

РОССИЙСКАЯ АКАДЕМИЯ НАУК  
Южный научный центр

RUSSIAN ACADEMY OF SCIENCES  
Southern Scientific Centre



# Кавказский Энтомологический Бюллетень

CAUCASIAN ENTOMOLOGICAL BULLETIN

Том 16. Вып. 2

Vol. 16. No. 2



Ростов-на-Дону  
2020

## New records of megachilid bees (Hymenoptera: Megachilidae) from the North Caucasus and the south of European Russia

© A.V. Fateryga<sup>1</sup>, M.Yu. Proshchalykin<sup>2</sup>

<sup>1</sup>T.I. Vyazemsky Karadag Scientific Station – Nature Reserve of the Russian Academy of Sciences – Branch of A.O. Kovalevsky Institute of Biology of the Southern Seas, Nauki Str., 24, Kurortnoye, Feodosiya 298188 Russia. E-mail: fater\_84@list.ru

<sup>2</sup>Federal Scientific Center of the East Asia Terrestrial Biodiversity of the Far East Branch of the Russian Academy of Sciences, 100 лет Владивостоку Av., 159, Vladivostok 690022 Russia. E-mail: proshchalikin@biosoil.ru

**Abstract.** New data on 22 species of bees of the family Megachilidae from the North Caucasus and the south of European Russia are reported. Six species are new to Russia: *Hoplitis curvipes* (Morawitz, 1871), *Osmia cinerea* Warncke, 1988, *O. ligurica* Morawitz, 1868, *O. cyanoxantha* Pérez, 1879, *Protosmia glutinosa* (Giraud, 1871), and *Coelioxys mielbergi* Morawitz, 1880. *Hoplitis turcestanica* (Dalla Torre, 1896), **sp. resurr.** is treated as a distinct species, not a junior synonym of *H. caularis* (Morawitz, 1875). *Megachile albocristata* Smith, 1853 and *M. alborufa* Friese, 1911 are listed instead of previously recorded *M. lefebvrei* (Lepelletier de Saint-Fargeau, 1841) and *M. pyrenaica* (Lepelletier de Saint-Fargeau, 1841), respectively. Fourteen new regional records are reported: seven species are new to the North Caucasus, five ones are new to the south of European Russia, and two species are new to the European part of Russia as a whole. The numbers of megachilid bee species currently known in Russia, the North Caucasus, and the south of European Russia are 217, 130, and 71, respectively. The lectotype of *Osmia proxima* Morawitz, 1875 is designated.

**Key words:** Apoidea, Apiformes, fauna, taxonomy, lectotype.

### Новые находки пчел-мегахилид (Hymenoptera: Megachilidae) на Северном Кавказе и юге европейской части России

© А.В. Фатерыга<sup>1</sup>, М.Ю. Прощалькин<sup>2</sup>

<sup>1</sup>Карадагская научная станция им. Т.И. Вяземского – природный заповедник РАН – филиал Института биологии южных морей им. А.О. Ковалевского РАН, ул. Науки, 24, пгт Курортное, Феодосия 298188 Россия. E-mail: fater\_84@list.ru

<sup>2</sup>Федеральный научный центр биоразнообразия наземной биоты Восточной Азии ДВО РАН, пр. 100 лет Владивостоку, 159, Владивосток 690022 Россия. E-mail: proshchalikin@biosoil.ru

**Резюме.** Приведены новые сведения о 22 видах пчел семейства Megachilidae с Северного Кавказа и юга европейской части России. Шесть видов являются новыми для России: *Hoplitis curvipes* (Morawitz, 1871), *Osmia cinerea* Warncke, 1988, *O. ligurica* Morawitz, 1868, *O. cyanoxantha* Pérez, 1879, *Protosmia glutinosa* (Giraud, 1871) и *Coelioxys mielbergi* Morawitz, 1880. *Hoplitis turcestanica* (Dalla Torre, 1896), **sp. resurr.** рассматривается как самостоятельный вид, а не младший синоним *H. caularis* (Morawitz, 1875). *Megachile albocristata* Smith, 1853 и *M. alborufa* Friese, 1911 приведены вместо ранее указанных *M. lefebvrei* (Lepelletier de Saint-Fargeau, 1841) и *M. pyrenaica* (Lepelletier de Saint-Fargeau, 1841) соответственно. Сообщается о 14 новых региональных находках: семь видов новых для Северного Кавказа, пять для юга европейской части России и два для европейской части России в целом. Число видов пчел-мегахилид, известных в настоящее время в России, на Северном Кавказе и на юге европейской части России, составляет соответственно 217, 130 и 71. Обозначен лектотип *Osmia proxima* Morawitz, 1875.

**Ключевые слова:** Apoidea, Apiformes, фауна, таксономия, лектотип.

## Introduction

The family Megachilidae is one of the most understudied groups of bees in the fauna of Russia, in particular, the southern regions of the country such as the North Caucasus or the south of European Russia. After the publication of the “Annotated Catalogue of the Hymenoptera of Russia” with 198 species of megachilid bees [Proshchalykin, Fateryga, 2017], several additional papers were published [Byvaltsev et al., 2018; Fateryga et al., 2019; Byvaltsev, Proshchalykin, 2019; Proshchalykin, Müller, 2019] increasing the number of species known in Russia to 212. Of them, 115 species were hitherto known in the North Caucasus [Fateryga et al., 2019] and 65 ones were known in south of European Russia [Proshchalykin, Fateryga, 2017; Fateryga et al., 2019]. Both numbers are still

expected to be significantly increased by further research. This paper is a next step towards a better documentation of the megachilid bee fauna of the North Caucasus and neighboring regions of the European part of Russia.

