

New data and corrections to the fauna of bees of the family Apidae (Hymenoptera) of Russia

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Новые данные и уточнения по фауне пчел семейства Apidae (Hymenoptera) России

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Abstract. An annotated list of 62 species of bees recorded from Russia is given. The new species, *Nomada obscuriceps* Schwarz et Levchenko, **sp. n.**, is described from Irkutsk Province. New distribution data in regions of Russia is given for 59 and for other areas of former USSR territory is presented for four species. The most northerly distribution range for *Nomada bluethgeni* Stöckert, 1944 and *N. mutabilis* Morawitz, 1871 is published. Doubtful and questionable distribution records of Apidae in Russia are discussed, including seven species erroneously reported from Russia.

Key words. Biodiversity, new records, distribution range, taxonomy, Palearctic region.

Резюме. Приведен аннотированный список 62 видов пчёл семейства Apidae России. Новый вид *Nomada obscuriceps* Schwarz et Levchenko, **sp. n.** описан из Иркутской области. Для 59 видов указаны новые данные по распространению в регионах России и для 4 видов – новые данные по распространению в странах бывшего СССР. Опубликованы самые северные точки ареалов *Nomada bluethgeni* Stöckert, 1944 и *N. mutabilis* Morawitz, 1871. Проанализированы ошибочные и сомнительные указания по распространению пчёл семейства Apidae в России, включая 7 ошибочно отмеченных для России видов.

Ключевые слова. Биоразнообразие, новые находки, распространение, таксономия, Палеарктика.

Introduction

Approximately 1200 species of bees (Hymenoptera: Apoidea: Apiformes) are recorded from the territory of modern Russia, and about a third of it belonged to the family Apidae (Proshchalykin, Astafurova, 2017). It is not the final tally and much researches are still needed in the vast museum collections as well as in the nature. As a result of the preliminary survey combined with an analysis of the literature, 14 new Apidae species have been added to the fauna of Russian bees by authors (Proshchalykin et al., 2017). In this paper we present further material on the distribution of the bees family Apidae in Russia.

The most of material used in this paper is deposited in the Zoological Institut of the Russian Academy of Sciences (St Petersburg; ZISP), and in the annotated list below those specimens are given without any special acronym. Where specimens are deposited in other collections the following acronyms are used: FSCV – Federal Scientific Centre of East Asian Terrestrial Biodiversity (former Institute of Biology and Soil Science), Vladivostok, Russia; NSU – Novosibirsk State University collection, Novosibirsk; PCMS – private collection of Maximilian Schwarz, Ansfelden, Austria; ZMMU – Zoological Museum of Moscow University, Moscow, Russia. M. Schwarz collection will be deposited in the Biological Center in Upper Austria State Museum (Biologiezentrum, Oberösterreichisches Landesmuseum), Linz, Austria. New regional records are indicated with an asterisk (*).

The identification of *Nomada* Scopoli species with additional records of 30 species from the total 61 has been made by M. Schwarz in the collection of ZISP. All work on the genus *Bombus* Latreille has been made by A. Byvaltsev. Very substantial work has been made by A. Sitdikov on *Eucera* Scopoli and by A. Ponomareva on *Anthophora* Latreille and *Amegilla* Friese in the ZISP collection, but the results of work on these three genera have not yet been published. An analysis of the distribution ranges of all species, excluding *Bombus*, and identification of additional genera and of the specimen of *N. mutabilis* Morawitz from Kirov Province have been made by T. Levchenko.

List of species

Ceratina cucurbitina (Rossi, 1792)

Material examined. Bryansk Prov.: Pohep, 52°56' N, 33°27' E, 18.VII.1937 (I. Baskakov), 1 ♀ (ZMMU); Krasnodar Terr.: Lazarevskoye, 43°55' N, 39°20' E, 12.VII.1937 (K. Popov), 1 ♀ (ZMMU); Sochi, 43°35' N, 39°43' E, 12.VI (N. Filipov), 1 ♂ (ZMMU).

Distribution. Russia: European part (*Bryansk Prov., Krasnodar Terr., Crimean Rep.). – Europe from France and Portugal to Slovakia and Greece, North Africa from Morocco to Tunisia, Azerbaijan, Turkey, Israel, Jordan, China (Zhejiang) (Daly, 1983; Wu, 2000; Filatov, 2003; Aliev, Quamarli, 2010; Grace, 2010).

Note. Records for Krasnodar Terr., the Black Sea coast, are mapped at Atlas Hymenoptera (<http://www.atlashymenoptera.net/page.asp?id=192>), but examined material has not yet been published.

Nomada alboguttata Herrich-Schäffer, 1839

Material examined. Crimea Rep.: Salgir, 44°53' N, 34°11' E, 22.IV.1899 (A. Bazhenov), 1 ♂; Sevastopol, 44°36' N, 33°32' E, 1926, 1 ♀.

Distribution. Russia: European part from Karelia to Rostov Prov. and *Crimea Rep., S Ural (Bashkortostan), Krasnoyarsk and Kamchatka Terr. – Europe up to 70° N, Georgia, Azerbaijan, Japan (Levchenko, 2013; Proshchalykin, Schwarz, 2017).

Nomada bluethgeni Stöckert, 1944

Material examined. Ryazan Prov.: Gremyachka, 53°29' N, 39°31' E, 29.VI.1900 (A. Semenov-Tyan-Shansky), 1 ♀; Volgograd Prov.: Krasnoarmeysk district of Volgograd (Sarepta), 48°30' N, 44°33' E (F. Morawitz), 2 ♀; Rostov Prov.: Proletarskiy, 46°42' N, 41°43' E, 25.V.1967 (Yu. Pesenko), 2 ♀; Persiyanskiy, 47°31' N, 40°06' E, 6.VI.1971, 1 ♀, 14.VI.1971 (Yu. Pesenko), 1 ♂, Bagaevskaya, 47°19' N, 40°23' E, 9.V.1970, 1 ♂, 10.V.1970 (Yu. Pesenko), 1 ♂; Crimea Rep.: Karatau, 44°51' N, 34°29' E (Vitgalm), 1 ♂; Krasnodar Terr.: Slavianskiy, 44°41' N, 40°31' E, 17.VI.1938 (V. Rudolf), 1 ♀.

Distribution. Russia: European part (Ryazan, *Rostov and Volgograd Prov., *Crimea Rep.), North Caucasus (Krasnodar Terr.). – Europe from south to Thuringia, Azerbaijan (Stöckert, 1944; Aliev, 2011).

Note. The record from Ryazan Prov. is the most northerly in the distribution range of this species.

Nomada braunsiana Schmiedeknecht, 1882

Material examined. Tambov Prov.: Michurinsk (former Kozlov), 52°53' N, 40°29' E (Lange), 1 ♂; Rostov Prov.: Rostov-on-Don, 47°14' N, 39°42' E, 21.V.1967 (Yu. Pesenko), 1 ♂; Crimea Rep.: Simferopol, 44°57' N, 34°16' E, 7.VII.1898, 1 ♀.

Distribution. Russia: European part (*Tambov and *Rostov Prov., *Crimea Rep.), North Caucasus (Stavropol Terr.). – Europe from France and Spain to Poland (53° N) and Greece, Turkey, Jordan (Celary, 1995; Grace, 2010).

***Nomada castellana* Dusmet, 1913**

Material examined. Yaroslavl Prov.: Berditsyno, 57°27' N, 40°06' E, 7.VI.1908 (A. Yakovlev), 1 ♂; Ryazan Prov.: Gremyachka, 53°29' N, 39°31' E, 12.VI.1900, 1 ♂, 15.VI.1900, 1 ♀, 22.VI.1900 (A. Semenov-Tyan-Shansky), 1 ♀; Belgorod Prov.: Borisovka, 50°36' N, 36°01' E, 2.VI.1904 (S. Malyshev), 1 ♀; *ibid.*, 19.V.1959 (Y.-R. Wu), 1 ♂; Rostov Prov.: Persiyanovskiy, 47°31' N, 40°06' E, 11.V.1971 (Yu. Pesenko), 1 ♂.

Distribution. Russia: European part (Kirov, *Yaroslavl, Moscow, *Ryazan, *Belgorod and *Rostov Prov.), E Siberia (Irkutsk Prov.). – Europe from Belgium and Spain to Lithuania and Romania, Azerbaijan, Kazakhstan (Levchenko, 2013; Levchenko, Yuferev, 2013).

***Nomada cruenta* Schmiedeknecht, 1882**

Material examined. Rostov Prov.: Bagaevskaya, 47°19' N, 40°23' E, 1.VI.1970 (Yu. Pesenko), 3 ♂, Persiyanovskiy, 47°31' N, 40°06' E, 17.VI.1971 (Yu. Pesenko), 1 ♂; Crimea Rep.: Sevastopol, 44°36' N, 33°32' E, 4.VI.1909 (W. Pliginski), 1 ♀.

Distribution. Russia: south of the European part (*Rostov Prov., Crimea Rep.). – Europe from Spain to Greece in the south and to Czech Rep. in the north, Azerbaijan, Turkey. (Paglianom, 1994; Grace, 2010; Aliev, 2011; Filatov, 2013).

***Nomada erythrocephala* Morawitz, 1871**

Material examined. Volgograd Prov.: Krasnoarmeysk district of Volgograd (Sarepta), 48°30' N, 44°33' E (F. Morawitz), 4 ♀; Dagestan Rep.: Derbent, 42°04' N, 48°17' E (F. Morawitz), 1 ♂.

Distribution. Russia: south of the European part (Volgograd Prov.), North Caucasus (*Dagestan Rep.). – South of Europe up to Romania, Armenia, Turkey, Cyprus (Gurvich, 1931; Ban-Calefariu, 2006; Grace, 2010; Aliev, 2011).

***Nomada femoralis* Morawitz, 1869**

Material examined. Bryansk Prov.: Velikaya Topal', 52°32' N, 32°21' E, 11.VIII.1968 (V. Gorbatovskiy), 1 ♀; Crimea Rep.: Sevastopol, 44°36' N, 33°32' E, 18.IV.1908 and 7.V.1917 (W. Pliginski), 2 ♀.

Distribution. Russia: European part (*Bryansk and Perm Prov., Crimea Rep.). – Europe up to Lithuania, North Africa (Tunisia), Azerbaijan, Turkey, Syria, Palestine, Iran (Celary, 1995; Lykov, 2000, Filatov, 2006; Grace, 2010; Aliev, 2011).

***Nomada fuscicornis* Nylander, 1848**

Material examined. Saint Petersburg: Lesnoye, 59°59' N, 30°20' E, 2.VII.1864 (F. Morawitz), 4 ♀; Yaroslavl Prov.: Berditsyno, 57°27' N, 40°06' E, 11.VII.1894 (A. Yakovlev), 1 ♂; Belgorod Prov.: Borisovka, 50°36' N, 36°01' E, 1.VIII.1916 (S. Malyshev), 1 ♀; North Ossetia Rep.: Vladikavkaz, 43°01' N, 44°41' E (F. Morawitz), 1 ♀.

Distribution. Russia: European part up to Karelia, North Caucasus (*North Ossetia Rep.), S Ural (Bashkortostan), W Siberia (Tomsk Prov., Altai Terr.). – Europe up to 64° N (Elfving, 1968; Levchenko, 2013; Proshchalykin, Schwarz, 2017).

***Nomada goodeniana* (Kirby, 1802)**

Material examined. Kostroma Prov.: Kostroma, 57°46' N, 40°56' E, 26.IV.1920, 1 ♀; Nizherorodskaya Prov.: vicinity of Pavlov, Volchikha, 55°57' N, 43°05' E, 1894 (A. Yakovlev), 1 ♀; Belgorod Prov.: Borisovka, 50°36' N, 36°01' E, 3.IV.1906 (S. Malyshev), 1 ♀; Tatarstan: Kazan, 55°47' N, 49°07' E (F. Morawitz), 1 ♀; Volgograd Prov.: Krasnoarmeysk district of Volgograd (Sarepta), 48°30' N, 44°33' E (F. Morawitz), 1 ♂; *ibid.*, 18.IV.1907 (M. Koch), 1 ♂; Orenburg Prov.: Orenburg, 51°46' N, 55°06' E, 18.IV.1925 (P. Vorontsovskiy), 1 ♂.

