karshi**,** 25☿, 08.IV.2014 (Zryanin, 2018).
Distribution. Afghanistan, Armenia, Austria, Azerbaijan, Bulgaria, China, Croatia, Czech Republic, Georgia, Hungary, Italy, Iran,

Kazakhstan, Kyrgyzstan, Macedonia, Romania, central and southern Russia, Slovakia, Turkmenistan, Ukraine, Uzbekistan.

5.5 *Tetramorium feroxoides* Dlussky & Zabelin, 1985

Tetramorium feroxoides Dlussky & Zabelin, 1985:203 (type-locality: "Ipaj-Kala, Kopet Dag", 29.V.1971 (G. Dlussky). [Turkmenistan]).

Material examined. 55. leg. A.A.

A picture of a specimen is available on the website https://www.inaturalist.org/observations/186250167

Distribution. Armenia, Iran, Kazakhstan, Kyrgyzstan, southern Russia, Turkey, Turkmenistan, Uzbekistan.

5.6 *Tetramorium indocile*

Tetramorium caespitum var. indocile Santschi, 1927b: 53 (type-locality: "Semiretschie, Kisil-Kija Pass", 2100 m., 15.VIII.1924, "Karkara" 16.VIII.1924, "Issyk-kul, Ssuskuluk", (N. Kusnezow). [Kyrgyzstan]).

Material examined. 1, 3-4, 34. leg. A.A.

Distribution. Armenia, Azerbaijan, Bulgaria, France, Greece, Hungary, Iran, Kyrgyzstan, central and southern Russia, Spain, Switzerland, Ukraine, Uzbekistan.

5.7 *Tetramorium inerme* Mayr, 1877

Tetramorium caespitum var. inerme Mayr, 1877a: 17 (type-locality: "Samarkand", 30.III.1869, "Kyzyl-Kum", V.1871. [Uzbekistan.]).

Material examined. Uzbekistan. 2, 29, 45, 50, 55. leg. A.A.

Distribution. Armenia, Afghanistan, Azerbaijan, China, Kazakhstan, Kyrgyzstan, Mongolia, central and southern Russia, Tajikistan, Turkey, Turkmenistan, Uzbekistan.

5.8 *Tetramorium kisilkumense* Dlussky, 1990

Tetramorium kisilkumense Dlussky, 1990e: 205 (type-locality: "Kuldzhuktau, Kyzyl-Kum", 10.IV.1961, № 61-220 (G. Dlussky). [Uzbekistan.], 20 paratype workers "Uzun-Kuduk, Kyzyl-Kum", V.1964 (A. Davletshina) [Uzbekistan] "Akybai" 07.V.1971 № 71-30(G. Dlussky). [Turkmenistan]).

Material examined. 58.

Distribution. Turkmenistan, Uzbekistan.

5.9 *Tetramorium nitidissimum* Pisarski, 1967

Tetramorium punicum subsp. nitidissimum Pisarski, 1967a: 402 (type-locality: "Firyuza" 20.IV.1907 (Karavaiev). [Turkmenistan]).

Material examined. *Navoi region*: Railway station Uchkuduk-2, 42°00'51.02"N 63°43'54.88"E, 06.IV.2013, 6☿, leg. A.A.

Distribution. Afghanistan, China, Turkmenistan, Uzbekistan.

5.10 *Tetramorium reticuligerum* Bursakov, 1984

Tetramorium reticuligerum Bursakov, 1984: 400, (type-locality: "Ili river, Kapchagai" 760 m., 20.V.1979, no. 29 (S.S. Bursakov).

Material. 55. leg. A.A.

Distribution. Kazakhstan Turkmenistan, Uzbekistan.

5.11 *Tetramorium schneideri* Emery, 1898

Tetramorium schneideri Emery, 1898c: 145 (type-locality: "Bukhara" (O. Schneider) [Uzbekistan]).

Material examined 1, 23, 29, 34-41, 48-64. leg. A.A.

Distribution. Afghanistan, China, Iran, Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan, Uzbekistan

5.12 *Tetramorium* cf. *staerckei*

Tetramorium staerckei Kratochvíl, 1944: 65 (type-locality: "Nagytétény, no. 500, 17.VI.1935" (P. Röszler) [Hungary]).

Material examined. 49. leg. A.A.