## Material and methods

The material for the present study was collected mainly in 2018–2019 by the authors. The specimens are deposited in the collection of the Federal Scientific Center of the East Asia Terrestrial Biodiversity of the Far East Branch of the Russian Academy of Sciences (FSCV, Vladivostok, Russia) and the private collection of A.V. Fateryga (CAFK, Feodosiya, Russia). Some additional specimens were examined in the collection of the Zoological Institute of the Russian Academy of Sciences (ZISP, Saint Petersburg,

Russia). The bees were identified mainly by comparison of the newly collected material with the relevant material stored in ZISP and CAFK. Some specimens were identified by A. Müller (Zurich, Switzerland) and C.J. Praz (Neuchâtel, Switzerland).

The taxonomy of Megachilidae follows that of Michener [2007], Praz et al. [2008], Haider et al. [2014], da Rocha Filho and Packer [2016], Praz [2017], Ascher and Pickering [2020], and Müller [2020a]. Data on the distribution of species in this paper are based upon Kuhlmann et al. [2015], Proshchalykin and Fateryga [2017], Ascher and Pickering [2020], and Müller [2020a], taking into account additional data from Fateryga et al. [2019], Byvaltsev and Proshchalykin [2019], Proshchalykin et al. [2019], and Proshchalykin and Maharramov [2020]. Regionalization in the description of the distribution follows that in Belokobylskij and Lelej [2017]: the North Caucasus includes Krasnodar and Stavropol regions and the republics of Adygea, Karachay-Cherkessia, Kabardino-Balkaria, North Ossetia – Alania, Ingushetia, Chechnya, and Dagestan; the south of the European part of Russia includes Rostov, Volgograd, and Astrakhan regions and the Republic of Kalmykia. New distributional records are marked with an asterisk (\*). The abbreviations of the collectors' names are as follows: A.F. – A.V. Fateryga, M.M. – M.V. Mokrousov, M.P. – M.Yu. Proshchalykin, and V.L. – V.M. Loktionov.

**Family Megachilidae Latreille, 1802**  
**Subfamily Megachilinae Latreille, 1802**  
**Tribe Anthidiini Ashmead, 1899**  
**Genus *Stelis* Panzer, 1806**  
*Stelis (Heterostelis) annulata*  
 (Lepeletier de Saint-Fargeau, 1841)

**Material.** Rostov Region: 1♂ (ZISP), vicinity of Volgodonsk, 28.06.1968 (Khanin).

**Distribution.** Russia: European part (south\*; Crimea). North Africa, Western, Southern, and Eastern Europe, Turkey, Lebanon.

**Tribe Osmiini Newman, 1834**  
**Genus *Hoplitis* Klug, 1807**  
*Hoplitis (Alcidamea) claviventris* (Thomson, 1872)

**Material.** Karachay-Cherkessia: 2♀ (CAFK), Urupskiy Distr., 7 km N Rozhkaio, 43°53'05"N / 40°56'55"E, 4.08.2019 (A.F.).

**Distribution.** Russia: European part (central; North Caucasus\*, Crimea), Urals, Siberia. Europe, Turkey, Kazakhstan, China, Mongolia.

*Hoplitis (Alcidamea) curvipes* (Morawitz, 1871)

**Material.** Dagestan: 1♀ (CAFK), Makhachkala, Talgi, 42°52'35"N / 47°26'24"E, 25.06.2018 (M.P., V.L., M.M.).

**Distribution.** Russia\*: European part (North Caucasus). North Africa, Southern and Eastern Europe, Turkey, Azerbaijan, Syria.

*Hoplitis (Alcidamea) tridentata* (Dufour et Perris, 1840)

**Material.** Astrakhan Region: 4♀ (FSCV), Krasny Yar Distr., 11 km N Maly Aral, 46°45'42"N / 48°29'26"E, 26.05.2019 (M.P., V.L.).

**Distribution.** Russia: European part (central, east, south\*; North Caucasus, Crimea), Urals, Western Siberia. North Africa, Western, Southern, and Eastern Europe, Georgia, Armenia, Azerbaijan, Turkey, Syria, Israel, Iran, Kazakhstan, Uzbekistan, Kyrgyzstan, Tajikistan.

*Hoplitis (Alcidamea) turcestanica* (Dalla Torre, 1896),  
**sp. resurr.**  
 (Figs 1–6)

*Osmia proxima* Morawitz, 1875: 94–95, female (type locality: "in deserto Kisilkum" [Kazakhstan]), nom. praeocc., nec *Osmia proxima* Cresson, 1864.

*Osmia turcestanica* Dalla Torre, 1896: 414, replacement name for *O. proxima* Morawitz, 1875, nec Cresson, 1864.

*Hoplitis (Alcidamea) turcestanica*: Osytshnjuk et al., 1978: 431–432 (in key); van der Zanden, 1988: 120.

*Hoplitis turcestanica*: Banaszak, Romasenko, 2001: 96.