Distribution. Russia: European part from Karelia to *Volgograd Prov., Crimea Rep., S Ural (Bashkortostan), W Siberia (Tomsk Prov., Altai Terr.), E Siberia (Irkutsk Prov.). – Europe up to 63° N, Azerbaijan, Turkey, Kyrgyzstan, Kazakhstan (Elfving, 1968; Filatov, 2006; Grace, 2010; Levchenko, 2013; Proshchalykin, Schwarz, 2017).

***Nomada gutturalata* Schenck, 1861**

Material examined. Ryazan Prov.: Gremyachka, 53°29' N, 39°31' E, 15.VI.1909 (A. Semenov-Tyan-Shansky), 1 ♀; Tambov Prov.: Michurinsk (former Kozlov), 52°53' N, 40°29' E (Lange), 1 ♀; Volgograd Prov.: Krasnoarmeysk district of Volgograd (Sarepta), 48°30' N, 44°33' E (Backer), 1 ♀; Dagestan Rep.: Derbent, 42°04' N, 48°17' E (F. Morawitz), 1 ♀; Orenburg Prov.: Orenburg, 51°46' N, 55°06' E, 6.V.1924 (P. Vorontsovskiy), 1 ♀.

Distribution. Russia: European part from Moscow Prov. and Udmurtia to *Volgograd Prov., North Caucasus (*Dagestan Rep.), S Ural (Bashkortostan, Orenburg Prov.), Khakassia Rep., Primorskiy Terr. – Europe up to 58° N, Kazakhstan, Japan (Levchenko, 2013; Proshchalykin, Schwarz, 2017).

***Nomada hungarica* Dalla Torre et Friese, 1894**

Material examined. Volgograd Prov.: Krasnoarmeysk district of Volgograd (Sarepta), 48°30' N, 44°33' E (Backer), 2 ♂.

Distribution. Russia: south of the European part (*Volgograd Prov.), S Ural (Bashkortostan). – Europe (Hungary, Greece), Turkey (Nikiforuk, 1957; Alexander, Schwarz, 1994; Grace, 2010).

***Nomada immaculata* Morawitz, 1874**

Material examined. Volgograd Prov.: Krasnoarmeysk district of Volgograd (Sarepta), 48°30' N, 44°33' E (Backer), 2 ♀, 2 ♂; Dagestan Rep.: Derbent, 42°04' N, 48°17' E (F. Morawitz), 1 ♂.

Distribution. Russia: south of the European part (*Volgograd Prov.), North Caucasus (Dagestan Rep.). – Europe (Hungary, Greece), Armenia, Cyprus, Afghanistan, Pakistan (Gurvich, 1931; Schwarz, 1980; Alexander, Schwarz, 1994; Grace, 2010; Józán, 2011).

Note. The female of *Nomada immaculata* Morawitz, 1874 collected by D.M. Glasunow in Dshisak (now Jizzak), the centre of Jizzakh Region, Uzbekistan (Morawitz, 1893), belongs to *Nomada caspia* Morawitz, 1894 (= *Nomada graeca* Schwarz, 1967) (Schwarz, 1980), widespread in Greece, Turkey, Israel (Grace, 2010) and the south-west Turkmenistan coast of the Caspian Sea (Chikishlyar) (Gurvich, 1931).

***Nomada integra* Brülle, 1832**

Material examined. Leningradskaya Prov.: Nikolskoe (former Sivoritsy), 59°29' N, 30°00' E, 17.VI. & 4.VII.1920 (Birulya), 2 ♀; Yaroslavl Prov.: Berditsyno, 57°27' N, 40°06' E, 19.VI.1897 & 3.VI.1906 (A. Yakovlev), 1 ♀, 1 ♂; Tambov Prov.: Michurinsk (former Kozlov), 52°53' N, 40°29' E (Lange), 2 ♀; Rostov Prov., Volgodonsk, 47°32' N, 42°12' E, 8.VI.1967 (Yu. Pesenko), 1 ♂.

Distribution. Russia: European part from *Leningradskaya and Kirov Prov. to Rostov Prov., S Ural (Bashkortostan), North Caucasus (Stavropol Terr., Karachay-Cherkess Rep.), E Siberia (Krasnoyarsk Terr.). – Europe from Norway to Portugal and Greece, North Africa (Morocco, Algeria, Tunisia), Caucasus, Turkey, Cyprus, Israel, Kazakhstan (Nikiforuk, 1957; Schwarz, 1967b; Pesenko, 1974; Dathe, 1980; Chenikalova, 2005; Levchenko, 2013; Levchenko, Yuferev, 2013; Proshchalykin, Schwarz, 2017).

***Nomada italica* Dalla Torre et Friese, 1894**

Material examined. Belgorod Prov.: Borisovka, 50°36' N, 36°01' E, 17.VI.1907 (S. Malyshev), 1 ♀; Orenburg Prov.: Orenburg, 51°46' N, 55°06' E, 2.V.1925, 18.VIII & 3.IX.1928 (P. Vorontsovskiy), 3 ♀, 1 ♂.

Distribution. Russia: European part (*Belgorod and Lipetsk Prov.), S Ural (*Orenburg Prov.), W Siberia (Altai Terr.), E Siberia (Krasnoyarsk Terr., Khakassia and Buryatia Rep.). – Europe up to 54° N in Poland, Azerbaijan, Turkey, Kazakhstan (Kuznetsova, 1990; Celary, 1995; Mitai, Tadauchi, 2008; Grace, 2010; Proshchalykin, Schwarz, 2017).

***Nomada kohli* Schmiedeknecht, 1882**

Material examined. Ryazan Prov.: Gremyachka, 53°29' N, 39°31' E, 3.VIII.1908 (A. Semenov-Tyan-Shansky), 1 ♂; Volgograd Prov.: Krasnoarmeysk district of Volgograd (Sarepta), 48°30' N, 44°33' E, 20.VI.1907 (M. Koch), 1 ♂; Crimea Rep.: Simferopol, Djen Safu, 44°55' N, 34°09' E, 26.VI.1909 (A. Bazhenov), 1 ♂; Staryi Krym, 45°01' N, 35°05' E, 9.VII.1904 (D. Rasumov), 1 ♂; Krasnodar Terr.: Sochi, Razdol'noie, 43°35' N, 39°46' E, 20.VIII.1926 (A. Shestakov), 1 ♂; Dagestan Rep.: Derbent, 42°04' N, 48°17' E (Backer), 1 ♂.

Distribution. Russia: European part (*Ryazan and *Volgograd Prov., Crimea Rep.), North Caucasus (*Krasnodar Terr., *Dagestan Rep.). – Europe (south part up to France and Czech Republic), North Africa (Algeria) (Pagliano, 1994; Filatov, 2006; Straka et al., 2007).

***Nomada lathburiana* (Kirby, 1802)**

Material examined. Yaroslavl Prov.: Berditsyno, 57°27' N, 40°06' E, 16.V.1926 (A. Yakovlev), 2 ♂; Volgograd Prov.: Krasnoarmeysk district of Volgograd (Sarepta), 48°30' N, 44°33' E, 24.IV.1907 (M. Koch), 4 ♂; Karachay-Cherkess Rep.: Teberda, 43°27' N, 41°45' E, 27.VI.1935 (L. Arends), 1 ♂.

Distribution. Russia: European part from Karelia and Komi to Volgograd Prov., North Caucasus (*Karachay-Cherkess Rep.), S Ural (Bashkortostan), W Siberia (Tumen and Tomsk Prov., Altai Terr.), E Siberia (Khakassia and Tyva Rep., Krasnoyarsk Terr., Irkutsk Prov., Buryatia, Yakutia, Zabaykalskiy Terr.). – Europe up to 64° N in Finland, Caucasus, Kazakhstan (Elfvig, 1968; Levchenko, 2013; Proshchalykin, Schwarz, 2017).

***Nomada leucophthalma* (Kirby, 1802)**

Material examined. Leningradskaya Prov.: Roshchino, 60°14' N, 29°36' E, 15.V.1982 (V. Trjapitzin), 1 ♂; Yaroslavl Prov.: Godenovo, 56°58' N, 39°27' E (A. Shestakov), 1 ♂; Volgograd Prov.: Krasnoarmeysk district of Volgograd (Sarepta), 48°30' N, 44°33' E (F. Morawitz), 1 ♀ *ibid.*, 15.IV.1907 (Backer), 1 ♂.

Distribution. Russia: European part from Murmansk Prov. and Komi to *Volgograd Prov., W Siberia (Tomsk Prov.), E Siberia (Yakutia), Far East (Primorskiy and Kamchatka Terr.). – Europe up to 69° N, Kazakhstan, Mongolia, Japan. (Elfvig, 1968; Levchenko, 2013).

***Nomada lutea* Eversmann, 1852**

Material examined. Crimea Rep., Dzhankoy, 45°42' N, 34°23' E, 7.VII.1926 (V. Kuznetsov), 3 ♂.

Distribution. Russia: south of the European part (*Crimea Rep.), S Ural (Orenburg Prov., Spassk). – Kazakhstan (Eversmann, 1852; Schwarz, 1980).

***Nomada moeschleri* Alfken, 1913**

Material examined. Leningradskaya Prov.: Nikolskoe (former Sivoritsy), 59°29' N, 30°00' E, 4.VII.1920 (Birulya), 1 ♀; Orenburg Prov.: Orenburg, 51°46' N, 55°06' E, 6.V.1924 (P. Vorontsovskiy), 2 ♂.

Distribution. Russia: European part from Kaliningrad and Kirov Prov. to Penza Prov., S Ural (*Orenburg Prov.), E Siberia (Krasnoyarsk Terr., Irkutsk Prov., Zabaykalskiy Terr.). – Europe to the east of Sweden and Switzerland and up to 61° N, Azerbaijan, Uzbekistan, Kazakhstan (Celary, 1995; Aliev, 2011; Shibaev, Polumordvinov, 2012; Levchenko, 2013; Proshchalykin, Schwarz, 2017).

***Nomada mutabilis* Morawitz, 1871**

Material examined. Kirov Prov.: Kirov, 58°36' N, 49°39' E, VII.1940, Apiaceae (V. Telov), 1 ♂; Volgograd Prov.: Krasnoarmeysk district of Volgograd (Sarepta), 48°30' N, 44°33' E (Backer), 2 ♀, 1 ♂; Crimea Rep.: Kerch, 45°20' N, 36°28' E, 15.V.1917 (V. et E. Kuznetsov), 1 ♂; Orenburg Prov.: Orenburg, 51°46' N, 55°06' E, 26.V.1925, 1 ♂, 12, 14, 24.VII.1928 (P. Vorontsovskiy), 3 ♀.

Distribution. Russia: European part from Moscow and *Kirov Prov. to Crimea Rep. and Volgograd Prov., S Ural (Bashkortostan), E Siberia (Khakassia Rep., Irkutsk Prov.). – Europe up to Denmark and Lithuania, North Africa, Georgia, Azerbaijan, Turkey, Iran, Turkmenistan, Kyrgyzstan, Kazakhstan, Nepal, India (Filatov, 2006; Grace, 2010; Levchenko, 2013; Proshchalykin, Schwarz, 2017).

Note. The record of *N. mutabilis* from Kirov Prov. at 58° N is the most northerly in the distribution range of this species.

***Nomada noskiewiczzi* Schwarz, 1966**

Material examined. Krasnodar Terr.: Krasnaya Polyana, 43°40' N, 40°12' E, 30.VI. & 3.VII.1909 (M. Yakovlev) 4 ♀.

Distribution. Russia: east of European part (Udmurtia), North Caucasus (*Krasnodar Terr.). – Europe (Austria, Hungary, Czech Republic, Slovakia) (Levchenko, 2013).

***Nomada obscuriceps* Schwarz et Levchenko, sp. n.**

Description. Female (Figs 1–6). Similar to *Nomada alpigena* Schwarz, Gusenleitner et Mazzucco, 1999 (Schwarz et al., 1999) including the presence of only two submarginal cells in the forewing. Both species also share a similar shape to the narrow pronotal collar with a carinate anterior margin.