Distribution. Pannonian zone, Balkans, southern Russia, Central Asia (Wagner et al., 2017)

Remarks. The discovered species is similar in description to *Tetramorium staerckei*. Wagner et al., (2017), recognized 10 species belonging to the *Tetramorium caespitum* complex. *Tetramorium alpestre, Tetramorium breviscapus, Tetramorium caespitum, Tetramorium caucasicum, Tetramorium fusciclava, Tetramorium hungaricum, Tetramorium immigrans, Tetramorium impurum, Tetramorium indocile, Tetramorium staerckei.* Of these, two (*Tetramorium indocile* and *Tetramorium staerckei)* live in Central Asia. Earlier (Zrynin, 2018) identified the species *Tetramorium* cf. *indocile* from the south of Uzbekistan.

We do not have specimens of females and are not entirely sure which type our specimens belong to. We believe that additional reliable research is needed in this complex, especially in Central Asia.

5.13 *Tetramorium striativentre* Mayr, 1877
Tetramorium caespitum var. striativentre Mayr, 1877a: 17 (type-locality: "Samarkand" 7. III. 1869, "Ulus "9.V.1869, "Kyzyl-kum" V.1871 [Uzbekistan], lectotype worker (by designation of Radchenko & Scupola, 2015: 227).
Material examined. 29, 35. leg. A.A.
Distribution. Afghanistan, Iran, Kyrgyzstan, Tajikistan, Turkmenistan, Uzbekistan.

5.14 *Tetramorium sulcinode* Santschi, 1927
Tetramorium caespitum var. sulcinode Santschi, 1927b: 53 (type-locality: "Semiretschie, Sukuluk, to the East of Bishkek", 14.VII.1924 (N. Kusnezow). [Kyrgyzstan]).
Material examined. 5, 29, 31, 38. leg. A.A.
Distribution. Afghanistan, Iran, Kyrgyzstan, southern Russia, Tajikistan, Turkmenistan, Uzbekistan.

5.15 *Tetramorium vernicosum* Radchenko, 1992
Tetramorium vernicosus Radchenko, 1992a: 40 (type-locality "Gissarski range, Kondara", 21.VI.1973 (V. Yanushev). [Tajikistan]).
Distribution in Uzbekistan. Paratype. 10♀♀, "NW of Ishkent ", 1500-1700 m., 3.V.1942 (K. Arnoldi); 10♀♀, "Varganza", №. 78-137, 30.V.1978 (G. Dlussky); 7☿☿, "Kashka-Darya", 26.V.1942 (K. Arnoldi) (Radchenko, 1992a)
Distribution. Kyrgyzstan, Tajikistan, Turkmenistan, Uzbekistan.

6. Genus *Strongylognathus* Mayr, 1853
6.1 *Strongylognathus minutus* Radchenko, 1991
Strongylognathus minutus Radchenko, 1991b: 84 (type-locality: "Kopet Dag, Tuzly Valley, Chandyr", 27.X.1935, no. 6914 (K. Arnol'di). [Turkmenistan]).
Distribution in Uzbekistan. Paratype. 1♀, Uzbekistan, Yakkabag (Kashka-Darinskaya oblast), 29.XI.1941 (K. Arnol'di), 13☿☿, Uzbekistan, Varganza, 31.V.1978, №. 78-176 (G. Dlussky).
Distribution. Kazakhstan, Kyrgyzstan, Turkmenistan, Uzbekistan.
Remarks. In the vicinity of Lake Tuzkan, in the nest of *Tetramorium* cf. *indocile*, we found 4 individuals from this genus. However, we could not exactly identify the species. The head structure of the species collected was different from that of *Strongylognathus minutus*

7. Genus *Temnothorax* Mayr, 1861
7.1 *Temnothorax desertorum* Dlussky & Soyunov, 1988
Temnothorax desertorum Dlussky & Soyunov, 1988: 35 (type-locality: "Karakum, Kaplankyrsk reserve, Chiryshli well", 4.X.1983 (Soyunov). [Turkmenistan]).
Material examined. 58. leg. A.A.
Distribution in Uzbekistan. Paratype: 1♀, Uzbekistan, Kuldzhuktau, Ayak-Guzhumdt well, 17.III.1961 (Dlussky).
Distribution. Turkmenistan, Uzbekistan.