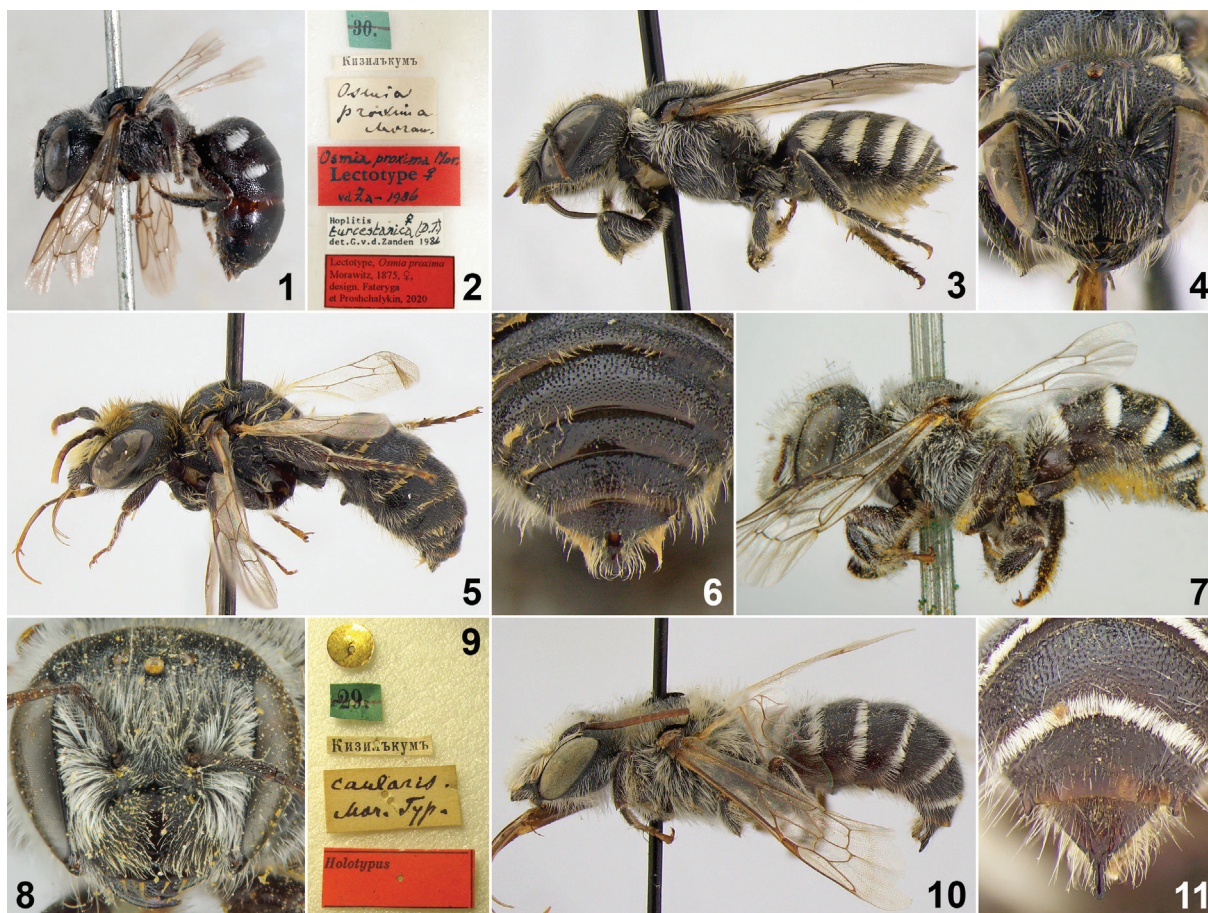
**Type material.** 1♀, lectotype (Zoological Museum of M.V. Lomonosov Moscow State University, Moscow, Russia), designated here: "30" (green label), "Кизилькумъ" [Kisilkum], "*Osmia proxima* Moraw.", "*Osmia proxima* Mor. Lectotype ♀ v d Za[nden] – 1986" (red label), "*Hoplitis turcestanica* (D.T.) ♀ det.G.v.d.Zanden 1986", "Lectotype, *Osmia proxima* Morawitz, 1875, ♀, design. Fateryga et Proshchalykin, 2020" (red label) (Figs 1, 2).

**Material.** Astrakhan Region: 1♀ (CAFK), 5♀ (FSCV), Krasny Yar Distr., 11 km N Maly Aral, 46°45'42"N / 48°29'26"E, 26.05.2019 (M.P., V.L.).

**Notes.** The studied specimens from Russia well correspond to both the original description [Morawitz, 1875: 94–95] and the lectotype of *Osmia proxima* (= *H. turcestanica*). This species was synonymized with *Hoplitis (Alcidamea) caularis* (Morawitz, 1875) by Warncke [1991] (as *Osmia caularis* Morawitz, 1875) and this synonymy was repeated by Ungricht et al. [2008], Proshchalykin and Fateryga [2017], and Müller [2020a]. These two species, however, are very different. They were described in the same paper [Morawitz, 1875] and both descriptions were based on females (Figs 1, 2, 7–9). *Hoplitis turcestanica* (Figs 1, 3, 5) has smaller body size (approximately 7–8 mm versus 9–10 mm in *H. caularis* (Figs 7, 10)). Female clypeus has distinctly emarginated apical margin and just narrow impunctate mid-line (Fig. 4) versus straight apical margin and broad impunctate mid-line in *H. caularis* (Fig. 8). Furthermore, male of *H. turcestanica* possesses a large blunt projection on sternum 2 visible in lateral view (Fig. 5), whereas male of *H. caularis* has this projection much smaller (Fig. 10) (the examined male of *H. turcestanica* was reared, together with a female, from a trap nest installed in Ukraine; males of *H. caularis* were examined in ZISP). Male tergum 7 is also very different in these two species: its distal half is rather short and broad in dorsal view (Fig. 6) and simple in lateral view (Fig. 5) in *H. turcestanica* but long and narrow in dorsal view (Fig. 11) and with a ventral tooth visible in lateral view (Fig. 10) in *H. caularis*. To notice, van der Zanden [1988] even assigned these two species to different subgenera: *H. turcestanica* to *Alcidamea* Cresson, 1864 but *H. caularis* to *Acanthosmia* Thomson, 1872, although the latter subgenus is currently treated as a synonym of *Alcidamea* [Müller, 2020a].

Although the type specimen of *O. proxima* has G. van der Zanden's lectotype label (Fig. 2), that designation has apparently not been published.

Some records of *H. turcestanica* from Western and Middle Asia require further confirmation (a part of them may actually refers to *H. caularis*).



Figs 1–11. Species of the genus *Hoplitis*, general view, details of structure, labels.

1–6 – *H. (Alcidamea) turcestanica* (Dalla Torre, 1896); 7–11 – *H. (A.) caularis* (Morawitz, 1875). 1–2 – female, lectotype of *Osmia proxima* Morawitz, 1875 (Kazakhstan); 3–4 – female (Astrakhan Region, Russia); 5–6 – male (Ukraine); 7–9 – female, holotype (Kazakhstan); 10–11 – male (Uzbekistan). 1, 3, 5, 7, 10 – general view; 2, 9 – labels; 4, 8 – head frontally; 6, 11 – apex of metasoma dorsally. 1–2 – photos by A.V. Antropov.