Antennae shorter than in *N. alpigena*. Segment 3 slightly shorter than segment 4 (relative length relationship 10 : 11); segments 5 to 9 gradually becoming relatively shorter: relative width : length relationship is 7 : 10 in segment 5 becoming 9 : 10 in segment 9. Antennae slightly clubbed. In *N. alpigena*, the antennal segments are longer and the third and fourth segments are of equal length.

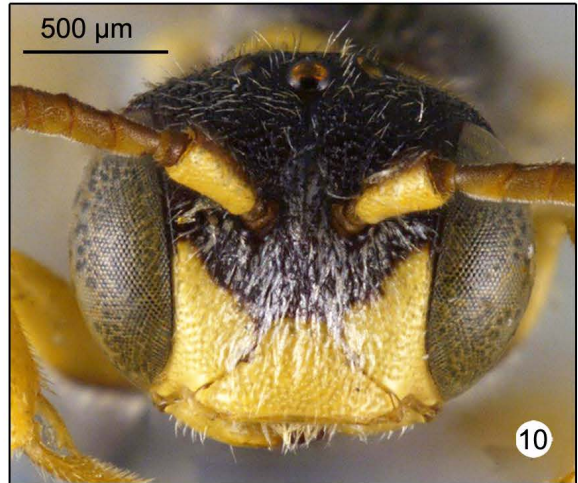
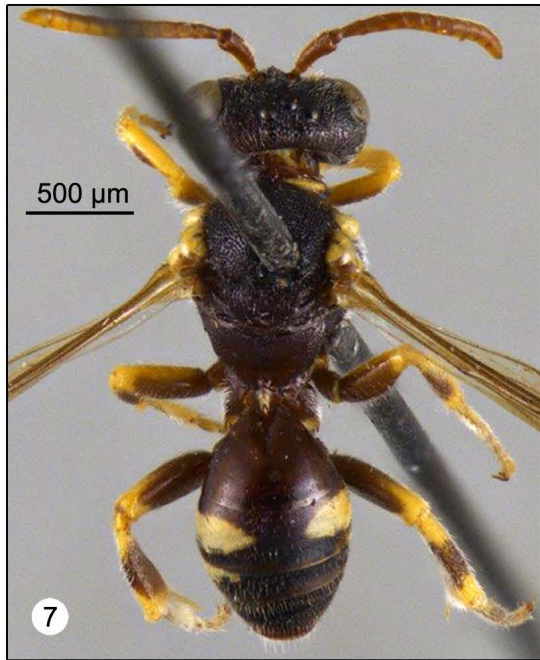
The frons and vertex of new species has scattered punctures, usually separated by smooth and shining interspaces twice the diameter of a puncture. In *N. alpigena*, the puncturation on frons and vertex is as coarse and dense as that on the



Figs 1–6. *N. obscuriceps* Schwarz et Levchenko, **sp. n.**, female, holotype. 1, 2 – habitus (1 – dorsal view, 2 – lateral view); 3 – apex of tibia 3; 4, 5 – head; 6 – antenna.

mesonotum, with sub-contiguous punctures. Punctuation of tergites is finer and more scattered in *N. obscuriceps* **sp. n.** as compared with *N. alpigena*, particularly so on tergite 2.

The new species is conspicuously darker than *N. alpigena*. Brownish and quite bright areas are: mouthparts, clypeus, antennae, pronotum, pronotal lobes, tegulae, tubercles of scutellum, postscutellum, propodeum, tergites 1, 2 and 5, and legs. Tergite 2 with small, lateral yellow spot on each side. In *N. alpigena*, the large, cushion-like scutellum and the postscutellum



Figs 7–12. *N. obscuriceps* Schwarz et Levchenko, **sp. n.**, male, paratype. 7, 8 – habitus (7 – dorsal view, 8 – lateral view); 9 – genitalia; 10, 11 – head; 12 – antenna.

are light red, tergites 1 and 2 reddish; a narrow reddish-yellow band on the distal side of disc of tergite 1; tergite 2 with one large and tergite 3 with one small yellow lateral spot on each side; tergite 5 with a large median yellowish maculation; tibia 3 mostly with three short, inconspicuous dark thorn-like setae and a somewhat longer light bristle close to the apex. Metatarsus 3 slightly conical, narrowing towards the apex (parallel-sided in *N. alpigena*).

Length: 4.0 mm.

Male (Figs 7–12). Clearly distinguished from *N. alpigena* by longer antennal segments and a more scattered puncturation on frons and vertex. In particular the punctures on the frons close to the antennal sockets are separated by smooth shining interstices of up to one puncture diameter in size (puncturation in *N. alpigena* very dense with practically contiguous punctures). The light colouration is somewhat reduced; scutellum and postscutellum black (scutellum of *N. alpigena* with reddish tubercles). The metatarsus of the hind legs conically narrows towards the apex, whereas it is flatter and parallel-sided in *N. alpigena*.

Length: 4.0 mm.

Type material. Holotype: Irkutsk Prov., Irkutsk, 52°17' N, 104°18' E, 9.VI.1979 (M. Kraus), 1 ♀ (PCMS).

Paratypes. Udmurtia: Izhevsk, 56°51' N, 53°13' E, 26.VII.1979 (A. Sitdikov), 1 ♀ (ZISP), Irkutsk Prov.: Irkutsk, 52°17' N, 104°18' E (V. Yakovlev), 1 ♀ (ZISP); *ibid.*, 9.VI.1979 (M. Kraus), 1 ♀, 1 ♂ (PCMS).

***Nomada opaca* Alfken, 1913**

Material examined. Leningradskaya Prov.: Popovka, 59°40' N, 30°42' E (L. Wolmann), 1 ♀.

Distribution. Russia: north-west of European part (*Leningradskaya Prov., Karelia), E Siberia (Irkutsk Prov.), Far East (Primorskiy Terr.). – Europe from Sweden, Belgium and Switzerland to Finland, Lithuania, and Slovenia (Elfving, 1968; Celary, 1995; Gogala, 1999; Proshchalykin, Schwarz, 2017).

***Nomada pectoralis* Morawitz, 1877**

Material examined. Stavropol Terr.: Manych, 45°59' N, 43°31' E, 29.V.1926 (V. Belizin), 1 ♂.

Distribution. Russia: European part (Lipetsk and Rostov Prov.), North Caucasus (*Stavropol Terr.), S Ural (Bashkortostan). – Azerbaijan, Turkmenia (Gurvich, 1931; Nikiforuk, 1957; Pesenko, 1974; Schwarz, 1980; Kuznetsova, 1990).

***Nomada posthuma* Blüthgen, 1949**

Material examined. Kursk Prov.: Kursk, 51°43' N, 36°11' E, 8.V.1907 (S. Malyshev), 2 ♀, 3 ♂.

Distribution. Russia: European part (*Kursk Prov.), E Siberia (Irkutsk Prov.), Far East (Primorskiy Terr.). – Europe (Switzerland, Germany, Austria, Hungaria, Poland), Nepal (Alexander, Schwarz, 1994; Amiet et al., 2007; Scheuchl, 2008; Proshchalykin, Schwarz, 2017).

Note. The species is reported from „European USSR” (Scheuchl, 2008) without specific location. Precise material from the European part of Russia is published here for the first time.

***Nomada sexfasciata* Panzer, 1799**

Material examined. Yaroslavl Prov.: Berditsyno, 57°27' N, 40°06' E, 20.V.1892 & 29.VI.1908 (A. Yakovlev), 1 ♀, 2 ♂; Ryazan Prov.: Gremyachka, 53°29' N, 39°31' E, 13.VI.1909 (A. Semenov-Tyan-Shansky), 1 ♂; Kursk Prov.: Kursk, 51°43' N, 36°11' E, 28.IV.1902 & 1.V.1907 (S. Malyshev), 2 ♀, 3 ♂; Belgorod Prov.: Borisovka, 50°36' N, 36°01' E, 29.V.1958 (Y.-R. Wu), 1 ♀; Crimea Rep.: Bel'bek, 44°41' N, 33°34' E, 3.V.1909 (W. Pliginski), 1 ♀; Orenburg Prov.: Orenburg, 51°46' N, 55°06' E, 2.V.1925 (P. Vorontsovskiy), 1 ♀.

Distribution. Russia: European part from *Yaroslavl and Kirov Prov. to *Belgorod and Penza Prov. and in *Crimea Rep., North Caucasus (Chechnya), S Ural (Bashkortostan, *Orenburg Prov.), W Siberia (Tomsk Prov., Altai Rep.), E Siberia (Khakassia Rep., Irkutsk Prov., Buryatia, Zabaykalskiy Terr.), Far East (Amur Prov., Khabarovsk and Primorskiy Terr.). – Europe up to 58° N, North Africa (Morocco, Algeria), Azerbaijan, Israel, Iran, Turkmenistan, Kazakhstan, Korean Peninsula (Gurvich, 1931; Proshchalykin, 2012; Shibaev, Polumordvinov, 2012; Levchenko, 2013; Levchenko, Yuferev, 2013).

***Nomada sheppardana* (Kirby, 1802)**

Material examined. Belgorod Prov.: Borisovka, 50°36' N, 36°01' E, 19.VII.1907 (S. Malyshev), 1 ♀ *ibid.*, 28 & 29.V.1959 (Y.-R. Wu), 3 ♂.

Distribution. Russia: European part (*Belgorod Prov., Tatarstan, Rostov Prov.). – Europe from Denmark (up to 56° N) and Portugal to Slovakia and Greece, North Africa from Morocco to Tunisia (Pesenko, 1974; Celary, 1995; Sapaev, 2004; Madsen, Calabuig, 2012).

***Nomada stigma* Fabricius, 1804**

Material examined. Rostov Prov.: Chaltyr', 47°17' N, 39°30' E, 21.VI.1967 (Yu. Pesenko), 1 ♀; Orlovskiy, 46°52' N, 42°03' E, 20.VI.1969 (Khamin), 1 ♀; Crimea Rep.: Saki, 45°08' N, 33°34' E, 30.VII. & 1.VIII.1913 (W. Pliginski), 2 ♀; Adygea: Shuntuk, 44°27' N, 40°10' E, 23 & 24.VI.1938, (Andreeva), 2 ♂.

Distribution. Russia: European part from Karelia and Udmurtia to Crimea Rep. and Rostov Prov., North Caucasus (*Adygea); S Ural (Bashkortostan), W Siberia (Tomsk Prov., Altai Rep.), E Siberia (Krasnoyarsk Terr., Irkutsk Prov., Yakutia). – Europe up to 62° N, North Africa (Algeria), Armenia, Azerbaijan, Turkey, Cyprus, Uzbekistan, Kazakhstan (Gurvich, 1931; Elfving, 1968; Pesenko, 1974; Filatov, 2006; Levchenko, 2013; Proshchalykin, Schwarz, 2017).

***Nomada striata* Fabricius, 1793**

Material examined. Yaroslavl Prov.: Berditsyno, 57°27' N, 40°06' E, 7 & 29.VI.1908 (A. Yakovlev), 1 ♀, 1 ♂; Tambov Prov.: Michurinsk (former Kozlov), 52°53' N, 40°29' E (Lange), 1 ♂; Rostov Prov.: Volgodonsk, 47°32' N, 42°12' E, 8.VI.1967 (Yu. Pesenko), 1 ♀, 11 ♂; Crimea Rep.: Simferopol, 44°57' N, 34°16' E, 10.V.1899 (A. Bazhenov), 1 ♀; Orenburg Prov.: Orenburg, 51°46' N, 55°06' E, 2.V.1925 (P. Vorontsovskiy), 1 ♂.

Distribution. Russia: European part from Karelia and Kirov Prov. to *Crimea Rep. and *Rostov Prov., North Caucasus (Karachaevo-Cherkessia Rep.), S Ural (Bashkortostan), W Siberia (Tomsk Prov., Altai Rep.), E Siberia (Buryatia, Yakutia, Zabaykalskiy Terr.), Far East (Primorskiy Terr.). – Europe up to 67° N, Cyprus, Kazakhstan (Elfving, 1968; Levchenko, 2013; Levchenko, Yuferev, 2013).

***Nomada sybarita* Schmiedeknecht, 1882**

Material examined. Tomsk Prov.: Kireevsk, 56°21' N, 84°05' E, 30.VII – 5.VIII.1999 (O. Konusova), 5 ♀.