7.2 *Temnothorax melleus* (Forel, 1904)
Leptothorax bulgaricus var. melleus Forel, 1904c: 375 (type-locality: "Bukhara orient: Shugnan, Kara-gurum - Mazar", 24.VII.1897 (Kusnezov) [Tajikistan]).
Material examined. 1, 30. leg. A.A.
Distribution. Afghanistan, Kazakhstan, Kyrgyzstan, Mongolia, Tajikistan, Turkmenistan, Uzbekistan.

7.3 *Temnothorax semenovi* (Ruzsky, 1903)
Leptothorax semenovi Ruzsky, 1903b: 311 (type-locality: "Railway station Gyaurs", 1889 (Semenov) [Turkmenistan]).
Distribution in Uzbekistan. Paratype: Uzbekistan, 1♀, 200☿, with Varganza in the upper reaches of the Kashka-Darya River, the foothill steppe (Kashka-Darinskaya oblast), 25.05.1978, № 145 и 28.05.1978, № 171, (G. Dlussky).
Distribution. China, Kazakhstan, Kyrgyzstan, southern Russia, Turkmenistan, Ukraine, Uzbekistan.

8. Genus *Crematogaster* Lund, 1831
8.1 *Crematogaster bogojawlenskii* Ruzsky, 1905
Crematogaster sordidula subsp. bogojawlenskii Ruzsky, 1905b: 506 (type-locality: "Eastern Bukhara: Pamir, Darvaz, Chil'-Dara-Ishtion,

Amu-Darya", 14.VI.1898 (H.B. Bogoyavlenski). [Tajikistan]).
Material examined. 3-6, 8, 14, 30, 34, 45. leg. A.A.;
Distribution. Armenia, Afghanistan, Georgia, Iran, Kyrgyzstan, Tajikistan, Turkmenistan, Uzbekistan.

8.2 *Crematogaster subdentata* Mayr, 1877
Crematogaster subdentata Mayr, 1877a: 19 (type-locality: "in the vicinity of Samarkand", 5 - 17 IV. 1869, "Zarafshan valley", 17.V.1869, "Jizzakh", VII.1870 (A. Fedtschenko) [Uzbekistan]; "Kostarash", 9.IX.1970 (A. Fedtschenko) [Tajikistan]; "Kyzylkum", 1871, "Bayrakum" 4.V.1871 (A. Fedtschenko) [Kazakhstan]
Material examined. 1-2, 11-13, 18-20, 22, 24, 27, 31-32, 36, 38, 46-62. leg. A.A.
Distribution. Armenia, Afghanistan, China, Georgia, Iran, Kazakhstan, Kyrgyzstan, Mongolia, southern Russia, Tajikistan, Turkmenistan, Uzbekistan.

9. Genus *Trichomyrmex* Mayr, 1865
9.1 *Trichomyrmex destructor* (Jerdon, 1851)
Atta destructor Jerdon, 1851: 105 (type-locality: [India]).
Material examined. 35-36, 47, 53, 55. leg. A.A.
Distribution. Native species in India. As an invasive species, it has spread to many countries of the world. Most of Africa and Australia, the Arabian Peninsula, part of Central Asia, some countries of South and North America.
Remarks. In Uzbekistan, it inhabits only natural landscapes, prefers sandy soils. It does not live in cities and is not harmful. The nuptial flight is observed in April-May. Mating occurs outside the nest. Females can establish new nests on their own. Ants from different nests are extremely aggressive towards each other. All this suggests that this species is native to Uzbekistan.

10. Genus *Cardiocondyla* Emery, 1869
10.1 *Cardiocondyla koshewnikovi* Ruzsky, 1902
Cardiocondyla koshewnikovi Ruzsky, 1902b: 480 (type-locality: "bank of Aral Sea, mouth of Syr Darya" [Kazakhstan]. Lectotype worker (by Seifert, 2003a: 266)).
Material examined. 58. leg. A.A.
Distribution. Kazakhstan, Kyrgyzstan, Mongolia, central and southern Russia, Tajikistan, Turkmenistan, Uzbekistan.

10.2 *Cardiocondyla sahlbergi* Forel, 1913
Cardiocondyla elegans var. sahlbergi Forel, 1913d: 429 (type-locality: "Jourdain (Palestine)" (U. Sahlberg) [Jordan]).
Distribution in Uzbekistan. Kashkadarya region, Nuristan, 1 ☿ (Zryanin, 2018)
Distribution. Armenia, Azerbaijan, Georgia, Iran, Israel, Jordan, Kazakhstan, southern Russia, Tunisia, Turkey, Uzbekistan.

