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New Records of Megachilid Bees (Hymenoptera, Megachilidae) from the North Caucasus and Neighboring Regions of Russia[1]

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Abstract—New data on the distribution of 37 species are reported. Eleven species are new to Russia: *Lithurgus tibialis* Morawitz, 1875, *Anthidium spiniventre* Friese, 1899, *Icteranthidium ferrugineum* (Fabricius, 1787), *Hoplitis carinata* (Stanek, 1969), *Coelioxys acanthura* (Illiger, 1806), *C. decipiens* (Spinola, 1838), *Megachile albonotata* Radoszkowski, 1886, *M. pyrenaica* (Lepeletier de Saint-Fargeau, 1841), *M. burdigalensis* Benoist, 1940, *M. flavipes* Spinola, 1838, and *M. tecta* Radoszkowski, 1888. Twenty species are new to the North Caucasus, five species are new to the south of the European part of Russia, and one species, *Megachile leucomalla* Gerstäcker, 1869, is new to the North Caucasus and south of the European part of Russia; the latter species is also reported for the first time from Iran. *Hoplitis ravouxi* (Pérez, 1902) is excluded from the list of the Russian fauna. A nest of *H. carinata* is described for the first time.

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The Megachilidae is one of the largest families of bees. More than 4000 species of megachilid bees are found in a wide diversity of habitats on all the continents except Antarctica, ranging from lowland tropical rain forests to deserts or alpine environments. These bees are very important both ecologically and economically since they include many pollinators of natural, urban, and agricultural vegetation (Michener, 2007; Proshchalykin and Fateryga, 2017). The recent estimation of the diversity of megachilid bees in Russia amounts to 198 species (Proshchalykin and Fateryga, 2017). One of them, *Coelioxys conspersus* Morawitz, 1874, is actually a synonym of another species (see the comments on *C. polycentris* Förster, 1853). At the same time, the records of *Coelioxys argenteus* Lepeletier de Saint-Fargeau, 1841 (= *C. constrictus* Förster, 1853) and *Megachile farinosa* Smith, 1853 (= *M. derasa* Gerstäcker, 1869) from Dagestan by Morawitz (1874) were disregarded by Proshchalykin and Fateryga (2017). Proshchalykin and Müller (2019) added three species of the genus *Hoplitis* Klug, 1807. Thus, a total of 202 species of megachilid bees have been recorded from Russia to date. However, our knowledge of this bee family is quite far from being understood. The purpose of the present investigation is to report new records of megachilid bees in the North Caucasus and neighboring regions: the south of the European part of Russia and Crimea.

MATERIALS AND METHODS

The material for the present study was collected mainly in 2018 by the authors. The specimens were 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,

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Vladivostok, Russia [FSCV], the collection of the Zoological Institute of the Russian Academy of Sciences, St. Petersburg, Russia [ZISP], the collection of A.V. Fateryga, Feodosiya, Russia [CAFK], and the collection of I.B. Popov, Krasnodar, Russia [CIPK]. Some additional specimens were examined in ZISP as well as in the collection of the Zoological Museum of M.V. Lomonosov Moscow State University, Moscow, Russia [ZMMU] and the collection of the Taurida Academy of the V.I. Vernadsky Crimean Federal University, Simferopol, Russia [CFUS]. The bees were identified mainly by comparison of newly collected material with the relevant material stored in ZISP and ZMMU. However, some old (Warncke, 1980) and recently published keys (Müller, 2016; Dorchin and Praz, 2018) were also used. Identification of some specimens was confirmed by C.J. Praz (Neuchâtel, Switzerland) and A. Müller (Zurich, Switzerland).

Distribution of species generally follows Proshchalykin and Fateryga (2017) and references therein (particularly, Kuhlmann et al., 2015; Ascher and Pickering, 2019; Müller, 2019), taking into account additional data published by Byvaltsev et al. (2018), and Dorchin and Praz (2018). Regionalization in the description of the distribution follows that in Belokobylskij and Lelej (2017): the North Caucasus includes Krasnodar and Stavropol territories, 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 provinces and the republic of Kalmykia. The new records are asterisked (*). The abbreviations of the collectors' names are as follows: A.F.—A.V. Fateryga; I.P.—I.B. Popov; M.M.—M.V. Mokrousov; M.P.—M.Yu. Proshchalykin; V.L.—V.M. Loktionov, Y.A.—Yu.A. Astafurova.