Distribution. Russia: S Ural (Bashkortostan), W Siberia (*Tomsk Prov.). – Europe (Austria, Hungary, Czech Republic (Moravia), Albaia), Azerbaijan (Nikiforuk, 1957; Schwarz, 1967a; Alexander, Schwarz, 1994; Scheuchl, 2008; Aliev, 2011).

***Nomada tenella* Mocsáry, 1883**

Material examined. Volgograd Prov.: Krasnoarmeysk district of Volgograd (Sarepta), 48°30' N, 44°33' E (F. Morawitz), 1 ♂; Rostov Prov.: Orlovskiy, 46°52' N, 42°03' E, 31.V.1967 (Yu. Pesenko), 1 ♂; Dagestan Rep.: Makhachkala, Petrovsk, 43°00' N, 47°28' E, 30.IV.1925 (A. Kirichenko), 1 ♂; Crimea Rep.: Simferopol env., Alma, 44°48' N, 34°04' E, 6.V.1913 (W. Pligin-ski), 1 ♂; Orenburg Prov.: Orenburg, 51°46' N, 55°06' E, 5.VI.1929 (P. Vorontsovskiy), 1 ♀.

Distribution. Russia: European part (Udmurtia, *Volgograd and Rostov Prov., *Crimea Rep.), S Ural (*Orenburg Prov.), E Siberia (Buryatia, Yakutia). – Azerbaijan, Iran, Turkmenistan, Kazakhstan (West Kazakhstan Prov.) (Sitdikov, 1986; Aliev, 2011; Proshchalykin, Schwarz, 2017).

***Eucera dalmatica* Lepeletier, 1841**

Material examined. Crimea Rep.: Kerch, 45°20' N, 36°28' E, 15.V.1917 (A. Kirichenko), 1 ♀; Azerbaijan: Sheki (former Nukha) env., 41°11' N, 47°10' E, 18.V.1928 (Bocharnikov), 1 ♀, 1 ♂; Armenia: Bargushat, 39°13' N, 46°27' E, 20.VI.1959 (V. Rikhter), 1 ♂.

Distribution. Russia: south of the European part (*Crimea Rep.), North Caucasus (Stavropol Terr.). – South of Europe up to S France and Romania, Armenia, *Azerbaijan, Turkey, Cyprus, Iran (Friese, 1896; Popov, 1967b; Chenikalova, 2005; Grace, 2010; Ortiz-Sánchez, Roberts, 2007).

***Eucera chrysopyga* Pérez, 1879**

Material examined. Crimea Rep.: Bel'bek, 44°41' N, 33°34' E, 6.V.1897 (N. Kuznetsov), 1 ♀; Orenburg Prov.: Orenburg, 51°46' N, 55°06' E, 15.VII.1928 (P. Vorontsovskiy), 2 ♀.

Distribution. Russia: south of the European part (Volgograd and Rostov Prov., *Crimea Rep.), S Ural (*Orenburg Prov.). – South of Europe up to France and Hungary, North Africa (Algeria), Caucasus, Iran, Kazakhstan, China (Gansu, Hebei, Beijing) (Friese, 1896; Popov, 1967b; Pesenko, 1974; Wu, 2000; Marikovskaya, 2001).

Note. Species is recorded for “Caucasus” without location (Friese, 1896). Sitdikov has noted (in his manuscript of 1988, deposited in ZISP) this species for North Caucasus and Azerbaijan. This material has not been found and examined. The same location “Caucasus” is noted for *Melecta baerii* (Radoszkowski, 1865) (“Cauca Mlokos” (Lieftinck, 1980) – possibly collected by L.A. Młokosiewicz in the Caucasus, more likely Transcaucasia) and *Nomada hera* Schwarz, 1965 (Rußland: 1 ♂ Kaukasus, leg. Leder) (Schwarz, 1965). The confirmatory material of *N. hera* for Russian North Caucasus is deposited in ZISP collection: Dagestan Rep.: Makhachkala, Petrovsk, 43°00' N, 47°28' E, 30.IV.1925 (A. Kirichenko), 1 ♂.

***Eucera kullenbergi* Tkalců, 1984**

Material examined. Moldova: Kishinev, 47°00' N, 28°51' E, 7.VII.1967(Talitskiy), 1 ♀; Azerbaijan: Salakhly, 41°14' N, 45°16' E, 20.IV.1963 (Gavrilenko), 3 ♀, 3 ♂.

Distribution. Russia: south of the European part (Crimea Rep.). – South and East Europe (*Moldova, Greece), *Azerbaijan, Turkey, Iran (Tkalců, 1984; Kholodov, 1999).

Note. Sitdikov has noted in his manuscript of 1988 (deposited in ZISP), that he recorded the first specimens of this species from the former USSR (Moldova, Crimea and Azerbaijan), but he did not publish this information.

***Eucera nigrescens* Pérez, 1879**

Material examined. Rostov Prov.: Bagaevskaya, 47°19' N, 40°23' E, 20.V.1967 (Yu. Pesenko), 1 ♀; Krasnodar Terr.: Slavyansk, 45°15' N, 38°07' E, 3.VI.1937, Medicago (Koshur), 1 ♀; Crimea Rep.: Krasnolesie, 44°50' N, 34°13' E, 17 & 23.V.1983 (A. Zagulyaev), 2 ♀; Aypetri, 44°27' N, 34°03' E, 30.V.1983 (A. Zagulyaev), 1 ♀; Moldova: Kishinev, 47°00' N, 28°51' E, 21.V.1959 (E. Sugonyaev), 1 ♀; Armenia: Yerevan, 40°11' N, 44°31' E, 6.V.1925 (Ryabov), 1 ♂; Georgia: Lagodekhi, 41°49' N, 46°17' E, 17.IV.1910 (collector unknown), 1 ♂; Azerbaijan: Kusary, 41°25' N, 48°25' E, 5.V.1928 (Bocharnikov), 1 ♂; Turkmenistan: Makhtumkuli (former Kara-Kala), 38°26' N, 56°17' E, 8.V.1979 (Yu. Pesenko), 1 ♀.

Distribution. Russia: south of the European part (*Rostov Prov., Crimea Rep.), North Caucasus (*Krasnodar Terr.). – Europe up to 52° N in Netherlands, *Caucasus, Turkey, Jordan, Iran, *Turkmenistan (Popov, 1967b; Peeters et al., 1999; Filatov, 2006; Grace, 2010).

***Eucera seminuda* Brülle, 1832**

Material examined. Crimea Rep.: Sevastopol, 44°36' N, 33°32' E, 14.IV.1906, 15 & 17.IV.1909 (W. Pliginski), 1 ♀, 3 ♂.

Distribution. Russia: European part (Voronezh and Volgograd Prov., *Crimea Rep.). – South of Europe up to Spain and Hungary, North Africa (Algeria, Morocco), Azerbaijan, Turkey (Friese, 1896; Lopatin, Dobrynin, 2005; Maharramov, Bayramov, 2014).

***Eucera vittulata* Noskiewicz, 1936**

Material examined. Belgorod Prov.: Borisovka, 50°36' N, 36°01' E, 23.V.1906 (S. Malyshev), 2 ♀ and 1 ♂; Voronezh Prov.: no location, 1964 (G. Shaposhnikov), 1 ♀; Armenia: Yerevan, 40°11' N, 44°31' E (F. Morawitz), 2 ♀.

Distribution. Russia: European part (*Belgorod, *Voronezh and Rostov Prov.), North Caucasus (Stavropol Terr.). – South Europe up to Dnestr in the east, Azerbaijan, Turkey (Friese, 1896; Pesenko, 1974; Chenikalova, 2005; Grace, 2010; Maharramov, Bayramov, 2014).

***Tetraloniella inulae* (Tkalců, 1979)**

Material examined. Rostov Prov.: Rostov-on-Don, 47°14' N, 39°42' E, 24.VII.1963 (Yu. Pesenko), 1 ♀; Volgograd Prov.: Krasnoarmeysk district of Volgograd (Sarepta), 48°30' N, 44°33' E, 16.VII.1929 (A. Shestakov), 1 ♀; Krasnodar Terr.: Sochi, 43°35' N, 39°43' E, 17.IX.1926 (A. Shestakov), 2 ♀; Stavropol Terr.: Svetlograd (former Petrovskoe), 45°19' N, 42°51' E, 4.IX.1927 (V. Belizin), 1 ♀; Orenburg Prov.: Orenburg, 51°46' N, 55°06' E, 24.VII.1928 (P. Vorontsovskiy), 1 ♀.

Distribution. Russia: south of the European part (*Rostov and *Volgograd Prov., Crimea Rep.), North Caucasus (*Krasnodar and *Stavropol Terr.), S Ural (*Orenburg Prov.). – Europe from Austria and Italy to Romania and Greece, Cyprus, Iran (Tkalců, 1979; Filatov, Ivanov, 2007).

Notes. This species belongs to the *T. ruficornis*-group with six species in Europe (Tkalců, 1979). All records of *Tetraloniella ruficornis* (Fabricius, 1804) for Russia (Nikiforuk, 1957; Pesenko, 1974; Sapaev, 2004 and other) need to be reexamined. T. Levchenko has found in ZISP collection two species under this name: *T. inulae* (Tkalců, 1979) and *T. julliani* (Pérez, 1879). The second species is present in the south of the European part of Russia, southern Europe up to France and Romania, Turkey, Iran and Turkmenistan (Friese, 1896; Gurvich, 1931; Tkalců, 1979; Filatov, 2006). Examined specimens of *T. julliani* from Russia are: Rostov Prov.: Rostov-on-Don, 47°14' N, 39°42' E, 20.VII.1963, 1 ♀, 30.VII.1963 (Yu. Pesenko), 2 ♀; Volgograd Prov.: Krasnoarmeysk district of Volgograd (Sarepta), 48°30' N, 44°33' E, 16–20.VII.1926 (A. Shestakov), 1 ♀; Crimea Rep.: Dzhankoy, 45°42' N, 34°23' E, 26.VII.1926 (V. Kuznetsov), 1 ♀.

***Amegilla garrula* (Rossi, 1790)**

Material examined. Krasnodar Terr.: Tuapse, 44°06' N, 39°05' E, 1912 (Sakhanovskiy), 1 ♀.

Distribution. Russia: North Caucasus (*Krasnodar Terr.). – South of Europe up to France, Hungary and Dnepr, Abkhazia, Georgia, Iran, Turkmenistan, Kazakhstan (Friese, 1897; Popov, 1950, 1954; Skhirtladze, 1981).

Note. Ponomareva (1967) has recorded this species for North Caucasus without location. Material examined by Ponomareva is published here for the first time.

***Amegilla salviae* (Morawitz, 1876)**

Material examined. Dagestan Rep.: Derbent, 42°04' N, 48°17' E (F. Morawitz), 1 ♂.

Distribution. Russia: European part (Crimea Rep.), North Caucasus (*Dagestan Rep.). – East of Europe to Hungary and Croatia in the west, North Africa, Armenia, Cyprus, Turkey, Iran, China (Xinjiang, Inner Mongolia, Gansu) (Friese, 1897; Prisner, 1957; Popov, 1967b; Wu, 2000; Filatov, 2003; Grace, 2010).

***Anthophora arctica* Morawitz, 1883**

Material examined. Tajikistan: Peter the Great Ridge, Cursy-Tasch on Kara-Schura River, 38°52' N, 71°25' E, 2.VII.1911(A. Golbek), 1 ♂.

Distribution. Russia: E Siberia (Yakutia, Zabaykalskiy Terr.), Far East (Amur Prov.). – *Tajikistan, China (Xinjiang) (Wu, 2000; Proshchalykin, 2012).

Note. Marikovskaya (1976) reported this species for the mountains of Central Asia without location. Possibly a reference to the specimen identified by Ponomareva from Tadzhikistan.

***Anthophora bimaculata* (Panzer, 1798)**

Material examined. Volgograd Prov.: Krasnoarmeysk district of Volgograd (Sarepta), 13.VI.1907, 2 ♂, 8.VII.1907(H. Koch), 5 ♂.

Distribution. Russia: European part from Leningradskaya and Kirov Prov. to *Volgograd Prov. – Europe up to England and Denmark, Georgia, Turkey, Iran, Uzbekistan, Tajikistan, Kazakhstan, China (Xinjiang) (Friese, 1897; Ponomareva, 1967; Wu, 2000; Levchenko, 2011).