Рис. 1–11. Виды рода *Hoplitis*, общий вид, детали строения, этикетки.

1–6 – *Hoplitis (Alcidamea) turcestanica* (Dalla Torre, 1896); 7–11 – *H. (A.) caularis* (Morawitz, 1875). 1–2 – самка, лектотип *Osmia proxima* Morawitz, 1875 (Казахстан); 3–4 – самка (Астраханская область, Россия); 5–6 – самец (Украина); 7–9 – самка, голотип (Казахстан); 10–11 – самец (Узбекистан). 1, 3, 5, 7, 10 – общий вид; 2, 9 – этикетки; 4, 8 – голова спереди; 6, 11 – вершина метасомы сверху. 1–2 – фотографии А.В. Антропова.

**Distribution.** Russia: European part (south\*; North Caucasus, Crimea), Urals. Eastern Europe, Turkey, Syria, Kazakhstan, Uzbekistan, Turkmenistan, Kyrgyzstan, Tajikistan, China.

*Hoplitis (Anthocopa) papaveris* (Latreille, 1799)

**Material.** Astrakhan Region: 1♂ (FSCV), Liman Distr., 8 km SE Promyslovka, 45°40'23"N / 47°14'26"E, 21.05.2019 (M.P., V.L.).

**Distribution.** Russia: European part (central, south\*; North Caucasus, Crimea), Urals. Western, Southern, and Eastern Europe, Caucasus, Turkey, Israel, Jordan, Kazakhstan, Uzbekistan, Tajikistan, China.

*Hoplitis (Hoplitis) manicata* Morice, 1901

**Material.** Volgograd Region: 1♀, 1♂ (ZISP), Sarepta [Volgograd] (A.K. Becker).

**Distribution.** Russia: European part (south\*; North Caucasus, Crimea). North Africa, Western, Southern, and Eastern Europe, Armenia, Azerbaijan, Turkey.

**Genus *Osmia* Panzer, 1806**

*Osmia (Helicosmia) cinerea* Warncke, 1988

**Material.** Dagestan: 1♀ (CAFK), Makhachkala, 2 km NW Talgi, 42°52'35"N / 47°26'41"E, 29.05.2019 (M.P., V.L.).

**Distribution.** Russia\*: European part (North Caucasus). Turkey.

*Osmia (Hoplosmia) ligurica* Morawitz, 1868

**Material.** Dagestan: 1♀ (CAFK), Kayakentskiy Distr., 4 km SE Novokayakent, 42°22'09"N / 48°01'51"E, 5.06.2019 (A.F.).

**Distribution.** Russia\*: European part (North Caucasus). North Africa, Western, Southern, and Eastern Europe, Georgia, Armenia, Azerbaijan, Turkey, Cyprus, Syria, Israel, Jordan, Iran, Turkmenistan.

*Osmia (Osmia) apicata* Smith, 1853

**Material.** Dagestan: 1♀ (CAFK), Levashi Distr., Tsudakhar, 42°19'40"N / 47°09'48"E, 1.06.2019 (M.P., V.L.).

**Notes.** This species was reported for Russia as a whole without details on its distribution [Proshchalykin, Fateryga, 2017].

**Distribution.** Russia: European part\* (North Caucasus). Western, Southern, and Eastern Europe, Georgia, Armenia, Azerbaijan, Turkey, Syria, Israel, Jordan, Iran.

*Osmia (Osmia) mustelina* Gerstäcker, 1869

**Material.** Dagestan: 2♀ (FSCV), Rutul Distr., Khlyut, 41°30'24"N / 47°31'09"E, 4.06.2019 (M.P., V.L.).

**Distribution.** Russia: European part (North Caucasus\*, Crimea). North Africa, Western, Southern, and Eastern Europe, Georgia, Armenia, Azerbaijan, Turkey, Lebanon, Israel, Iran.

*Osmia (Pyrosmia) cyanoxantha* Pérez, 1879

**Material.** Dagestan: 1♀ (CAFK), Kazbekovskiy Distr., 1.5 km SE Novo-Zubutli, 43°03'36"N / 46°51'09"E, 28.05.2019 (M.P., V.L.).

**Distribution.** Russia\*: European part (North Caucasus). North Africa, Western, Southern, and Eastern Europe, Georgia, Armenia, Azerbaijan, Turkey, Cyprus, Syria, Israel, Jordan, Iran.

*Osmia (Pyrosmia) versicolor* Latreille, 1811

**Material.** Dagestan: 1♂ (ZISP), Derbent; 1♀ (CAFK), Makhachkala, 2 km NW Talgi, 42°52'35"N / 47°26'41"E, 29.05.2019 (M.P., V.L.).

**Distribution.** Russia: European part (North Caucasus\*, Crimea). North Africa, Western, Southern, and Eastern Europe, Georgia, Armenia, Azerbaijan, Turkey, Syria, Lebanon, Israel, Jordan.

**Genus *Protosmia* Ducke, 1900**

*Protosmia (Protosmia) glutinosa* (Giraud, 1871)

**Material.** Dagestan: 1♀ (CAFK), Levashi Distr., Tsudakhar, 42°19'40"N / 47°09'48"E, 1.06.2019 (A.F.); 1♀ (CAFK), same locality, on *Salvia canescens*, 11.06.2019 (A.F.); 1♀ (FSCV), Dokuzparinskiy Distr., Miskindzha, 41°25'23"N / 47°51'44"E, 4.06.2019 (A.F.).

**Distribution.** Russia\*: European part (North Caucasus). North Africa, Western, Southern, and Eastern Europe, Caucasus, Turkey, Cyprus, Syria, Israel, Jordan, Iran.