LIST OF SPECIES

Tribe **LITHURGINI**

Lithurgus chrysurus Fonscolombe, 1834

Material. Russia. *Dagestan*: Nogayskii Distr., 22 km SW of Terekli-Mekteb (44°02′N, 45°38′E), 21.VI.2018, 2 ♀ (M.P., V.L., M.M.) [FSCV]; 21–22.VI.2018, 1 ♂ (Y.A.); Tarumovskii Distr., Kochubey (44°24′N, 46°32′E), on *Convolvulus arvensis*, 19.VI.2018, 2 ♂ (Y.A.) [ZISP]; Kumtorkalinskii Distr., Sarykum Sand Dune (43°00′N, 47°14′E), 23–24.VI.2018, 1 ♀, 2 ♂ (M.P., V.L., M.M.) [FSCV], 1 ♀, 10 ♂ (Y.A.) [ZISP]; 26.VI.2018, 1 ♀ (M.P., V.L., M.M.) [FSCV], 1 ♂ (Y.A.); Derbent (42°06′N, 48°17′E), 28–29.VI.2018, 1 ♂ (Y.A.) [ZISP]; Makhachkala Distr., vicinity of Talgi Vill. (42°52′N, 47°26′E), 25.VI.2018, 3 ♀ (M.P., V.L., M.M.) [FSCV], 4 ♀, 3 ♂ (Y.A.) [ZISP]; Derbent Distr., Kamyshchay River valley (41°54′N, 48°13′E), 16.VI.2018, 1 ♂ (A.F.) [CAFK]; 29.VI.2018, 4 ♀ (M.P., V.L., M.M.) [FSCV], 1 ♀, 1 ♂ (Y.A.); Izberbash (42°35′N, 47°49′E), 27.VI.2018, 1 ♂ (Y.A.) [ZISP]; Magaramkent Distr., Samur Reserve, 3 km NW of Primorsky (41°52′N, 48°33′E), 2–4.VII.2018, 8 ♀, 15 ♂ (Y.A.) [ZISP]; 3.VII.2018, 5 ♀ (M.P., V.L., M.M.) [FSCV].

Distribution. Russia: European part (Central, Crimea, *North Caucasus), Urals.—Western, Southern, and Eastern Europe, North Africa, Georgia, Azerbaijan, Turkey, Syria, Israel, Middle Asia, Iran. Introduced to North America.

Lithurgus tibialis Morawitz, 1875

Material. Russia. *Dagestan*: Derbent (42°06′N, 48°17′E), 28–29.VI.2018, 1 ♀ (M.P., V.L., M.M.) [CAFK], 1 ♀ (Y.A.) [ZISP].

Distribution. *Russia: European part (North Caucasus).—Southern Europe, Cyprus, Turkey, Syria, Jordan, Israel, UAE, Uzbekistan, Iran, Afghanistan, Pakistan.

Tribe **ANTHIDIINI**

Anthidium (***Anthidium***) ***cingulatum*** Latreille, 1809

Material. Russia. *Krasnodar Terr.*: Anapa Distr., Bolshoy Utrish (44°46′N, 37°23′E), 2.VI.2018, 1 ♂ (A.F.). *Dagestan*: Kurakh Distr., 1 km W of Shtul (41°33′N, 47°54′E), 15.VI.2018, 2 ♂ (A.F.) [CAFK]; Rutul Distr., vicinity of Kufa Vill. (41°34′N, 47°22′E), 1400 m, 29.VI–1.VII.2018, 1 ♀ (Y.A.) [ZISP]; Tabasaranskii Distr., 5 km N of Darvag (42°05′N, 48°05′E): on *Securigera varia*, 14.VI.2018, 1 ♀ (A.F.); on *Echium biebersteinii*, 14.VI.2018, 1 ♂ (A.F.) [CAFK].

Distribution. Russia: European part (Central, South, Crimea, *North Caucasus), Urals.—Western, Southern, and Eastern Europe, North Africa, Cyprus, Georgia, Azerbaijan, Turkey, Kazakhstan, Uzbekistan, Iran, Kyrgyzstan, China, India.