***Anthophora cincreus* (Friese, 1896)**

Material examined. Dagestan Rep.: Derbent, 42°04' N, 48°17' E (F. Morawitz), 1 ♀; Orenburg Prov.: Orenburg, 51°46' N, 55°06' E, 18.V.1927 (P. Vorontsovskiy), 1 ♀, 1 ♂.

Distribution. Russia: south of the European part (Volgograd Prov.), North Caucasus (*Dagestan Rep.), S Ural (*Orenburg Prov.). – Caucasus (Transcaucasia without location), Kazakhstan, Turkmenistan (Friese, 1897; Ponomareva, 1967).

***Anthophora dubia* Eversmann, 1852**

Material examined. Karachay-Cherkess Rep.: Teberda, 43°27' N, 41°45' E, 15.VII.1980, Onobrychis (O. Polivanova), 1 ♀; *ibid.*, 2.VIII.1980, Lotus (O. Polivanova), 2 ♀.

Distribution. Russia: North Caucasus (*Karachay-Cherkess Rep.), S Ural (Orenburg Prov.). – Armenia, Azerbaijan, Turkey, Iran, Central Asia, Kazakhstan, Mongolia, north of China from Xinjiang to Heilongjiang (Eversmann, 1852; Friese, 1897; Ponomareva, 1966; Wu, 2000).

Note. The presence of this species in southern and eastern Europe is not clear. The species is noted for Greece at Discover life (<http://www.discoverlife.org/mp/20q?search=Anthophora+dubia&flags=subgenus>), but is not mentioned in literature for this area (Grace, 2010).

***Anthophora erschowi* Fedtschenko, 1875**

Material examined. Krasnodar Terr., Anapa, 44°53' N, 37°19' E, 3.V.1918 (A. Skorikov), 1 ♀; Dagestan Rep.: Derbent, 42°04' N, 48°17' E, 22.VI.1913 (collector unknown), 2 ♀; Astrakhan Prov.: Astrakhan, 46°20' N, 48°02' E, 18.IV.1903 (Wolman), 1 ♀; Orenburg Prov.: Orenburg, 51°46' N, 55°06' E, 28.V.1926 (P. Vorontsovskiy), 1 ♂; Ukraine: Kherson Prov., Askania Nova, 46°27' N, 33°52' E, 7.VI.1933 (M. Terminasyan), 1 ♀.

Distribution. Russia: south of the European part (Rostov, Volgograd and *Astrakhan Prov., Crimea Rep.), North Caucasus (*Krasnodar Terr., *Dagestan Rep.), S Ural (Bashkortostan). – east of Europe (the Northern Black Sea coastal region), North Africa (Libya), Georgia, Azerbaidjan, Turkey, Israel, Iran,

Turkmenistan, Uzbekistan, Tajikistan, Kazakhstan, China (Xinjiang, Inner Mongolia, Beijing, Hebei, Shandong) (Friese, 1897; Nikiforuk, 1957; Popov, 1967a, 1967b; Ponomareva, 1967; Pesenko, 1974; Skhirtladze, 1981; Wu, 2000; Filatov et al., 2006; Grace, 2010; Kilimnik, 2016).

Notes. In this paper *Anthophora erschowi* and *A. atroalba* Lepeletier, 1841 are considered as two valid species according to Brooks (1988). However, these two species are often synonymized and as a result *A. erschowi* is noted for Russia as *A. atroalba* (Gurvich, 1931; Pagliano, 1994 and etc.).

***Anthophora fulvipes* Eversmann, 1846**

Material examined. Voronezh Prov.: Voronezh, 51°40' N, 39°12' E, 27.VI.1926 (Finoedov), 1 ♂; Orenburg Prov.: Orenburg, 51°46' N, 55°06' E, 9.VII.1922 (P. Vorontsovskiy), 1 ♀.

Distribution. Russia: European part (*Voronezh and Volgograd Prov.), S Ural (Orenburg Prov.). – South and Eastern Europe (Italy, Croatia, Romania), Armenia, Turkey, China (Xinjiang, Gansu, Zinghai, Hebei) (Eversmann, 1852; Friese, 1897; Ponomareva, 1966; Wu, 2000; Grace, 2010).

***Anthophora orientalis* Morawitz, 1878**

Material examined. Volgograd Prov.: Krasnoarmeysk district of Volgograd (Sarepta), 48°30' N, 44°33' E (F. Morawitz), 5 ♂; Dagestan Rep.: Derbent, 42°04' N, 48°17' E (F. Morawitz), 1 ♂.

Distribution. Russia: south of the European part (*Volgograd Prov.), North Caucasus (*Dagestan Rep.). – South Europe (Italy, Croatia, Greece), North Africa (Egypt), Caucasus (Georgia, Armenia, Azerbaijan), Turkey, Syria, Israel (Friese, 1897; Gurvich, 1931; Prisner, 1957; Grace, 2010).

Note. The distribution of this species in Europe requires clarification. It is not as widespread (in Austria and Romania) as has been noted in Friese (1897). The presence of the species in Spain is also questionable (Ornosa, Martínez, 1998). The relevant “Atlas Hymenoptera” web page shows this species for Great Caucasus, Russia, without distinct locations. Examined material with precise Russian locations is published here for the first time.

***Anthophora plagiata* (Illiger, 1806)**

Material examined. Stavropol Terr.: Kislovodsk, 43°54' N, 42°43' E, 15.VII.1914 (Bertenev), 1 ♀; Belorussia: Vitebsk, 55°11' N, 30°10' E, 20.V.1913 (V. Popov), 1 ♀; Iran: Tabriz, 38°05' N, 46°17' E, 2.VI.1914 (Andrievskiy), 1 ♀.

Distribution. Russia: North Caucasus (*Stavropol Terr., Dagestan Rep.), W Siberia (Kurgan Prov.). – Europe up to 57° N in Denmark in the north and to the Baltic States in the east, North Africa, Georgia, Turkey, Iran, Tajikistan, Kirgizstan, Kazakhstan, Mongolia, China from Xinjiang and Tibet to Jilin and Yunnan (Friese, 1897; Marikovskaya, 1979; Skhirtladze, 1981; Kuzmin, Molchanov, 1983; Banaszak, 1984; Monsevičius, 1995; Wu, 2000; Grace, 2010; Madsen, Calabuig, 2012).

Note. It is highly probable this species could be found in western (Kaliningrad and Smolensk Prov.) and southern regions of Russia. Only record this species by Yu.V. Morozov, student of Nizhegorodskiy State University, from the forest area of Nizhegorodskaya Province (Anufriev, Bayanov, 2002) seems questionable and unlikely. A record of this species from Iran at Discover life (<http://www.discoverlife.org/mp/20q?search=Anthophora+plagiata&flags=subgenus>) is confirmed by a specimen from ZISP collection.

***Anthophora podagra* Lepeletier, 1841**

Material examined. Voronezh Prov.: Bobrov, 51°05' N, 40°02' E, 11.VIII.1925 (V. Belizin), 1 ♂; Orenburg Prov.: Orenburg, 51°46' N, 55°06' E, 18.VII.1923 (P. Vorontsovskiy), 1 ♀.

Distribution. Russia: European part from *Voronezh Prov. and Tatarstan to Crimea Rep. and Rostov Prov., S. Ural (Bashkortostan, Orenburg Prov.). – South of Europe up to France and Hungary, Armenia, Turkey, Iran, Turkmenistan, Tajikistan, Kazakhstan, China (Xinjiang, Gansu) (Friese, 1897; Gurvich, 1931; Nikiforuk, 1957; Popov, 1967b; Ponomareva, 1967; Pesenko, 1974; Wu, 2000; Sapaev, 2004; Ivanov et al., 2009; Grace, 2010).

***Melecta duodecimmaculata* (Rossi, 1790)**

Material examined. Crimea Rep.: Bel'bek, 44°41' N, 33°34' E, V–VI.1922 (W. Kizeritskiy), 1 ♀.

Distribution. Russia: south of the European part (Astrakhan Prov., *Crimea Rep.), S Ural (the headwaters of the Ural River), E Siberia (Krasnoyarsk Terr up to 56° N). – South of Europe up to France, Croatia

and Romania, North Africa from Algeria to Egypt, Turkey, Iraq, Iran, Central Asia, Kazakhstan, China (Xinjiang, Gansu, Liaoning) (Lieftinck, 1980).

***Melecta luctuosa* (Scopoli, 1770)**

Material examined. Crimea Rep.: Staryi Krym, 45°01' N, 35°05' E (V. Kuznetsov), 1 ♀.

Distribution. Russia: European part from Moscow Prov. and Tatarstan to *Crimea Rep. and Rostov Prov., North Caucasus (Stavropol Terr., Dagestan Rep.), S Ural (Bashkortostan, Orenburg Prov.), south of W and E Siberia from Kurgan Prov. to Zabaykalskiy Terr. and Yakutia, Far East (Amur Prov.). – Europe up to 58° N in Sweden, North Africa from Morocco to Egypt, Caucasus, Turkey, Cyprus, Lebanon, Israel, Jordan, Iraq, Iran, Turkmenistan, Uzbekistan, Tajikistan, Kazakhstan (Morawitz, 1874; Pesenko, 1974; Lieftinck, 1980; Kuzmin, Molchanov, 1983; Levchenko, 2011; Sapaev, 2004; Chenikalova, 2005; Proshchalykin, 2013).

***Bombus amurensis* Radozkowski, 1862**

Material examined. Buryatia: Dzhida, 50°39' N, 106°10' E, 28.VII.2007 (A. Lelej, M. Proshchalykin, V. Loktionov), 1 ♀ (FSCV).

Distribution. Russia: E Siberia (Khakassia Rep., Krasnoyarsk Terr., *Buryatia, Zabaykalskiy Terr.). – Kazakhstan, Mongolia, China (Williams et al., 2011; Byvaltsev et al., 2016).

***Bombus asiaticus* Morawitz, 1875**

Material examined. Tyva Rep.: 18 km E to Kyzyl, Malyi Yenisey River, 51°42' N, 94°43' E, 14.VII.2013 (M. Proshchalykin, V. Loktionov), 2 ♀ (FSCV); 25 km SE to Erzin, Tes River, 50°05' N, 95°21' E, 14–15.VII.2014 (A. Lelej, M. Proshchalykin, V. Loktionov), 1 ♀ (FSCV); 25–31 km NEE to Erzin, Mt. Ak-Khayrakan, 50°22' N, 95°25' E, 16.VII.2014 (A. Lelej, M. Proshchalykin, V. Loktionov), 6 ♀ (FSCV); 23 km E to Samagaltay, Shuurmak River, 50°35' N, 95°19' E, 19.VII.2014 (A. Lelej, M. Proshchalykin, V. Loktionov), 1 ♀ (FSCV); 27 km SSW to Erzin, Tore-Khol Lake, 50°04' N, 95°08' E, 11–12.VII.2014 (A. Lelej, M. Proshchalykin, V. Loktionov), 1 ♀ (FSCV).

Distribution. Russia: W Siberia (Altai Rep.), E Siberia (*Tyva Rep.). – Afghanistan, Pakistan, Central Asia, Mongolia, China, India, Nepal (Williams, 1991; An et al., 2014).

***Bombus branickii* (Radoszkowski, 1893)**

Material examined. Altai Rep.: steppe behind the Kuray Ridge, 50°11' E 88°0' E, 28.VI.1977, 1 ♀ (NSU); 15–20 km W to Beltir, canyon of the River Taltura (=Chagan-Uzun), 2000–2800 m, stony steppe, 49°57' N 87°56' E, 26–28.VI.1999 (D. Logunov), 1 ♀ (NSU).

Distribution. Russia: W Siberia (*Altai Rep.), E Siberia (Zabaykalskiy Terr.) (Popov, 1931). – Afghanistan, Pakistan, Central Asia, Mongolia, China, Korea, India (Williams, 1991; Williams et al., 2009).