*Protosmia (Protosmia) tiflensis* (Morawitz, 1876)

**Material.** Dagestan: 1♀ (FSCV), Derbent Distr., 7 km SE Gedzhykh, 42°03'52"N / 48°05'57"E, 3.06.2019 (M.P., V.L.).

**Distribution.** Russia: European part (North Caucasus\*, Crimea). Southern and Eastern Europe, Georgia, Turkey, Israel, Jordan.

**Tribe Megachilini Latreille, 1802**

**Genus *Coelioxys* Latreille, 1809**

*Coelioxys (Allocoelioxys) echinatus* Förster, 1853

**Material.** Dagestan: 1♂ (CAFK), Kayakentskiy Distr., 4 km SE Novokayakent, 42°22'09"N / 48°01'51"E, 5.06.2019 (A.F.).

**Distribution.** Russia: European part (central; North Caucasus\*, Crimea), Western Siberia. North Africa, Western, Southern, and Eastern Europe, Caucasus, Turkey, Cyprus, Israel, Iraq, Iran, Afghanistan.

*Coelioxys (Allocoelioxys) mielbergi* Morawitz, 1880

**Material.** Volgograd Region: 1♀ (ZISP), Sarepta [Volgograd] (M. Schwarz det.).

**Notes.** This species, hitherto known only from Central Asia, is closely related to *Coelioxys (Allocoelioxys) polycentris* Förster, 1853 and may represent just one of its colour forms. The studied specimen well corresponds to the type material of *C. mielbergi* available in ZISP. Although this specimen from Russia is from the F. Morawitz's collection and has an identification label written by M. Schwarz, it was not mentioned in his paper dealing with the species of *Coelioxys* described by F. Morawitz [Schwarz, Gusenleitner, 2003].

**Distribution.** Russia\*: European part (south). Uzbekistan, Turkmenistan, Tajikistan.

*Coelioxys (Paracoelioxys) elongatus*

Lepelletier de Saint-Fargeau, 1841

**Material.** Dagestan: 1♀ (FSCV), Derbent Distr., 7 km SE Gedzhykh, 42°03'52"N / 48°05'57"E, 3.06.2019 (M.P., V.L.).

**Distribution.** Russia: European part (central, east; North Caucasus\*, Crimea), Urals, Siberia, Far East. North Africa, Europe, Caucasus, Turkey, Iran.

**Genus *Megachile* Latreille, 1802**

*Megachile (Chalicodoma) albocristata* Smith, 1853

(Figs 12, 13)

**Material.** Dagestan: 1♀ (ZISP), Derbent; 1♂ (ZISP), same locality (Faust); 1♀ (ZISP), same locality, 1.07.1925 (A. Kiritchenko); 1♀ (CAFK), Derbent Distr., Kamyshchay River valley, 41°54'29"N / 48°13'59"E, 11.06.2017 (M.M.); 3♀ (FSCV), Makhachkala, Talgi, 42°52'35"N / 47°26'24"E, 25.06.2018 (M.P., V.L., M.M.); 4♀ (FSCV), Kumtorkalinskiy Distr., Sarykum Sand Dune, 43°00'08"N / 47°14'15"E, 23–24.06.2018 (M.P., V.L.); 1♀ (ZISP), same locality, 23–24.06.2018 (Yu.V. Astafurova); 2♀ (FSCV), Izberbash, 42°35'13"N / 47°49'13"E, 27.06.2018 (M.P., V.L.); 1♀ (ZISP), same locality, 27.06.2018 (Yu.V. Astafurova); 2♀ (FSCV), Makhachkala, 2 km NW Talgi, 42°52'35"N / 47°26'41"E, 29.05.2019 (M.P., V.L.); 1♀ (CAFK), Makhachkala, vicinity of Talgi, 42°52'36"N / 47°26'42"E, on *Teucrium canum*, 12.06.2019 (A.F.); 1♂ (CAFK), Kumtorkalinskiy Distr., Narat-Tyube Range, 42°58'47"N / 47°14'40"E, on *Ziziphora serpyllacea*, 12.06.2019 (A.F.).

**Notes.** This species was previously known in Russia as *Megachile (Chalicodoma) lefebvrei* (Lepelletier de Saint-Fargeau, 1841) [Proshchalykin, Fateryga, 2017]. Typical form of *M. albocristata* occurs in Crimea (Fig. 12), where the species is widespread [Fateryga et al., 2018]. Females from Dagestan (Fig. 13), however, have the colour pattern somewhat intermediate between *M. albocristata* and *M. (Ch.) hungarica* Mocsáry, 1877. At the same time, there are no differences in males from Crimea and Dagestan. Both *M. albocristata* and *M. hungarica* may actually represent just colour forms or subspecies of *M. lefebvrei* (C.J. Praz, personal communication); currently, these three taxa are accepted as three different species in the "Discover Life" database [Ascher, Pickering, 2020].

To notice, *M. hungarica* was reported from Dagestan (Khiv District, Yargil) as *Chalicodoma podolicum* (Noskiewicz, 1936) (junior subjective synonym of *M. hungarica* [Ascher, Pickering, 2020]) by Skhirtladze [1984]. This record, however, is probably based on a misidentification of another similar species, i.e., *M. (Ch.) albonotata* Radoszkowski, 1886, known from Mountainous Dagestan [Fateryga et al., 2019].

The record of *M. lefebvrei* from Georgia [Kirkitaдзе, Japoshvili, 2015] obviously refers to *M. albocristata*.

**Distribution.** Russia\*: European part (North Caucasus, Crimea). Western and Southern Europe, Georgia, Turkey, Iran.

*Megachile (Chalicodoma) alborufa* Friese, 1911

**Material.** Adygea: 2♀ (ZISP), Maykop, upper reaches of Belaya River, 7.08.1909 (N. Bryanskiy). Karachay-Cherkessia: 1♀ (ZISP), Ust-Dzheguta Distr., Krasnogorskaya, 20.06.1896 (Shchukin); 1♀ (ZISP), Zelenchukskaya Distr., Arkhyz, 26.07.1939 (Djakonov); 1♀ (ZISP), Teberda, 28.06.1953 (L. Arens); 1♀ (ZISP), Karachayevsk Distr., WNW slope to Daut River from Karachay-Aush Pass, 1985 m, on Onobrychis, 24.07.1987 (Z. Onisimova). North Ossetia – Alania: 1♀ (ZISP), vicinity of Tseydon River, 17.06.1913 (Bartenyev); 1♀ (ZISP), Alagir Distr., Verkhniy Tsey, 3.08.1925 (A. Kiritchenko); 3♀ (ZISP), Tseydon River canyon, 22.07.1998 (Demok[?]).