10.3 *Cardiocondyla ulianini* Emery, 1889
Cardiocondyla elegans var. ulianini Emery, 1889b:20 (type-locality: "Turkestan" Radchenko, 2016: 235, implies that the type-locality is Uzbekistan. Lectotype worker (by Seifert, 2003a: 229)).
Material examined. 1-2, 55.
Distribution. Afghanistan, Azerbaijan, China, Iran, Kazakhstan, Kyrgyzstan, central and southern Russia, Saudi Arabia, Turkey, Ukraine, Uzbekistan.

Tribe Attini Smith, 1858

11. Genus *Pheidole* Westwood, 1839
11.1 *Pheidole koshewnikovi* Ruzsky, 1905
Pheidole pallidula subsp. koshewnikovi Ruzsky, 1905b: 648 (type-locality: Lectotype: "W shore Lake Balkhash", 20-21.VIII.1903 (L. Berg) (by Seifert, 2016b: 3) [Kazakhstan]).
Material examined. 1-13, 22-24, 29, 30, 35, 38, 45, 55, 61, 62. leg. A.A.
Distribution. Azerbaijan, Cyprus, Greece, Iran, Kazakhstan, Kyrgyzstan, central and southern Russia (Caucasus), Turkey, Uzbekistan.

Tribe Solenopsidini Forel, 1893

12. Genus *Solenopsis* Westwood, 1840
12.1 *Solenopsis deserticola* Ruzsky, 1905
Solenopsis deserticola Ruzsky, 1905b: 515 (type-locality: Samarkandskaya oblast, Khodzhent county, Golodnya steppe, 10.IV.1903 (Z.M.Ak.N.: Yakobson). [Tajikistan]).
Distribution in Uzbekistan. *Kashkadarya region:* Karshi city, 4☿, 26.IX.2017. (Zryanin, 2018).
Distribution. Armenia, Azerbaijan, Russia, Tajikistan, Turkmenistan, Uzbekistan.

Remarks. The species' type locality was described as "Turkestan, Samarkand region, Khodzhent county, Golodnya steppe 10.IV.1903. (Z. M. Ak. N.: Yakobson)". The city of Khodzhent is located on the territory of present-day Tajikistan and, until 1919, was a county in the Samarkand region. Therefore, its type-locality is not Uzbekistan but Tajikistan.

12.2 *Solenopsis fugax* (Latreille, 1798)
Formica fugax Latreille, 1798: 46 (type-locality: neotype (by Galkowski et al., 2010: 153). 45.0517°N, 1.5372°E, "Nespoules-Faugère", 330 m., 25.VIII.2008-1 (C. Galkowski). [France]).
Material examined. 1. leg. A.A.
Distribution. Afghanistan, Albania, Algeria, Armenia, Austria, Azerbaijan, Balearic Islands, Belarus, Belgium, Bulgaria, China, Croatia, Czechia, Denmark, France, Georgia, Germany, Gibraltar, Greece, Hungary, Iberian Peninsula, Iran, Israel, Italy, Kazakhstan, Kyrgyzstan, Latvia, Lithuania, Luxembourg, Malta, Montenegro, Netherlands, Poland, Portugal, Republic of Korea, North Macedonia, Moldova, Romania, Russian Federation, San Marino, Slovenia, Spain, Sweden, Switzerland, Turkey, Turkmenistan, Ukraine, United Kingdom, Uzbekistan.

12.3 *Solenopsis knuti* Pisarski, 1967
Solenopsis orbula subsp. knuti Pisarski, 1967a: 400 (type-locality: Kouh-Zarmast (A365), nr Maïmaneh, 870 m., 19.X.1957 (K. Lindberg). [Afghanistan]).
Distribution in Uzbekistan. *Kashkadarya region:* Darbant v., 14.IX.2017, 55☿, (Zryanin, 2018).
Distribution. Afghanistan, Tajikistan, Uzbekistan.

13. Genus *Monomorium* Mayr, 1855
13.1 *Monomorium barbatulum* Mayr, 1877
Monomorium barbatulum Mayr, 1877a: 17 (type-locality: "Habitat in desertis Kisil-kum" (A. Fedtschenko). [Kazakhstan and Uzbekistan]).
Material examined. 19-20, 47-51, 53-54, 63-66. leg. A.A.
Distribution. Afghanistan, Iran, Israel, Kazakhstan, Kyrgyzstan, Oman, southern Russia, Saudi Arabia, Turkmenistan, United Arab Emirates, Uzbekistan.