***Bombus diversus* Smith, 1869**

Material examined. Primorskiy Terr.: Vladivostok, 43°7' N, 131°54' E, 3.IX.1910 (Cherskaya), 1 ♂; *ibid.*, 14.IX.1910 (Chersky), 1 ♂; Sikhote-Alin, Mt. Verblud, 44°59' N, 136°21' E, 30.V.1913 (Krylov), 1 ♀; Terney Bay, 45°1' N, 136°37' E, 12, 15 & 17.VIII.1914 (Krylov), 3 ♂; Yakovlevka, 44°25' N, 133°28' E, 8.IX.1926 (Dyakonov, Philipiev), 1 ♂.

Distribution. Russia: Far East (*Primorskiy Terr., Sakhalin Island, Kuril Islands). – Japan, Korea (Ito, 1985; Proshchalykin, 2012).

***Bombus exil* (Skorikov, 1923)**

Material examined. Irkutsk Prov.: Bolshie Koty, 51°54' N, 105°04' E, 29.VI–2.VII.2012 (S. Romanov), 1 ♀ (NSU).

Distribution. Russia: E Siberia (Tyva Rep., *Irkutsk Prov., Zabaykalskiy Terr., Yakutia). – Afghanistan, Pakistan, Central Asia, Mongolia, China, India, Korea (Panfilov et al., 1961; Williams, 1991; Proshchalykin, Kupianskaya, 2009; An et al., 2014).

***Bombus keriensis* Morawitz, 1887**

Material examined. Tyva Rep.: 27 km SSW to Erzin, Tore-Khol Lake, 50°04' N, 95°08' E, 30.VI–3.VII.2013 (M. Proshchalykin, V. Loktionov), 1 ♀ (FSCV); *ibid.*, 11–12.VII.2014 (A. Lelej, M. Proshchalykin, V. Loktionov), 6 ♀ (FSCV); 25 km SE to Erzin, Tes River, 50°05' N, 95°21' E, 14–15.VII.2014 (A. Lelej, M. Proshchalykin, V. Loktionov), 8 ♀ (FSCV); 31 km NEE to Erzin, Erzin River, 50°22' N, 95°25' E, 18.VII.2014 (A. Lelej, M. Proshchalykin, V. Loktionov), 10 ♀ (FSCV).

Distribution. Russia: North Caucasus, Altai Rep., *Tyva Rep. – Caucasus, Turkey, Iran, Afghanistan, Pakistan, Central Asia, Kazakhstan, Mongolia, China, India (Williams, 1991; An et al., 2014).

***Bombus pseudobaicalensis* Vogt, 1911**

Material examined. Tyumen Prov.: Tobolsk, 58°11' N, 68°15' E, 17–19.VIII.2013 (O. Bokovaya), 3 ♀, 3 ♂ (NSU).

Distribution. Russia: W Siberia (*Tyumen Prov., Tomsk Prov, Novosibirsk Prov., Altai Terr., Altai Rep., Khakassia Rep.), E Siberia, Far East (Proshchalykin, 2012; Byvaltsev et al., 2016). – Mongolia, China, Korea, Japan (Ito, 1985; An et al., 2014).

***Bombus soroensis* (Fabricius, 1777)**

Material examined. Tyva Rep.: Shuurnak, Shuurnak River, 50°38' N, 95°19' E, 11 & 12.VII.2013 (M.Yu. Proshchalykin, V.M. Loktionov), 1 ♀ (FSCV); 6 km SE to Bay-Haak, Sosnovka, 51°8' N, 94°31' E, 20 & 21.VII.2014 (A. Lelej, M. Proshchalykin, V. Loktionov), 1 ♀ (FSCV); Irkutsk Prov.: Irkutsk, 52°17' N, 104°18' E, 1912 (Yakovlev), 1 ♀; Irkutsk, Kaya River, 52°16' N, 104°14' E, 1912 (Maksimovich), 1 ♀; Irkutsk, Melnikovo, 52°15' N, 104°14' E, 1912 (Maksimovich), 1 ♀; Yurty, 56°2' N, 97°38' E, 27.V.1912 (Mishin, Verkhov), 9 ♀; Bunbui, 56°23' N, 99°1' E, 30.VII.1916 (Valdaev), 4 ♀; Buryatia: Kyakhta, 50°21' N, 106°27' E, 1925 (Mikhno), 2 ♂; Dureny, 50°19' N, 106°53' E, 1924 (Vinogradov), 1 ♀; Zabayskiy Terr.: Chita, 52°2' N, 113°30' E, 1913 (Gavrilyuk), 2 ♂.

Distribution. Russia: European part up to 71° N, North Caucasus, Ural, south of W Siberia, E Siberia (Khakassia Rep., *Tuva Rep., Krasnoyarsk Terr., Irkutsk Prov., *Buryatia Rep., *Zabaykalskiy Terr.). – Europe, Caucasus, Turkey, Syria, Iraq, Iran, Central Asia, Kazakhstan, Mongolia (Reinig, 1939; Panfilov, 1957; Løken, 1973; Byvaltsev et al., 2016).

Note. The species is recorded for the Pre-Baikalia region by Panfilov (1957) without specific location, probably referring to specimens from Irkutsk Prov. listed as examined materials here.

***Bombus sylvarum* (Linnaeus, 1761)**

Material examined. Novosibirsk Prov.: Evsino, 54°32' N, 83°22' E, 10.VI.2014 (A. Byvaltsev), 1 ♀ (NSU); Altai Terr.: Klepechikha, 52°5' N, 81°44' E, 23.VII.2011 (A. Byvaltsev, Yu. Danilov), 2 ♀ (NSU); Kuchukskoe Lake, 52°40' N, 79°57' E, 26.VI.2016, 2 ♀, 27.VI.2016 (A. Byvaltsev), 2 ♀ (NSU).

Distribution. Russia: European part, North Caucasus, Ural, south of W Siberia (Kurgan, Omsk and *Novosibirsk Prov., *Altai Terr.). – Europe, Caucasus, Turkey, Syria, Iran, Kazakhstan (Løken, 1973; Byvaltsev, 2008; Levchenko, 2012; Byvaltsev et al., 2013, 2015).

***Bombus tricornis* Radoszkowski, 1888**

Material examined. Khabarovsk Terr.: Sovetskaya Gavan', 48°57' N, 140°17' E, 13.VI.1916 (Krylov), 1 ♀; Malmyzh, 49°51' N, 136°45' E, 26.VIII.1926 (Starokodomskiy), 1 ♀.

Distribution. Russia: Far East (Amur Prov., *Khabarovsk and Primorskiy Terr.). – China, Korea (Ito, 1985; Proshchalykin, 2012; An et al., 2014).

Species probably erroneously noted for Russia

***Ceratina loewi* Gerstaecker, 1869**

Distribution. East and south of Europe (Romania, Greece), North Africa (Egypt), Georgia, Azerbaijan, Turkey, Israel (Skhirtladze, 1981; Terzo, 1998).

Notes. Although reported from south of Russia (Rostov Prov.) (Aliev, Quamarli, 2010) no specimen data is given and these records are not referred to in other literature. The species should be looked for in North Caucasus.

***Nomada signata* Jurine, 1807**

Distribution. Europe up to 56° N and to Poland, Romania and Croatia in the east (Celary, 1995).

Note. Distribution range of this cleptoparasitic species should be limited by the distribution of *Andrena fulva* (Müller, 1766), the host species (Scheuchl, 2008), widespread in Europe to Kaliningrad Prov. and Romania in the east (Gusenleitner, Schwarz, 2002). Therefore the records of *N. signata* from Lithuania (Monsevičius, 1995), Lipetsk Prov. in Russia (Kuznetsova, 1990) and Turkey (Grace, 2010) look dubious.

A. fulva from the territory of modern Russia is known by only a few records from Kaliningrad Prov. during the first part of the 20th century (Banaszak, 2006). However, in Poland during the 21st century *A. fulva* began to spread eastwards (Banaszak, 2006). If the host species spreads to the territory of Kaliningrad Prov. it could be possible to find *N. signata* there.

***Nomada similis* Morawitz, 1872**

Distribution. Europe up to 57° N and to Poland, Slovakia and Albania in the east (Celary, 1995).

Note. The distribution range of this cleptoparasitic species should be limited to the distribution of *Panurgus banksianus* (Kirby, 1802), the host species (Scheuchl, 2008). Widespread in Europe to Transcarpathia (Osytshnjuk, 1977) and Bulgaria (Warncke, 1972) in the east, North Africa (Morocco) (Osytshnjuk, 1977) and west of Turkey (Warncke, 1972). Therefore the records of *N. similis* from Perm Terr. (Lykov, 2000) and Bashkortostan (Nikiforuk, 1957) appear dubious. According to the personal comment by Dr. S.L. Esunin, Perm State University, V.A. Lykov was a great lecturer but bad collector. As a result, the Lykov material is lost or has no labels. For Bashkortostan *N. similis* is represented by a female specimen (Nikiforuk, 1957) and possible is *N. fuscicornis* Nylander, 1848, recorded by Nikiforuk only by males.

***Nomada symphyti* Stöckhert, 1930**

Distribution. Europe up to 52° N (Dathe, 2001) and to Hungary in the east (Celary, 1995).

Note. The distribution of this cleptoparasitic bee should be limited by the distribution of *Andrena symphyti* Schmiedeknecht, 1883, their host species (Scheuchl, 2008), widespread in Europe to Poland and Crimea to the east, Caucasus and Turkey (Gusenleitner, Schwarz, 2002). For this reason the record of *N. symphyti* for Tatarstan (Sapaev, 2004) is questionable.

***Eucera turcomannica* Morawitz, 1880**

Distribution. Turkmenistan, Iran (Popov, 1967b).

Note. Records of this species in Altai (Shumakova et al., 1982) appear very dubious.

***Anthophora agama* Radoszkowski, 1869**

Distribution. South of Europe up to Mediterranean France, North Africa (Algeria), Turkey, Syria, Israel, Iran, Uzbekistan, China (Gansu) (Friese, 1897; Popov, 1967b; Rasmont, 1995; Wu, 2000; Grace, 2010).

Note. Species is reported for south of Russia (Rasmont, 1995) and for the Lower Volga at Atlas Hymenoptera (http://www.atlashymenoptera.net/pagetaxon.asp?tx_id=6357). Confirmatory material from the south of the European Russia or neighbouring lands has not been found and studied.

***Melecta alcestis* Lieftinck, 1980**

Distribution. Armenia, Israel (Lieftinck, 1980).

Note. The species is noted for south of Russia (Lieftinck, 1980), for the Lower Volga or S Ural at Atlas Hymenoptera (http://www.atlashymenoptera.net/pagetaxon.asp?tx_id=6565). However, as mentioned in Lieftinck (1980), Radoszkowski's material is from Armenia, south of former Imperial Russia (Pesenko, Astafurova, 2003), not from modern Russia.

Species with unclear status

Some species are known only by description from Russia without specific location and (or) are *insertae sedis* species: *Nomada dives* Erichson, 1849 (from former Orenburg Gov. in modern Russia or Kazakhstan) (Pesenko, Astafurova, 2003), *N. dubia* Eversmann, 1852 (from former Orenburg Gov. in modern Russia or Kazakhstan), *N. nigella* Nylander, 1848 (from Siberia, type is possible lost) (Alexander, Schwarz, 1994), *N. ornata* Eversmann, 1852 (from former Orenburg Gov. in modern Russia or Kazakhstan), *N. planifrons* Łoziński, 1922 (from E Siberia), *N. quadrispinosa* Mocsáry, 1901 and *N. zichyana* Mocsáry, 1901 (both from Saratov, types are possibly lost), *Epeolus nudiventris* Bischoff, 1930 (from Buryatia), *E. sibiricus* Radoszkowski, 1887 (from Primorskiy Terr.) (Proshchalykin, Astafurova, 2017), *Eucera nigriventris* (Alfken, 1931) (from Armavir, Krasnodar Terr.) (Alfken, 1931), *Eucera viciniformis* Kerenskij, 1919 (from Rostov Prov.), *E. chrysura* Erichson, 1849 (from former Orenburg Gov. in modern Russia or Kazakhstan)

(Pesenko, Astafurova, 2003), *Anthophora repleta* Dours, 1869 (from former Orenburg Gov. in modern Russia or Kazakhstan) (Proshchalykin, Astafurova, 2017), *Anthophora trichopus* Hedicke, 1940 (Zabaykalskiy Terr. (Hedicke, 1940), both *Anthophora* types possible lost) (Brooks, 1988), *Thyreus biseriatatus* (Morawitz, 1888) (Krasnoyarsk Terr.) (Liefinck, 1968).