Anthidium* (*Anthidium*) *loti Perris, 1852

Material. Russia. *Krasnodar Terr.*: Anapa Distr.: Bolshoy Utrish (44°46′N, 37°23′E), 2.VI.2018, 2 ♂ (A.F.) [CFUS]; Sukko Vill. (44°47′N, 37°22′E), 20.VII.2018, 1 ♂ (I.P.); Varvarovskaya Shchel Valley (44°48′N, 37°22′E), 19.VI.2014, 1 ♀ (I.P.) [CIPK]. *Dagestan*: Tabasaranskii Distr., 5 km N of Darvag (42°05′N, 48°05′E), on *Securigera varia*, 14.VI.2018, 1 ♀ (A.F.) [CAFK]; Magaramkent Distr., Samur Reserve, 3 km NW of Primorsky (41°52′N, 48°33′E), 2–4.VII.2018, 3 ♀, 3 ♂ (Y.A.) [ZISP]; 3.VII.2018, 2 ♀, 6 ♂ (M.P., V.L., M.M.) [FSCV].

Distribution. Russia: European part (Crimea, *North Caucasus), Urals.—Western, Southern, and Eastern Europe, Cyprus, Azerbaijan, Turkey, Syria, Lebanon, Israel, Kazakhstan, Turkmenistan, Iran.

Anthidium* (*Anthidium*) *spiniventre Friese, 1899

Material. Russia. *Dagestan*: Makhachkala Distr., vicinity of Talgi Vill. (42°52′N, 47°26′E), 25.VI.2018, 4 ♀, 5 ♂ (M.P., V.L., M.M.) [CAFK, FSCV], 3 ♂ (Y.A.) [ZISP]; Derbent Distr., Kamyshchay River valley (41°54′N, 48°13′E), 21.VI.2018, 1 ♀ (A.F.) [CAFK]; 29.VI.2018, 1 ♂ (M.P., V.L., M.M.) [FSCV].

Distribution. *Russia: European part (North Caucasus).—Southern Europe, Azerbaijan, Turkey, Syria, Jordan, Lebanon, Israel, Uzbekistan, Turkmenistan, Iran.

Remarks. Examined specimens (males) correspond to the subspecies *A. spiniventre melanopygum* Friese, 1917.

Icteranthidium grohmanni (Spinola, 1838)

Material. Russia. *Astrakhan Prov.*: Volzhskii Distr., vicinity of Volzhskii (46°58′N, 47°32′E), 8.VII.2018, 2 ♀ (M.P., V.L., M.M.). *Dagestan*: Kumtorkalinskii Distr., Sarykum Sand Dune (43°00′N, 47°14′E), 23–24.VI.2018, 1 ♀ (M.P., V.L., M.M.); 26.VI.2018, 1 ♀ (M.P., V.L., M.M.); Makhachkala Distr., vicinity of Talgi Vill. (42°52′N, 47°26′E), 25.VI.2018, 1 ♀ (M.P., V.L., M.M.); Izberbash (42°35′N, 47°49′E), 27.VI.2018, 1 ♀ (M.P., V.L., M.M.) [FSCV]; Derbent (42°06′N, 48°17′E), 28–29.VI.2018, 1 ♀, 1 ♂ (Y.A.) [ZISP]; Derbent Distr., Kamyshchay River valley (41°54′N, 48°13′E), 16.VI.2018, 1 ♀ (A.F.) [CAFK]; 29.VI.2018, 2 ♀ (M.P., V.L., M.M.) [FSCV], 1 ♂ (Y.A.) [ZISP].

Distribution. Russia: European part (*South, Crimea, North Caucasus).—Western, Southern, and Eastern Europe, North Africa, Cyprus, Armenia, Turkey, Syria, Lebanon, Israel, Iran, Kyrgyzstan.

Remarks. The previous record of this species from Dagestan (Fateryga, 2017) was erroneous and based on misidentification of *I. ferrugineum* (see below).