13.2 *Monomorium flavum* Collingwood, 1961
Monomorium (Monomorium) flavum Collingwood, 1961a: 62. (type-locality: "Istalif", 10.VII.48, (Haarløv). [Afghanistan]).
Distribution in Uzbekistan. *Surkhandarya region*: Uckyzyl sands, 11.IX.2017, 6☿, Darbant, 14.IX.2017, 41☿, Baysun, 14.IX.2017, 6☿. *Kashkadarya region*: Karshi, 07.IX.2017, 4☿. (Zryanin, 2018).
Distribution. Afghanistan, Turkmenistan, Uzbekistan.

13.3 *Monomorium kugitangi* Dlussky, 1990
Monomorium kugitangi Dlussky, 1990g: 236 (type-locality: "Bazar-Tepe, Kugitang", 14.IV.1989, (S. Zabelin). [Turkmenistan]).
Material examined. 45. leg. A.A.
Distribution. Turkmenistan, Uzbekistan.

13.4 *Monomorium kusnezowi* Santschi, 1928
Monomorium (Xeromyrmex) kusnezowi Santschi, 1928b: 42 (type-locality: 8 syntype workers. "Beiram (=Bayramaly", 7,11,18.iv.1923 (N. Kusnezow). [Turkmenistan]).
Material examined. 11, 18-20, 28-29, 36, 40-41, 44, 47, 50, 57, 61-62, 66-67. leg. A.A.
Distribution. Afghanistan, Iran, Turkey, Turkmenistan Uzbekistan.

13.5 *Monomorium ruzskyi* Dlussky & Zabelin, 1985
Monomorium (Xeromyrmex) ruzskyi Dlussky & Zabelin, 1985: 218. (type-locality: "River Sumbar Basin, SW Kopetdag". [Uzbekistan]).
Distribution in Uzbekistan. Uzbekistan. *Kashkadarya region*: "Varganza-Shakhrizyabs" (Dlussky & Zabelin) 1985
Distribution. Armenia, Azerbaijan, Iran, Georgia, Turkey, Turkmenistan, Uzbekistan.

SUBFAMILY DOLICHODERINAE FOREL, 1878

Tribe Tapinomini Emery, 1913

1.Genus *Tapinoma* Foerster, 1850
1.1 *Tapinoma erraticum* (Latreille, 1798)
Formica erratica Latreille, 1798: 44. (type-locality: neotype (by Seifert, 2012a: 144). 45.0517°N, 1.5372°E, "Nespouls-Fougère", 330

m. 2.VII.2008 (C. Galkowski). [France]).
Material examined. 34, 45. leg. A.A.
Distribution. Albania, Andorra, Armenia, Azerbaijan, Belarus, Belgium, Bulgaria, Croatia, Czechia, France, Georgia, Germany, Greece, Hungary, Iberian Peninsula, Iran, Israel, Italy, Kazakhstan, Kyrgyzstan, Liechtenstein, Lithuania, Luxembourg, Malta, Monaco, Netherlands, North Macedonia, Poland, Portugal, Moldova, Romania, Russian Federation, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkmenistan, Türkiye, Ukraine, United, Uzbekistan.

1.2 *Tapinoma karavaievi* Emery 1925
Tapinoma simrothi subsp. karavaievi Emery, 1925b: 52 (type-locality: "Turkestan" (Karavaev, Kusnezov), "Astraba" (Christoph). [Turkmenistan]
Material examined. 1, leg. A.A.
Distribution. Afghanistan, Armenia, Azerbaijan, Georgia, Iran, Iraq, Kazakhstan, Turkmenistan, Uzbekistan.

1.3 *Tapinoma sinense* Emery 1925
Tapinoma emeryanum Kuznetsov-Ugamsky, 1927d: 35, (type-locality: "Ak-Tash", 2400 m., 29.VI.1922 (N.N. Kuznetzov-Ugamskij**)**. [Uzbekistan]; "Steppe between Tamerlanovka and Bugun" (N.N. Kuznetzov-Ugamskij). [Kazakhstan]); "Steppe between Karkara and the v. Sarydzhas; Juuka forest cardon" (N.N. Kuznetzov-Ugamskij**)**. [Kyrgyzstan]).
Distribution. Kazakhstan, Kyrgyzstan, Mongolia, Russia, Uzbekistan.