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References

- Alexander B.A., Schwarz M. 1994. A Catalog of the Species of *Nomada* (Hymenoptera: Apoidea) of the World. *The University of Kansas Science Bulletin*, **55**(7): 239–270.
- Alfken J.D. 1931. Eine neue paläarktische *Tetralonia*-Art. (Apid. Hym.). *Mitteilungen der Deutschen Entomologischen Gesellschaft*, **2**: 111–112.
- Aliev Kh.A. 2011. The Aculeate Hymenoptera in the collection of the Institute of zoology of the Natural Academy of Sciences of Azerbaijan, Bacu. Part. 3. Bees of the genus *Nomada* Scopoli, 1770 (Hymenoptera: Anthophoridae). *Caucasus Entomological Bulletin*, **7**(2): 219–225.
- Aliev Kh.A., Qamarli V.P. 2010. Bees of genera *Ceratina* Latreille, 1802 and *Xylocopa* Latreille, 1802 (Hymenoptera: Apoidea: Anthophoridae) of Azerbaijan. *Caucasus Entomological Bulletin*, **6**(1): 109–111.
- Amiet F., Herrmann M., Müller A., Neumeyer R. 2007. Apidae 5: *Ammobates*, *Ammobatoides*, *Anthophora*, *Biastes*, *Ceratina*, *Dasypoda*, *Epeoloides*, *Epeolus*, *Eucera*, *Macropis*, *Melecta*, *Melitta*, *Nomada*, *Pasites*, *Tetralonia*, *Thyreus*, *Xylocopa*. *Fauna Helvetica*, **20**: 1–356.
- An J.-D., Huang J.-X., Shao Y.-Q., Zhang S.-W., Wang B., Liu X.-Y., Wu J., Williams P.H. 2014. The bumblebees of North China (Apidae, *Bombus* Latreille). *Zootaxa*, **3830**: 1–89.
- Anufriev G.A., Bayanov N.G. 2002. Fauna of invertebrates of the Kerzhensky Reserve according to the results of studies of 1993–2001. *Materials on the fauna of the Nizhny Novgorod Transvolga region. Proceedings of the State Nature Reserve “Kerzhenskiy”*. Nizhniy Novgorod, **2**: 152–354. (In Russian).
- Banaszak J. 1984. Anthophorini from Mongolia (Hymenoptera: Apoidea, Anthophoridae). *Folia Entomologica Hungarica (S.N.)*, **45**(1): 15–18.
- Banaszak J. 2006. Bees (Hymenoptera: Apiformes) in the Narew National Park. *Polskie Pismo Entomologiczne*, **75**: 511–558.
- Ban-Calefariu C. 2006. The systematics and distribution of genus *Nomada* (Hymenoptera: Anthophoridae) in Romania. *Complexul muzeal de Științele naturii “Ion Borcea” Baucău, Studii și comunicări*, **21**: 360–368.
- Brooks R.W. 1988. Systematics and phylogeny of the Anthophorine bees (Hymenoptera Anthophoridae; Anthophorini). *The University of Kansas Science Bulletin*, **53**(9): 436–575.
- Byvaltsev A.M. 2008. Bumblebee (Hymenoptera: Apidae, Bombini) fauna of the forest-steppe and steppe zones of the West Siberian Plain. *Euroasian Entomological Journal*, **7**(2): 141–147. (In Russian).
- Byvaltsev A.M., Belova K.A., Proskuryakova A.A. 2013. Populations and ecology of bumblebees (Hymenoptera: Apidae, *Bombus*) of the Irtysh steppe in early summer. *Bulletin of the Novosibirsk State University. Series: Biology, Clinical medicine*, **11**(1): 40–46. (In Russian).
- Byvaltsev A.M., Belova K.A., Kupianskaya A.N., Proshchalykin M.Yu. 2015. The diversity and abundance of bumblebees (Hymenoptera: Apidae, *Bombus*) in the steppes of Khakassia. *A.I. Kurentsov’s Annual Memorial Meetings*, **26**: 264–276. (In Russian).
- Byvaltsev A.M., Proshchalykin M.Yu., Levchenko T.V., Kupianskaya A.N., Akulov E.N. 2016. Bumble bee fauna (Hymenoptera, Apidae: *Bombus* Latreille) of Krasnoyarsk Territory. *A.I. Kurentsov’s Annual Memorial Meetings*, **27**: 137–154. (In Russian).
- Celary W. 1995. Nomadini (Hymenoptera, Apoidea, Anthophoridae) of Poland. *Monografie Fauny Polski*, Krakow, **20**: 1–281.
- Chenikalova E.V. 2005. *Wild bees of the Stavropol Territory, their efficiency and reservation in agrolandscapes*. Stavropol: Argus. 112 pp. (In Russian).
- Daly H.V. 1983. Taxonomy and ecology of Ceratinini of North Africa and the Iberian Peninsula (Hymenoptera: Apoidea). *Systematic Entomology*, **8**(1): 29–62.
- Dathe H.H. 1980. Zur Hymenopterenfauna des Naturschutzgebietes Teberda im Westkaukasus. *Milu*, **5**(1/2): 194–217.
- Dathe H.H. 2001. Entomofauna Germanica. Bd. 4. Verzeichnis der Hautflügler Deutschlands: Apidae. *Entomologische Nachrichten und Berichte*, **7**: 143–155.

- Elfving R. 1968. Die Bienen Finnlands. *Fauna Fennica*, **21**: 1–69.
- Eversmann E. 1852. Fauna hymenopterologica volgo-uralensis (Continuatio). *Bulletin de la Imperiale Society d'Naturalistes de Moscou*, **25**(pt 2, no. 3): 1–137.
- Filatov M.A. 2003. List of solitary bees of (Hymenoptera, Apoidea) in the Karadag Nature Reserve. *Chronical of Nature*. Tom XVIII, 2001 year. Simferopol: SONAT: 82–86. (In Russian).
- Filatov M.A. 2006. Contribution to the fauna of bees (Hymenoptera, Apoidea) of the Opuk Nature Reserve. *Proceedings of the Nikitinskiy State Botanical gardens*, **126**: 110–117. (In Russian).
- Filatov M.A. 2013. Fauna of solitary bees of the family Apidae (Hymenoptera, Apoidea) of Karadag, Opuk and Kazantip Nature Reserves. *The Nature reservations of Crimea. Biodiversity and Conservation in Sea of Azov and Black Sea Region. Materials of the 7th International Scientific-Practical Conference*. Simferopol: 409–411. (In Russian).
- Filatov M.A., Ivanov S.P., Budashkin Yu.I. 2006. Bees (Hymenoptera, Apoidea) of the Kazantip Nature Reserve. *Proceedings of the Nikitinskiy State Botanical gardens*, **126**: 258–262. (In Russian).
- Filatov M.A., Ivanov S.P. 2007. On the question of biodiversity of bees of the family Apidae (Hymenoptera, Apoidea) in Natural Reserves of Eastern Crimea. *Materials of IV International scientific and practical conference "Crimea natural reservations-2007". Part. 2. Zoology*. Simferopol: 165–168. (In Russian).
- Friese H. 1896. *Die Bienen Europa's (Apidae europaeae). Theil II. Solitäre Apiden. Genus Eucera*. Berlin: R. Friedländer & Sohn. 216 pp.
- Friese H. 1897. *Die Bienen Europa's (Apidae europaeae). Theil III. Solitäre Apiden. Genus Podalirius*. Berlin: R. Friedländer & Sohn. 316 pp.
- Gogala A. 1999. Bee Fauna of Slovenia: Checklist of Species (Hymenoptera: Apoidea). *Scopolia*, **42**: 1–79.
- Grace A. 2010. *Introductory biogeography to bees of the Eastern Mediterranean and Near East*. Sussex: Bexhill Museum. 284 pp.
- Gurvich Yu.M. 1931. Contributions to the study of the bees in northern North Caucasus. 1. Bees collected in the Aksay Biological Station of the Northern Caucasian State University. *Proceedings of the North Caucasus State university*, **21**(4): 92–187. (In Russian).
- Gusenleitner F., Schwarz M. 2002. Weltweite Checkliste der Bienengattung *Andrena* mit Bemerkungen und Ergänzungen zu palaarktischen Arten (Hymenoptera, Apidae, Andreninae, *Andrena*). *Entomofauna*, Supplement **12**: 1–1280.
- Józán Z. 2011. Checklist of Hungarian Sphecidae and Apidae species (Hymenoptera, Sphecidae and Apidae). *Natura Somogyensis*, **19**: 177–200.
- Ivanov S.P., Fateryga A.V., Filatov M.A. 2009. Retrospective assessment of species diversity of wild bees and wasps (Hymenoptera, Aculeata) of the Botanical Garden of Vernadskiy Taurida National University. *Scientific Notes of Taurida V. Vernadsky National University. Series: Biology, chemistry*, **22**(61–3): 40–51. (In Russian).
- Ito M. 1985. Additional notes on the bumblebee fauna of North Korea (Hymenoptera, Apidae). *Folia Entomologica Hungarica*, **46**(1): 5–22.
- Kholodov V.V. 1999. Records of *Eucera kullenbergi* (Hymenoptera, Anthophoridae) from the Crimea. *Vestnik Zoologii*, **33**(4/5): 118.
- Kilimnik O.M. 2016. Characteristics of taxon counts of bees and their parasites as indicators of the terrestrial ecosystem of the Kuyalnitsky estuary basin. *Water regime and hydroecological characteristics of Kuyalnitskyi Liman*. Odessa: 69–78. (In Ukrainian).
- Kuzmin P.M., Molchanov A.E. 1983. The fauna of bees of the families Megachilidae and Anthophoridae in the Kurgan Province. *The Fauna of Invertebrates of the Urals*. Chelyabinsk: 19–25. (In Russian).
- Kuznetsova V.T. 1990. *The Hymenoptera of the «Galich'ya Gora» Nature Reserve. Informational Report*. Moscow: All-Union Institute for Information in Science and Technology of the USSR Academy of Sciences. 85 pp. (In Russian).
- Levchenko T.V. 2011. Contribution to the fauna of bees (Hymenoptera: Apoidea) of Moscow Province. 2. Family Apidae. Subfamilies Apinae (excluding *Bombus* Latr.) and Xylocopinae. *Eversmannia*, **27–28**: 87–103. (In Russian).
- Levchenko T.V. 2012. Contributions to the fauna of bees (Hymenoptera: Apoidea) of Moscow Province. 3. Family Apidae. Genus *Bombus* Latreille, 1802. *Eversmannia*, **31/32**: 72–88. (In Russian).
- Levchenko T.V. 2013. Contribution to the fauna of bees (Hymenoptera: Apoidea) of Moscow Province. 4. Family Apidae. Subfamilies Apinae (conclusive part) and Nomadinae. *Eversmannia*, **34**: 40–56. (In Russian).
- Levchenko T.V., Yuferev G.I. 2013. Additions and corrections to the checklist of bees (Hymenoptera: Apoidea: Apiformes) of the Kirov Province. *Transactions of the "Nurgush" State Nature Reserve*. Kirov, **2**: 99–108. (In Russian).
- Lieftinck M.A. 1968. A review of Old World species of *Thyreus* Panzer (= *Crocisa* Jurine) (Hym., Apoidea, Anthophoridae) Part 4. Palearctic species. *Zoologische Verhandelingen*, **98**: 1–139.
- Lieftinck M.A. 1980. Prodrôme to a monograph of the Palearctic species of the genus *Melecta* Latreille 1802 (Hymenoptera, Anthophoridae). *Tijdschrift voor Entomologie*, **123**(6): 129–349.