Icteranthidium ferrugineum (Fabricius, 1787)

Material. Russia. *Astrakhan Prov.*: Volzhskii Distr., vicinity of Volzhskii (46°58′N, 47°32′E), 8.VII.2018, 2 ♀, 3 ♂ (M.P., V.L., M.M.). *Kalmykia*: Davsna Sands, 20 km E of Khulkhuta (46°17′N, 46°40′E), 16.VI.2018, 6 ♀, 4 ♂ (M.P., V.L., M.M.) [FSCV], 2 ♀, 1 ♂ (Y.A.) [ZISP]; Kuma River, 12 km W of Artezian (44°56′N, 46°30′E), 7.VII.2018, 1 ♀ (M.P., V.L., M.M.). *Dagestan*: Nogayskii Distr., 22 km SW of Terekli-Mekteb (44°02′N, 45°38′E), 21.VI.2018, 1 ♀, 5 ♂ (M.P., V.L., M.M.) [FSCV], 2 ♀ (Y.A.); Derbent (42°06′N, 48°17′E), 28–29.VI.2018, 1 ♀ (Y.A.) [ZISP]; Magaramkent Distr., Samur Reserve, 3 km NW of Primorsky (41°52′N, 48°33′E), 5.VI.2017, 1 ♀, 1 ♂ (M.M.) [CAFK]; 2–4.VII.2018, 4 ♀, 1 ♂ (Y.A.) [ZISP]; 3.VII.2018, 1 ♂ (M.P., V.L., M.M.) [FSCV].

Distribution. *Russia: European part (South, North Caucasus).—Southern Europe, West and North Africa, Cyprus, Turkey, Syria, Israel, Saudi Arabia, Yemen, Oman, UAE, Kazakhstan, Turkmenistan, Afghanistan, Pakistan.

Remarks. The examined specimens correspond to the subspecies *I. ferrugineum discoidale* (Latreille, 1809). This species was misidentified as *I. grohmanni* in the previous report (Fateryga, 2017).

Icteranthidium laterale (Latreille, 1809)

Material. Russia. *Krasnodar Terr.*: Kanevskoy Distr., Trud Khutor (46°08′N, 38°31′E), 13.VII.2018, 5 ♀, 6 ♂ (I.P.) [CIPK].

Distribution. Russia: European part (Central, South, Crimea, *North Caucasus), Urals, Western Siberia, Eastern Siberia.—Western, Southern, and Eastern Europe, North Africa, Caucasus, Turkey, Kazakhstan, Turkmenistan, Iran, Kyrgyzstan, China.

Pseudoanthidium* (*Royanthidium*) *reticulatum (Mocsáry, 1884)

Material. Russia. *Dagestan*: Makhachkala Distr., vicinity of Talgi Vill. (42°52′N, 47°26′E), 25.VI.2018,

1 ♂ (M.P., V.L., M.M.); Derbent Distr., Kamyshchay River valley (41°54′N, 48°13′E), 29.VI.2018, 1 ♂ (M.P., V.L., M.M.) [FSCV].

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

Tribe **DIOXYINI**

Aglaoapis tridentata (Nylander, 1848)

Material. Russia. *Dagestan*: Karabudakhkent Distr., 6 km SW of Gubden (42°33′N, 47°30′E), 25.VI.2018, 1 ♀ (Y.A.) [ZISP].

Distribution. Russia: European part (Central, East, South, Crimea, *North Caucasus), Urals, Western Siberia, Eastern Siberia, Far East.—Western, Northern, Southern, and Eastern Europe, Cyprus, Azerbaijan, Turkey, Kazakhstan, Kyrgyzstan.

Tribe **OSMIINI**

Chelostoma (***Foveosmia***) ***campanularum*** (Kirby, 1802)

Material. Russia. *Dagestan*: Karabudakhkent Distr., 6 km SW of Gubden (42°33′N, 47°30′E), 25.VI.2018, 1 ♀ (Y.A.) [ZISP]; Levashi Distr., vicinity of Tsudakhar, Mountain Botanical Garden, (42°20′N, 47°10′E), on *Campanula* sp., 23.VI.2018, 1 ♂ (A.F.) [CAFK].

Distribution. Russia: European part (Central, South, Crimea, *North Caucasus), Urals.—Western, Northern, Southern, and Eastern Europe, North Africa, Georgia, Turkey. Introduced to North America.

Chelostoma (***Foveosmia***) ***distinctum*** (Stoeckhert, 1929)

Material. Russia. *Dagestan*: Levashi Distr., vicinity of Tsudakhar, Mountain Botanical Garden, (42°20′N, 47°10′E), on *Campanula* sp., 23.VI.2018, 1 ♀ (A.F.) [CAFK]; Rutul Distr., vicinity of Kufa Vill. (41°34′N, 47°22′E), 1400 m, 29.VI–1.VII.2018, 9 ♀, 1 ♂ (Y.A.) [ZISP].