Tribe Bothriomyrmecini Dubovikoff, 2005

2. Genus *Bothriomyrmex* Emery, 1869
2.1 *Bothriomyrmex kusnezovi* Emery, 1925
Bothriomyrmex kusnezovi Emery, 1925c: 12, (type-locality: "Syr Darya, Duany Tau Mts" (N. Kusnezov). [Kazakhstan]).
Distribution. China, Kazakhstan, Kyrgyzstan, Uzbekistan.

2.2 *Bothriomyrmex sp.*
Material examined. Near Lake Tuzkan, we found 2 individuals from this genus. However, we could not exactly identify the species. The samples are broken.

SUBFAMILY LEPTANILLINAE EMERY, 1910

Tribe Leptanillini Emery, 1910

1. Genus *Leptanilla* Emery, 1870
1.1 *Leptanilla alexandri* Dlussky, 1969
Leptanilla alexandri Dlussky, 1969b: 1667 (type-locality: "30 km. S Qarshi, Dzhanair tract", 23.VIII.1967 (V. Zherikhin). [Uzbekistan]
Distribution. Uzbekistan.

SUBFAMILY DORYLINAE LEACH, 1815

1. Genus *Lioponera* Mayr, 1879
1.1 *Lioponera desertorum* (Dlussky, 1990)
Cerapachys desertorum Dlussky, 1990: 177. (type-locality: "Dekhanabad", 12.V.1978, №78-76 (G. Dlussky). [Uzbekistan]).
Material examined. 49. leg. A.A.
Distribution. Turkmenistan, Uzbekistan.

SUBFAMILY PONERINAE LEPELETIER DE SAINT-FARGEAU, 1835

Tribe Ponerini Lepeletier de Saint-Fargeau, 1835

1. Genus *Hypoponera* Santschi, 1938
1.1 *Hypoponera eduardi* (Forel, 1894)
Ponera eduardi Forel, 1894d: 15 (type-locality: "Oran, Forêt de Msila", 1893 (A. Forel). [Algeria]).
Material examined. 1. leg. A.A.
A picture of a specimen is available on the website https://www.inaturalist.org/observations/187225794
Distribution. Native in North Africa and South Europe: Algeria, Bulgaria, Croatia, France, Georgia, Gibraltar, Greece, Hungary, Iberian Peninsula, Iran, Israel, Italy, Malta, Montenegro, Morocco, Portugal, Macedonia, Russia, Spain, Switzerland, Turkey.

Invasive: Chile, New Zealand, Saudi Arabia, South Africa, South Australia, United Arab Emirates, Uzbekistan.

1.2 *Hypoponera punctatissima* (Roger, 1859)
Ponera punctatissima Roger, 1859: 246 (type-locality: "Rauden (= Rudy, Opole Prov.)", in pineapple houses, under flower pots (J. Roger). [Poland]).

Material examined. 1. leg. Usmonov A.
Distribution. Native species in Africa. Invasive, it has spread across all continents.
Remarks. Initially, we found one individual of this species under a stone together with the workers of *Hypoponera eduardi* and mistakenly identified it as a light form of the latter. Afterwards, however, we collected four workers in another location in Tashkent, significantly different from *Hypoponera eduardi.* The main differences are as follows. *Hypoponera punctatissima* workers have shorter antennae, which do not reach the top of the head. The petiole in *Hypoponera punctatissima* is thicker and covered with spaced hairs. The eyes are usually smaller than those of *Hypoponera eduardi*. The body of *Hypoponera punctatissima* is a lighter colour and smaller.

Genus *Ponera* Latreille, 1804

1.1 *Ponera testacea* Emery, 1895
Ponera coarctata var. testacea Emery, 1895n: 62 (type-locality: lectotype (by Csősz & Seifert, 2003: 219) "Corsica, Bonifacio", 1872 (Revel) [France]).
Material examined. 1. leg. A.A.
A picture of a specimen is available on the website https://www.inaturalist.org/observations/187225302
Distribution. Austria, Azerbaijan, Belgium, Bulgaria, Croatia, Czech Republic, France, Germany, Greece, Hungary, Italy, Montenegro, Morocco, Poland, Portugal, Romania, southern Russia, Serbia, Slovakia, Slovenia, Spain, Switzerland, United Kingdom, Uzbekistan.
Remarks. Most probably, like *Hypoponera eduardi* (Akhmedov, 2018) that we discovered earlier on the territory of Tashkent, this is an invasive species that was brought to the Botanical Garden with plants.