**Notes.** This species, previously known in Russia only from Teberda, was misidentified as *Megachile (Chalicodoma) pyrenaica* (Lepelletier de Saint-Fargeau, 1841) [Fateryga et al., 2019]. *Megachile alborufa* has completely reddish legs and pale pubescence on terga 1–3. In *M. pyrenaica*, legs are mostly black except reddish tarsi while pale pubescence is developed on terga 1–5. As there are no differences in morphology, *M. alborufa* may actually represent just a colour form or a subspecies of *M. pyrenaica* (C.J. Praz, personal communication); currently, these two taxa are accepted as two different species in the “Discover Life” database [Ascher, Pickering, 2020].

**Distribution.** Russia\*: European part (North Caucasus). Georgia, Azerbaijan, Turkey.

*Megachile (Eutricharaea) rubrimana* Morawitz, 1893

**Material.** Dagestan: 1♀ (CAFK), Kizlyar Distr., 8 km SE Staroterechnoye, 43°47'34"N / 47°31'39"E, 19.06.2018 (M.P., V.L., M.M.); 1♂ (CAFK), Kumtorkalinskiy Distr., Sarykum Sand Dune, 43°00'08"N / 47°14'15"E, 28–29.05.2019 (M.P., V.L.).

**Notes.** The presence of this species in the Russian Far East [Romankova, 1983, 1995] requires confirmation since there are no relevant specimens preserved in FSCV.

**Distribution.** Russia: European part\* (North Caucasus), (?) Far East. Southern and Eastern Europe, Turkey, Uzbekistan, Tajikistan.

*Megachile (Megachile) octosignata* Nylander, 1852

**Material.** Dagestan: 1♀ (FSCV), Rutul Distr., Khlyut, 41°30'24"N / 47°31'09"E, 4.06.2019 (M.P., V.L.); 1♀ (CAFK), Untsukul'skiy Distr., Maydanskoe, 42°36'16"N / 46°58'10"E, on *Echium vulgare*, 11.06.2019 (A.E.).

**Distribution.** Russia: European part (North Caucasus\*, Crimea). Western, Southern, and Eastern Europe, Georgia, Azerbaijan, Turkey.

## Discussion

The present contribution adds six species new to the fauna of Russia: *Hoplitis curvipes*, *Osmia cinerea*, *O. ligurica*, *O. cyanoxantha*, *Protosmia glutinosa*, and *Coelioxys mielbergi*; however, the taxonomic status of the latter species is still unclear. Three species of the fauna of Russia are re-identified: *Hoplitis turcestanica* is resurrected from synonymy with *H. caularis*, *Megachile albocristata* and *M. alborufa* are newly listed instead of *M. lefebvrei*



Figs 12–13. *Megachile (Chalicodoma) albocristata* Smith, 1853, females, general view.

12 – specimen from Crimea; 13 – specimen from Dagestan.

Рис. 12–13. *Megachile (Chalicodoma) albocristata* Smith, 1853, самки, общий вид.

12 – экземпляр из Крыма; 13 – экземпляр из Дагестана.

and *M. pyrenaica*, respectively; however, the taxonomic status of the latter two species is questionable. Fourteen new regional records are reported: seven species are new to the North Caucasus, five species are new to the south of European Russia, and two species are new to the European part of Russia as a whole.

To ascertain the number of megachilid bee species currently known in the studied area, some additional references have to be taken into account. For example, one more species, *Osmia (Tergosmia) tergestensis* Ducke, 1897, was recently reported from Kislovodsk by Müller [2020b]; it was previously known in Russia only from Crimea [Proshchalykin, Fateryga, 2017]. At the same time, the record of *Osmia (Hemiosmia) difficilis* Morawitz, 1875 from Russia [Proshchalykin, Fateryga, 2017] was a mistake [Müller, 2020b]. Taking into account these data, the number of megachilid bee species currently known in Russia amounts to 217; among them, 130 are known from the North Caucasus and 71 from the south of European Russia. The latter number is distinctly less in comparison with the small but well studied territory of the neighboring Crimea, where 122 species have hitherto been recorded [Fateryga, 2017; Fateryga et al., 2018; Ivanov, Fateryga, 2019].

Our knowledge of megachilid bees in the fauna of the North Caucasus is still incomplete. Several species were not included in the present contribution due to taxonomic uncertainties. These are one species of *Pseudoanthidium* Friese, 1898, which will be dealt with in a separate revision

of this group, three undescribed species of *Hoplitis* (*Hoplitis*), and one species of *Protosmia* (*Nanosmia*), which is possibly also new to science. All of them were collected in Dagestan. Thus, further studies of megachilid bees of Russia will certainly reveal new important results.

## Acknowledgements

A part of the material of *Osmiini* and *Megachile* was kindly identified by Andreas Müller (ETH Zurich, Institute of Agricultural Sciences, Biocommunication and Entomology, Zurich, Switzerland) and Christophe Praz (University of Neuchâtel, Institute of Biology, Evolutionary Entomology, Neuchâtel, Switzerland), respectively. Alexander Antropov (Zoological Museum of M.V. Lomonosov Moscow State University, Moscow, Russia) kindly provided photos of the lectotype of *Osmia proxima*. Yulia Astafurova (ZISP) supported the first author during his work in ZISP collection. Kateryna Martynova (I.I. Schmalhausen Institute of Zoology, National Academy of Sciences of Ukraine, Kiev, Ukraine) provided a nest of *Hoplitis turcestanica*. We also thank Valery Loktionov (FSCV) and Mikhail Mokrousov (Institute of Biology and Biomedicine of N.I. Lobachevsky State University of Nizhny Novgorod, Nizhny Novgorod, Russia) for help during field work in 2019. Two anonymous reviewers provided helpful suggestions improved the text.