Distribution. Russia: European part (Central, South, Crimea, *North Caucasus,), Urals.—Western, Southern, and Eastern Europe, Azerbaijan, Turkey, Israel, Iran.

Hoplitis (***Anthocopa***) ***jakovlevi*** (Radoszkowski, 1874)

Material. Russia. *Dagestan*: Kumtorkalinskii Distr., Sarykum Sand Dune (43°00′N, 47°14′E), 23–24.VI.2018, 3 ♀ (Y.A.); 26.VI.2018, 1 ♂ (Y.A.) [ZISP].

Distribution. Russia: European part (South, Crimea, *North Caucasus).—Western and Southern Europe, North Africa, Armenia, Azerbaijan, Turkey, Kazakhstan, Turkmenistan, Iran, Kyrgyzstan, Tajikistan, China.

Hoplitis (***Hoplitis***) ***carinata*** (Stanek, 1969)

Material. Russia. *Crimea*: Aypetrinskaya Yayla Mountain (44°31′N, 34°05′E), 21.VII.2003, 1 ♂ (S.P. Ivanov) [CFUS]; Cape Meganom (44°49′N, 35°05′E), on *Hedysarum tauricum*, 27.V.2016, 3 ♀ (A.F.) [CAFK, CFUS]; "Crimea," 1 ♂ (S.P. Ivanov); Demerdzhi Yayla Mountain, southern slope (44°47′N, 34°25′E): collecting pebbles, 17.VII.2007, 1 ♀ (S.P. Ivanov); on *Onobrychis* sp., 17.VII.2007, 1 ♀ (S.P. Ivanov); Karadag Reserve (44°55′N, 35°13′E), 26.V.2002, 2 ♀ (S.P. Ivanov) [CFUS]; Lenino Distr., Karalary Steppe (45°27′N, 36°09′E), 19.V.2010, 1 ♂ (S.P. Ivanov) [CAFK]; Lenino Distr., Opuk Reserve (45°02′N, 36°14′E), 2.VI.2002, 5 ♂ (S.P. Ivanov); 3.VI.2002, 1 ♂ (S.P. Ivanov); Lisya Bay (44°54′N, 35°10′E), 31.V.2008, 1 ♀, 1 ♂ (S.P. Ivanov) [CFUS]; 4.VI.2008, 1 ♀, 1 ♂ (S.P. Ivanov) [CAFK, CFUS]; 5.VI.2008, 2 ♂ (S.P. Ivanov) [CFUS]; from nest on a stone, 22.V.2012, 1 ♀ (A.F.) [CAFK]; Simferopol, Mar'ino (44°54′N, 34°09′E), petrophytic steppe, 9.VI.2010, 1 ♂ (A.F.); Tarkhankutskii Peninsula: 54°21′N, 32°31′E, 29.V.1990, 1 ♂ (S.P. Ivanov); Kipchak (45°29′N, 32°36′E), Merike's trap, 1.VI.2012, 1 ♀ (V.Yu. Zhidkov) [CFUS].

Distribution. *Russia: European part (Crimea).—Southern and Eastern Europe, Armenia, Azerbaijan, Turkey, Syria, Jordan, Iran.

Remarks. This species was misidentified as *H. ravouxi* (Pérez, 1902) in our previous reports (Proshchalykin and Fateryga, 2017; Fateryga et al., 2018). All the records of *H. ravouxi* from Crimea (Fateryga et al., 2018) actually refer to *H. carinata*. Thus, *H. ravouxi* must be excluded from the list of the Russian fauna. Nesting of *H. carinata* was not previously described (Müller, 2019). A single nest of this species was found in Lisya Bay on 2.VII.2011.

The nest was attached to a stone surface (within a shallow concavity) and was built of mud and small pebbles (Fig. 1). There were five cells in the nest (Fig. 2). The cells were built of pure mud without pebbles; thus, these pebbles were present only in the general cover of the nest. Cells Nos. 3–5 were open; they contained the remains of bee cocoons, which means that the progeny had already emerged from them. Cells Nos. 1 and 2 were sealed and contained bee cocoons. One of them (No. 2) contained a dead bee pupa while the second one (No. 1) contained a live prepupa. A female emerged from the latter cocoon on 22.V.2012. According to the dates on the labels of the collection specimens and taking into account their trophic preferences on Hedysareae (Fabaceae) (Müller, 2016, 2019), *H. carinata* is apparently a univoltine species. That means that the nest was built in 2010 and the reared female passed two-year hibernation.