DISCUSSION

Previously, 49 species, 19 genera, and five subfamilies of ants were identified in the most recent studies in Uzbekistan (Zryanin, 2018). The authors of this work confirmed the presence of 82 species in the territory of Uzbekistan, and 33 more species are known from literature sources. Therefore, a total of 114 species and one subspecies from 31 genera and six subfamilies currently are known from Uzbekistan. However, given the richness of the myrmecofauna in neighbouring countries and the omission of some territories from our study, the species diversity of ants in Uzbekistan is probably much higher.

In addition, some genera occurring in Central Asia (*Cataglyphis, Formica, Lepisiota, Messor, Proformica, Plagiolepis*, and *Tapinoma*) obviously require taxonomic revisions. For example, as mentioned earlier, the statuses of the species *Lepisiota frauenfeldi ferganica* (Kuznetsov-Ugamsky, 1929), *L. karawaiewi* (Kuznetsov-Ugamsky, 1929), *L. litoralis* (Kuznetsov-Ugamsky, 1929) and *L. surchanica* (Kuznetsov-Ugamsky, 1929) are not yet clear.

There is much controversy around the distribution and taxonomy of some Central Asian ant species. For example, there are several known subspecies of the *Messor structor* group in Uzbekistan (*M. structor turanicus* Kuznetsov-Ugamsky, 1927; *M. structor subpolitus* Kuznetsov-Ugamsky, 1927; *M. rufitarsis darianus* Pisarski, 1967), whose taxonomic status remains unresolved (Steiner et al., 2018).

Moreover, climate change has likely impacted the distribution range of some ant species. According to Dlussky (1981b), and Dlussky et al. (1990), the northern boundaries of the range distribution of *Camponotus xerxes* Forel, 1904, *Messor intermedius* Santschi, 1927, and *M. subgracilinodis* Arnoldi, 1970 reached the Karakum desert in Turkmenistan but did not cover the Kyzylkum desert in Uzbekistan. Our team, however, recorded these species in much of Uzbekistan's territory. Moreover, we observed these species in Kuljuktau Mountains and Karakata Depression, places explored by G. M. Dlussky, who did not detect these taxa during his fieldwork. Thus, most likely, these species' distribution range has expanded northwards over the past 40 years.

In this regard, we believe that the species composition of ants in Uzbekistan will change in the future.

Species excluded from the checklist

Formica litoralis Kuznetsov-Ugamsky, 1926
It was assigned to Uzbekistan, but all records of this species were made near Lake Issyk-Kul (Kyrgyzstan), described from the vicinity of Lake

Issyk Kul. Subsequently, Dlussky (1965) also cites a neotype from the vicinity of Issyk Kul. The distribution of this species near Lake Issyk-kul is well reflected in the publication of Seifert and Schultz (2009a).

Lepisiota litoralis (Kuznetsov-Ugamsky, 1929)

The locality associated with it "Karaktshi-kum village, banks of Syr-Darya river," (Kuznetsov-Ugamsky, 1929). The only known settlement named Karakchikum in Central Asia on the banks of the Syrdarya River is located in Tajikistan on the border with Uzbekistan. (40.246708°N 70.066791°E) We have not yet discovered this species in Uzbekistan.

Lepisiota spinisquama (Kuznetsov-Ugamsky, 1929)

On the website https://antmaps.org/?mode=species&species=Lepisiota.spinisquama, with a link to the work of Kuznetsov-Ugamsky, 1929 with an indication for Uzbekistan. However, in this work, the village of Kelte-Mashat in the foothills of the western Tien Shan is indicated as the place of description. The village of Keltemashat (42.467775° 70.025524°) is located on the territory of Kazakhstan at a considerable distance from Uzbekistan. Thus, there are no reliable finds of this species on the territory of Uzbekistan yet.