- Løken A. 1973. Studies on Scandinavian bumble bees (Hymenoptera, Apidae). *Norsk entomologisk Tidsskrift*, **20**: 1–218.
- Lopatin A.V., Dobrynin N.D. 2005. Superfamily Apoidea. *Inventory of invertebrates of the Voronezh Province*. Voronezh: 667–692. (In Russian).
- Lykov V.A. 2000. A review of the fauna of bees of the families Melittidae, Megachilidae and Anthophoridae (Hymenoptera, Apoidea) in the Perm Province. *Proceedings of Perm University*, **2**: 216–227. (In Russian).
- Madsen H.B., Calabuig I. 2012. Annotated checklist of the Bees in Denmark – Part 5: Apidae (Hymenoptera, Apoidea). *Entomologiske Meddelelser*, **80**(1): 7–52.
- Maharramov M.M., Bayramov A.B. 2014. The fauna of true bees of the tribe Eucerini (Hymenoptera, Apoidea, Apidae) in the Nakhchivan Autonomous Republic of Azerbaijan. *Proceedings of Altai State Agrarian University*, **4**(114): 59–63. (In Russian).
- Marikovskaya T.P. 1976. Contributions to the fauna, phenology and trophic links of anthophorine bees (Hymenoptera, Anthophoridae) in south-eastern Kazakhstan. *Proceedings of the Academy of Sciences of Kazakhstan SSR, Biology*, **5**: 20–24. (In Russian).
- Marikovskaya T.P. 2001. A contribution to the fauna of bees of the tribe Eucerini (Hymenoptera, Anthophoridae) in deserts of Kazakhstan. *Selevinia*, **1/4**: 129–132. (In Russian).
- Michener C.D. 2007. *The Bees of the World. Second edition*. Baltimore, London: J. Hopkins Univ. Press. 953 p. Mitai K., Tadauchi O. 2008. The genus *Nomada* (Hymenoptera, Apidae) from Kazakhstan and Kyrgyzstan collected by the Kyushu University Expedition (1). *Esakia*, **48**: 25–35.
- Monsevičius V.A. 1995. A checklist of wild bee species (Hymenoptera, Apoidea) of Lithuania with data to their distribution and bionomics. *New and rare for Lithuania insect species. Records and descriptions of 1994–1995*. Vilnius: 7–144.
- Morawitz F.F. 1874. Die Bienen Daghestans. *Horae Societatis Entomologicae Rossicae*, **10**(2/4): 129–189.
- Morawitz F.F. 1893. Supplement zur Bienenfauna Turkestans. *Horae Societatis Entomologicae Rossicae*, **28**(1/2): 3–87.
- Nikiforuk K.S. 1957. Bees of the Bashkir ASSR. *Notes of the Bashkir Branch of the Geographical Society of the USSR*, **1**: 139–162. (In Russian).
- Ornosa C., Martínez M.D. 1998. Notas taxonómicas y faunísticas sobre antoforas españolas (Hymenoptera, Anthophoridae, Anthophorini). *Boletín de la Asociación Española de Entomología*, **22**(1–2): 211–221.
- Ortiz-Sánchez F.J., Roberts P.M.S. 2007. A new record for *Eucera* (*Eucera*) *dalmatica* Lepeletier, 1841 in the Iberian Peninsula (Hymenoptera, Anthophoridae). *Entomofauna*, **28**(5): 61–64.
- Osytsnjuk A.Z. 1977. *Fauna of the Ukraine. Vol. 12. Bees (Apoidea). No. 5. Family Andrenidae*. Kiev: Naukova Dumka. 328 pp. (In Ukrainian).
- Pagliano G. 1994. Catalogo degli Imenotteri italiani (IV Apoidea: Colletidae, Megachilidae, Anthophoridae, Apidae). *Memoire della Società Entomologica Italiana*, **72**: 331–467.
- Panfilov D.V. 1957. The bumble bees (Bombidae) of the Moscow Province. *Scientific Notes of the Moscow City Pedagogical Institute*, **65**(6): 191–219. (In Russian).
- Panfilov D.V., Rossolimo O.L., Syroechkovskiy E.E. 1961. Contribution to the bumblebees fauna (Bombinae) of Tyva Rep. *News of the Siberian Branch of the USSR Academy of Sciences. Series of Biological Sciences*, **6**: 106–113. (In Russian).
- Peeters T.M.J., Raemakers I.P., Smit J. 1999. *Voorlopige atlas van de Nederlandse bijen (Apidae)*. Leiden: European Invertebrate Survey. 230 pp.
- Pesenko Yu.A. 1974. Contributions to the fauna and ecology of bees (Hymenoptera, Apoidea) in the Lower Don basin. Report IV. The family Anthophoridae. *Entomologicheskoe Obozrenie*, **53**(2): 324–333. (In Russian).
- Pesenko Yu.A., Astafurova Yu.V. 2003. Annotated bibliography of Russian and Soviet publications on the bees (Hymenoptera: Apoidea; excluding *Apis mellifera*): 1771–2002. *Denisia*, **11**: 1–616.
- Ponomareva A.A. 1966. On some little-known species of the genus *Anthophora* s. l. (Hymenoptera, Apoidea) from the USSR. *Entomologicheskoe Obozrenie*, **45**(1): 155–167. (In Russian).
- Ponomareva A.A. 1967. On trophic links of some bees of the subfamily Anthophorinae and of main pollinators (Hymenoptera, Apoidea) of leguminous plants in Central Kazakhstan and Middle Asia. *Proceedings of Zoological Institute of the USSR Academy of Sciences*, **38**: 330–365. (In Russian).
- Popov V.V. 1931. Zur Kenntnis der paläarktischen Schmarotzerhummeln (*Psithyrus* Lep.). *Eos*, **7**(2): 131–209.
- Popov V.V. 1950. On the genus *Amegilla* Friese (Hymenoptera, Apoidea). *Entomologicheskoe Obozrenie*, **31**(1/2): 257–261. (In Russian).
- Popov V.V. 1954. On the fauna of bees (Hymenoptera, Apoidea) in the southern part of the Western Kazakhstan Province. *Proceedings of Zoological Institute of the USSR Academy of Sciences*, **16**: 351–373. (In Russian).
- Popov V.V. 1967a. The bees (Hymenoptera, Apoidea) of Middle Asia and their associations with angiosperm plants. *Proceedings of Zoological Institute of the USSR Academy of Sciences*, **38**: 11–329. (In Russian).

- Popov V. V. 1967b. The bees (Hymenoptera, Apoidea) of Iran. *Proceedings of Zoological Institute of the USSR Academy of Sciences*, **43**: 184–216. (In Russian).
- Priesner H. 1957. A review of the *Anthophora*-species of Egypt (Hymenoptera: Apidae). *Bulletin de la Société entomologique d'Égypte*, **41**: 1–115.
- Proshchalykin M. Yu. 2012. Section Apiformes. *Annotated catalogue of the insects of Russian Far East. Vol. I. Hymenoptera*. Vladivostok: 448–473. (In Russian).
- Proshchalykin M. Yu. 2013. New records of bees (Hymenoptera, Apoidea, Apiformes) from Siberia. *A.I. Kurentsov's Annual Memorial Meetings*, **24**: 135–148. (In Russian).
- Proshchalykin M. Yu., Kupianskaya A. N. 2009. The bees of the family Apidae (Hymenoptera, Apoidea) of Transbaikalia. *Euroasian Entomological Journal*, **8**(1): 59–68. (In Russian).
- Proshchalykin M. Yu., Astafurova Yu. A. 2017. The history of study of the Russian bees (Hymenopter: Anthophila). *A.I. Kurentsov's Annual Memorial Meetings*, **28**: 26–34. (In Russian).
- Proshchalykin M. Yu., Astafurova Yu. A., Schwarz M., Levchenko T. V., Byvaltsev A. M. 2017. New records to the bee fauna of Russia (Hymenoptera, Apiformes). *Far Eastern Entomologist*, **337**: 1–16.
- Proshchalykin M. Yu., Schwarz M. 2017. The genus *Nomada* (Hymenoptera: Apidae) in Siberia. *Linzer Biologische Beiträge*, **49**(1): 985–1006.
- Reinig W. F. 1939. Die Evolutionsmechanismen, erliutert an den Hummeln. *Zoologischer Anzeiger*, **12**: 170–206.
- Sapaev E. A. 2004. Order Hymenoptera. *Cadastre of useful insects of Tatarstan Republic*. Kazan: 123–212. (In Russian).
- Scheuchl E. 2008. *Illustrierte Bestimmungstabellen der Wildbienen Deutschlands und Österreichs. Bd. 1: Anthophoridae. 2. erweiterte Auflage*. Velden: 175 pp.
- Schwarz M. 1965. Zwei neue *Nomada*-Arten aus Griechenland (Hymenoptera, Apoidea). *Nachrichtenblatt der Bayerischen Entomologen*, **14**: 81–87.
- Schwarz M. 1967a. Ergebnisse der Albanien-Expedition 1961 des Deutschen Entomologischen Institutes. 68. Beitrag Hymenoptera: Apidae III (Genus *Nomada* Scopoli). *Beiträge zur Entomologie*, **17**: 529–535.
- Schwarz M. 1967b. Die Gruppe der *Nomada cinctiventus* Fr. (= *stigma* auct. nec. F.). *Polskie Pismo Entomologiczne*, **37**: 263–339.
- Schwarz M. 1980. Beitrag zur Kenntnis weiterer von F. Morawitz beschriebenen *Nomada*-Arten (Hymenoptera, Apoidea). *Entomofauna*, **1**(9): 103–118.
- Schwarz M., Gusenleitner F., Mazzucco K. 1999. Weitere Angaben zur Bienenfauna Österreichs. Vorstudie zu einer Gesamtbearbeitung der Bienen Österreichs III (Hymenoptera, Apidae). *Entomofauna*, **20**(31): 461–521.
- Shibaev S. V., Polumordvinov O. A. 2012. A review of hymenopterans species diversity (Insecta, Hymenoptera) in Penza Province. *Proceedings of Penza State Pedagogical University*, **29**: 274–279. (In Russian).
- Shumakova P. I., Babenko Z. S., Zolotarev G. S. 1982. Bee pollinators (Hymenoptera, Apoidea) of leguminous plants in the Kulunda. *Beneficial and Harmful Insects of Siberia*. Novosibirsk: 157–174. (In Russian).
- Sitdikov A. A. 1986. The fauna of bees (Hymenoptera, Apoidea) of Udmurtia, with a description of *Melitta udmurtica* sp. n. *Proceedings of Zoological Institute of the USSR Academy of Sciences*, **159**: 103–112. (In Russian).
- Skhirtladze I. A. 1981. *The bees of the Transcaucasus (Hymenoptera, Apoidea)*. Tbilisi: Metsniereba. 148 pp. (In Russian).
- Stöckhert E. 1944. Über die Gruppe der *Nomada furva* Panz. (Hym. Apid.). *Deutsche Entomologische Zeitschrift*, **3–4**: 89–126.
- Straka J., Bogusch P., Přidal A. 2007. Apoidea: Apiformes (včely). *Acta Entomologica Musei Nationalis Pragae, Supplement*. **11**: 241–299.
- Tkalců B. 1979. Revision der europäischen Vertreter der Artengruppe von *Tetralonia ruficornis* (Fabricius) (Hymenoptera, Apoidea). *Acta Musei Moraviae*, **64**: 127–152.
- Tkalců B. 1984. Systematisches Verzeichnis der westpaläarktischen *Tetralonia* und *Eucera* Arten, deren Männchen als Blütenbesucher verschiedener *Ophrys*-Arten festgestellt wurden. Mit Beschreibung neuer Taxa (Hymenoptera: Apoidea). *Nova Acta Regiae Societatis Scientiarum Upsaliensis*, **5**(3): 57–77.
- Warncke K. 1972. Westpaläarktische Bienen der Unterfamilie Panurginae. *Polskie Pismo Entomologiczne*, **42**(1): 53–108.
- Williams P. H. 1991. The bumble bees of the Kashmir Himalaya (Hymenoptera: Apidae, Bombini). *Bulletin of the British Museum (Natural History). Entomology*, **60**: 1–204.
- Williams P. H., Tang Y., Yao J., Cameron, S. 2009. The bumblebees of Sichuan (Hymenoptera: Apidae, Bombini). *Systematics & Biodiversity*, **7**(2): 101–190.
- Williams P. H., An J., Huang J. 2011. The bumblebees of the subgenus *Subterraneobombus*: integrating evidence from morphology and DNA barcodes (Hymenoptera, Apidae, *Bombus*). *Zoological Journal of the Linnean Society*, **163**: 813–862.
- Wu Y.-R. 2000. *Fauna Sinica – Insecta, Vol. 20: Melittidae and Apidae*. Beijing: Science Press. 412 pp. (In Chinese).