The work of A.V. Fateryga was a part of the State Research Project No AAAA-A19-119012490044-3.

## References

- Ascher J.S., Pickering J. 2020. Discover Life bee species guide and world checklist (Hymenoptera: Apoidea: Anthophila). Available at: <https://www.discoverlife.org/> (accessed 10 July 2020).
- Banaszak J., Romasenko L. 2001. Megachilid bees of Europe. Second edition. Bydgoszcz: Bydgoszcz University of Kazimierz Wielki. 239 p.
- Belokobyl'skiy S.A., Lelej A.S. 2017. Preface. In: Annotated Catalogue of the Hymenoptera of Russia. Vol. 1. Symphyta and Apocrita: Aculeata. *Proceedings of the Zoological Institute of the Russian Academy of Sciences*. Supplement 6: 9–12. DOI: 10.31610/trudyzin/2017.supl.6.5
- Byvaltsev A.M., Belova K.A., Danilov Yu.N., Molodtsov V.V., Proshchalykin M.Yu. 2018. Megachilid bees (Hymenoptera: Megachilidae) of the forest-steppe and steppe zones of the West Siberian Plain to the eastward of Irtysh River. *Far Eastern Entomologist*. 364: 10–28. DOI: 10.25221/fee.364.3
- Byvaltsev A.M., Proshchalykin M.Yu. 2019. Megachilid bees (Hymenoptera: Megachilidae) of Siberia: corrections and additions to the Catalogue of the Hymenoptera of Russia. In: *Chteniya pamyati Alekseya Ivanovicha Kurentsova*. Vyp. 30 [A.I. Kurentsov's Annual Memorial Meetings. Iss. 30]. Vladivostok: Dal'nauka: 163–171 (in Russian). DOI: 10.25221/kurentsov.30.14
- Da Rocha Filho L.C., Packer L. 2016. Phylogeny of the cleptoparasitic Megachilini genera *Coelioxys* and *Radoszkowskiana*, with the description of six new subgenera in *Coelioxys* (Hymenoptera: Megachilidae). *Zoological Journal of the Linnean Society*. DOI: 10.1111/zoj.12484
- Dalla Torre K.W. von. 1896. *Catalogus Hymenopterorum hucusque descriptorum systematicus et synonymicus*. Vol. 10: Apidae (Anthophila). Lipsiae: G. Engelmann. viii + 643 p. DOI: 10.5962/bhl.title.10348
- Fateryga A.V. 2017. New data on megachilid bees (Hymenoptera: Megachilidae) of the European part of Russia. In: *Trudy Russkogo entomologicheskogo obshchestva*. T. 88(2). Novey faunisticheskie dannye po pereponchatokrylym nasekomyim Rossii [Proceedings of the Russian Entomological Society. Vol. 88(2). A new faunistic data on the Hymenoptera of Russia]. St Petersburg: Zoological Institute of the Russian Academy of Sciences: 86–90.
- Fateryga A.V., Ivanov S.P., Filatov M.A. 2018. Megachilid-bees (Hymenoptera: Megachilidae) of the Crimean Peninsula. *Entomofauna*. 39(1): 235–283.
- Fateryga A.V., Proshchalykin M.Yu., Astafurova Yu.V., Popov I.B. 2019. New records of megachilid bees (Hymenoptera, Megachilidae) from the North Caucasus and neighboring regions of Russia. *Entomological Review*. 2018. 98(9): 1165–1174. DOI: 10.1134/S0013873818090026
- Haider M., Dorn S., Sedivy C., Müller A. 2014. Phylogeny and floral hosts of a predominantly pollen generalist group of mason bees (Megachilidae: Osmiini). *Biological Journal of the Linnean Society*. 111(1): 78–91. DOI: 10.1111/bij.12186
- Ivanov S.P., Fateryga A.V. 2019. First record of the invasive giant resin bee *Megachile (Callomegachile) sculpturalis* Smith, 1853 (Hymenoptera: Megachilidae) in the Crimea. *Far Eastern Entomologist*. 395: 7–13. DOI: 10.25221/fee.395.2
- Kirkkitadze G.J., Japoshvili G.O. 2015. Renewed checklist of bees (Hymenoptera: Apoidea) from Georgia. *Annals of Agrarian Science*. 13(1): 20–32.
- Kuhlmann M., Ascher J.S., Dathe H.H., Ebmer A.W., Hartmann P., Michez D., Müller A., Patiny S., Pauly A., Praz C., Rasmont P., Risch S., Scheuchl E., Schwarz M., Terzo J., Williams P.H., Amiet F., Baldock D., Berg Ø., Bogusch P., Calabuig I., Cederberg B., Gogala A., Gusenleitner F., Josan Z., Madsen H.B., Nilsson A., Ødegaard F., Ortiz-Sanchez J., Paukkunen J., Pawlikowski T., Quaranta M., Roberts S.P.M., Sáropatoki M., Schwenninger H.-R., Smit J., Söderman G., Tomozei B. 2015. Checklist of the Western Palaearctic bees (Hymenoptera: Apoidea: Anthophila). Available at: <http://westpalbees.myspecies.info/> (accessed 10 July 2020).
- Michener C.D. 2007. *The bees of the world*. Second edition. Baltimore: Johns Hopkins University Press. xvi + 953 p. + 20 pls.
- Morawitz F. 1875. A travel to Turkestan by the member-founder of the society A.P. Fedtschenko accomplished from the Imperial Society of Naturalists, Anthropologists, and Ethnographers on a Commission from the General-Governor of Turkestan K.P. von Kaufmann. Issue 9. Vol. 2. Zoogeographical investigations. Part 5. Division 7. Bees (Mellifera). In: *Izvestiya Imperatorskogo obshchestva lyubiteley estestvoznaniya, antropologii i etnografii*. T. 19, vyp. 2 [Proceedings of the Imperial Society of Devotees of Natural History, Anthropology and Ethnography. Vol. 19, iss. 2]. St Petersburg – Moscow: Typography of M. Stasyulevich: i–ii + 1–160 (in Russian).
- Müller A. 2020a. Palaearctic osmiine bees. Available at: <http://blogs.ethz.ch/osmiini> (accessed 10 March 2020).
- Müller A. 2020b. Palaearctic *Osmia* bees of the subgenera *Hemosmia*, *Tergosmia* and *Erythrosmia* (Megachilidae, Osmiini): biology, taxonomy and key to species. *Zootaxa*. 4778(2): 201–236. DOI: 10.11646/zootaxa.4778.2.1
- Osyts'hnjuk A.Z., Panfilov D.V., Ponomareva A.A. 1978. Superfamily Apoidea – bees. In: *Opredelitel' nasekomykh evropeyskoy chasti SSSR*. Tom 3. Pereponchatokrylye. Pervaya chast' [Keys to the insects of the European part of the USSR. Vol. 3. Hymenoptera. Part 1]. Leningrad: Nauka: 279–519 (in Russian).
- Praz C.J. 2017. Subgeneric classification and biology of the leafcutter and dauber bees (genus *Megachile* Latreille) of the western Palearctic (Hymenoptera, Apoidea, Megachilidae). *Journal of Hymenoptera Research*. 55: 1–54. DOI: 10.3897/jhr.55.11255
- Praz C.J., Müller A., Danforth B.N., Griswold T.L., Widmer A., Dorn S. 2008. Phylogeny and biogeography of bees of the tribe Osmiini (Hymenoptera: Megachilidae). *Molecular Phylogenetics and Evolution*. 49(1): 185–197. DOI: 10.1016/j.ympev.2008.07.005
- Proshchalykin M.Yu., Fateryga A.V. 2017. Family Megachilidae. In: Annotated Catalogue of the Hymenoptera of Russia. Vol. 1. Symphyta and Apocrita: Aculeata. *Proceedings of the Zoological Institute of the Russian Academy of Sciences*. Supplement 6: 295–308. DOI: 10.31610/trudyzin/2017.supl.6.5
- Proshchalykin M.Yu., Maharramov M.M. 2020. Additional records of osmiine bees (Hymenoptera: Megachilidae: Osmiini) from Azerbaijan. *Acta Biologica Sibirica*. 6: 33–42. DOI: 10.3897/abs.6.e53095
- Proshchalykin M.Yu., Maharramov M.M., Aliyev Kh.A. 2019. New data on the tribe Osmiini (Hymenoptera: Megachilidae) from Azerbaijan. *Far Eastern Entomologist*. 383: 12–20. DOI: 10.25221/fee.383.3
- Proshchalykin M.Yu., Müller A. 2019. Additional records of osmiine bees (Hymenoptera: Megachilidae: Osmiini) from Siberia. *Zootaxa*. 4563(1): 163–174. DOI: 10.11646/zootaxa.4563.1.9
- Roman'kova T.G. 1983. Bees of the genus *Megachile* Latr. (Hymenoptera, Apoidea, Megachilidae) from Siberia and the Far East of the USSR. In: *Sistematika i ekologo-faunisticheskiy obzor otde'lynykh otrядov nasekomykh Dal'nego Vostoka* [Taxonomy and ecological and