Proformica dolichocephala Kuznetsov-Ugamsky, 1927

This species is listed as present in Uzbekistan on AntWeb (https://antweb.org) based on specimens collected by Kuznetsov-Ugamsky (ANTC35744, ANTWEB-casent0912271). However, their labels indicate that the material was collected in "Turkestan 260 km nördlich von Taschkent" (260 km north of Tashkent), which is the territory of Kazakhstan. Thus, to the best of our knowledge, this species was not recoded previously from Uzbekistan.

Myrmica ferganensis Finzi, 1926

The presence of this species in Uzbekistan is also currently very doubtful, since literature sources do not provide any reliable proof thereon. Finzi (1926) escribes this view from the Ferghana Range, the vicinity of Kirghiz Ata river in Kyrgyzstan. Karavaev (1916) describes this species from the same area. In Central Asia, this species has been recorded in Kazakhstan, Kyrgyzstan and Tajikistan (Radchenko & Elmes, 2010).

Messor inermis Kuznetsov–Ugamsky, 1929

Was noted from Uzbekistan by He & Song (2009), while so far, it has reliably been recorded only from Kazakhstan, Kyrgyzstan (Kuznetsov-Ugamsky, 1929; Schultz et al., 2006), and China (He & Song, 2009; Guénard & Dunn, 2012). Based on the lack of material confirming its presence in Uzbekistan, we consider it as absent in this country.

Messor orientalis (Emery, 1898)

Primary type localities: Mersina (*M. Holtz*), Sarepta (*Christoph*), Tiflis (*Christoph*), and Syr-Darya (*Stenroos*). The latter location was understood as the territory of Turkmenistan or Uzbekistan. AntCat under https://www.antcat.org/catalog/440157 ?qq=Messor+orientalis. More research is needed. The Syrdarya River originates in the Fergana Valley in Uzbekistan, at the confluence of the Naryn and Karadarya rivers. Next, the Syrdarya River flows through Tajikistan, then Uzbekistan and Kazakhstan, and reaches the northern basin of the Aral Sea. Most of the Syrdarya River is located in Kazakhstan. The Syrdarya River does not flow on the territory of Turkmenistan, so we do not understand why it is listed as a distribution of this species. For Uzbekistan, this species is indicated by Karavaev (1911a), from Samarkand. However, in the review of harvestman ants of the genus *Messor* Arnoldi (1977), it is not specified for Central Asia. In our opinion, this is a Mediterranean species, which in Central Asia is confused with species from the Messor structor group We hope that our more detailed research will help resolve this issue in the future.

Table 1. List of myrmecologists working on Central Asian ants, years of scientific activity, and species described by them from Uzbekistan (Central Asia).

Author	Years of activity	Regions	The described species inhabit the territory of Uzbekistan.
Mayr G.	1869-1877	"Turkestan" Central Asia	*Alloformica aberrans, Aphaenogaster rhaphidiiceps, Camponotus interjectus, Camponotus fedtschenkoi, Cataglyphis pallida, Crematogaster subdentata, Tetramorium inerme, Tetramorium striativentre, Monomorium barbatulum.*
Ruzsky, M.D	1902-1907	"Turkestan" Central Asia	*Cardiocondyla koshewnikovi, Messor aralocaspius, Myrmica bergi, Lepisiota semenovi, Messor excursionis, Myrmica salina, Pheidole koshewnikovi, Solenopsis deserticola*
Kuznetsov-Ugamsky, N.N	1923-1929	"Turkestan" Central Asia	*Lepisiota litoralis Messor clypeatus, Messor variabilis, Messor vicinus, Proformica nitida, Proformica coriacea, Proformica dolichocephala, Proformica epinotalis.*
Arnol'di, K. V.	1964-1975	USSR	*Camponotus reichardti, Cataglyphis piligera, Cataglyphis oxiana, Messor lamellicornis, Messor kisilkumensis, Messor subgracilinodis, Myrmica juglandeti, Stenamma sogdianum, Stenamma picetojuglandeti.*
Dlussky, G. M	1964-1990	USSR. Arid zones of Turkmenistan and Uzbekistan.	*Formica mesasiatica, Leptanilla alexandri, Lioponera desertorum, Monomorium ruzskyi, Monomorium kugitangi, Proformica splendida, Tetramorium feroxoides, Temnothorax desertorum, Tetramorium kisilkumense.*
Radchenko, A.G	1991-present time	Palearctic	*Strongylognathus minutus, Tetramorium vernicosum.*

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