- faunistic review of some insect orders of the Far East]. Vladivostok: Institute of Biology and Soil Science of the Far East Center of the Academy of Sciences of the USSR: 141–147 (in Russian).
- Roman'kova T.G. 1995. Family Megachilidae. *In*: *Opredelitel' nasekomykh Dal'nego Vostoka Rossii. Tom 4. Setchatokryloobraznye, skorpionnitsy, pereponchatokrylye. Chast' 1* [Key to the insects of the Russian Far East. Vol. 4. Neuropteroidea, Mecoptera, Hymenoptera. Part 1]. St Petersburg: Nauka: 530–547 (in Russian).
- Schwarz M., Gusenleitner F. 2003. Ergebnisse der Untersuchung von F. Morawitz beschriebenen *Coelioxys*-Arten, so wie weiterer von Eversmann, Friese und Radoszkowski beschriebenen Arten, nebst einigen Bemerkungen (Hymenoptera: Apidae: Megachilidae). *Linzer Biologische Beiträge*. 35(2): 1221–1239.
- Skhirtladze I.A. 1984. Materials on the bee fauna (Hymenoptera, Apoidea) of the Dagestan ASSR. *Vestnik Gosudarstvennogo muzeya Gruzii im. akademika S.N. Dzhanashia*. 33A: 127–144 (in Russian).
- Ungricht S., Müller A., Dorn S. 2008. A taxonomic catalogue of the Palaearctic bees of the tribe Osmiini (Hymenoptera: Apoidea: Megachilidae). *Zootaxa*. 1865: 1–253. DOI: 10.11646/zootaxa.1865.1.1
- Warncke K. 1991. Die Bienengattung *Osmia* Panzer, 1806, ihre Systematik in der Westpaläarktis und ihre Verbreitung in der Türkei 10. Die Untergattung *Aldidamea* Cress. *Linzer Biologische Beiträge*. 32(2): 701–751.
- Zanden G. van der. 1988. Beitrag zur Systematik und Nomenklatur der paläarktische Osmiini, mit Angaben über ihre Verbreitung (Hymenoptera, Apidae, Megachilinae). *Zoologische Mededelingen*. 62(9): 113–133.

Received / Поступила: 13.07.2020

Accepted / Принята: 13.08.2020

Published online / Опубликована онлайн: 15.10.2020