Hoplitis* (*Hoplitis*) *manicata Morice, 1901

Material. Russia. *Krasnodar Terr.*: Anapa Distr., Bolshoy Utrish (44°46′N, 37°23′E), 2.VI.2018, 1 ♀ (A.F.) [CAFK]. *Dagestan*: Izberbash (42°35′N, 47°49′E), 27.VI.2018, 3 ♀, 2 ♂ (M.P., V.L., M.M.) [FSCV], 1 ♀ (Y.A.); Karabudakhkent Distr., 6 km SW of Gubden (42°33′N, 47°30′E), 25.VI.2018, 1 ♀ (Y.A.); Magaramkent Distr., Samur Reserve, 3 km NW of Primorsky (41°52′N, 48°33′E), 2–4.VII.2018, 1 ♀, 2 ♂ (Y.A.) [ZISP].

Distribution. Russia: European part (Crimea, *North Caucasus).—Western, Southern, and Eastern Europe, ?North Africa, Armenia, Turkey.

Osmia* (*Hoplosmia*) *bidentata Morawitz, 1876

Material. Russia. *Krasnodar Terr.*: Gulkevichi Distr., vicinity of Krasnoselskii (45°24′N, 40°36′E), meadow, 10.VI.2012, 1 ♀ (I.P.) [CIPK]. *Dagestan*: Tarumovskii Distr., Kochubey (44°24′N, 46°32′E), on *Convolvulus arvensis*, 19.VI.2018, 1 ♂ (Y.A.) [ZISP]; Izberbash (42°35′N, 47°49′E), 27.VI.2018, 1 ♀, 4 ♂ (M.P., V.L., M.M.) [FSCV], 1 ♂ (Y.A.) [ZISP]; Derbent Distr., Kamyshchay River valley (41°54′N, 48°13′E), 29.VI.2018, 1 ♀ (M.P., V.L., M.M.) [FSCV], 2 ♀ (Y.A.) [ZISP]; Karabudakhkent Distr., 6 km SW of Gubden (42°33′N, 47°30′E), 25.VI.2018, 1 ♀, 2 ♂ (M.P., V.L., M.M.); Rutul Distr., vicinity of Kufa Vill. (41°34′N, 47°22′E), 1400 m, 1.VII.2018, 1 ♂ (M.P., V.L., M.M.) [FSCV].

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

Osmia* (*Neosmia*) *bicolor (Schrank, 1781)

Material. Russia. *Krasnodar Terr.*: Anapa Distr.: Sukko River valley (44°46′N, 37°30′E), 26.III.2014, 1 ♀ (I.P.) [CAFK]; Navagir Mt. Range (44°43′N, 37°27′E), 27.III.2014, 4 ♀ (I.P.); Krasnodar, Brick Factory (45°03′N, 38°51′E), 15.V.2017, 1 ♀ (I.P.); Krymsk Distr., Zhemchuzhnyy Vill. (44°52′N, 37°46′E), open pit, 26.IV.2018, 1 ♀ (I.P.); Severskii Distr., vicinity of Stavropolskaya Stanitsa (44°43′N, 38°50′E), 27.IV.2011, 3 ♀ (I.P.); 16.IV.2017, 3 ♀ (I.P.); Ust-Labinsk Distr., Laba River valley, Temirgoevskaya Stanitsa (45°10′N, 40°26′E), 12.IV.2018, 1 ♀ (I.P.) [CIPK].

Distribution. Russia: European part (Central, East, *North Caucasus), Western Siberia, Eastern Siberia.—Western, Northern, Southern, and Eastern Europe, Georgia, Middle Asia, China.

Osmia* (*Osmia*) *cornuta (Latreille, 1805)

Material. Russia. *Krasnodar Terr.*: Krasnodar (45°06′N, 38°57′E), 27.III.2015, 1 ♀ (I.P.); Krasnodar, Brick Factory (45°03′N, 38°51′E), 18.VI.2010, 2 ♂ (I.P.); Temryuk Distr., Tamanskii Peninsula, Pedenkova Mountain (45°22′N, 37°00′E), steppe, Merike's trap, 13.IV.2013, 1 ♂ (I.P.) [CIPK].

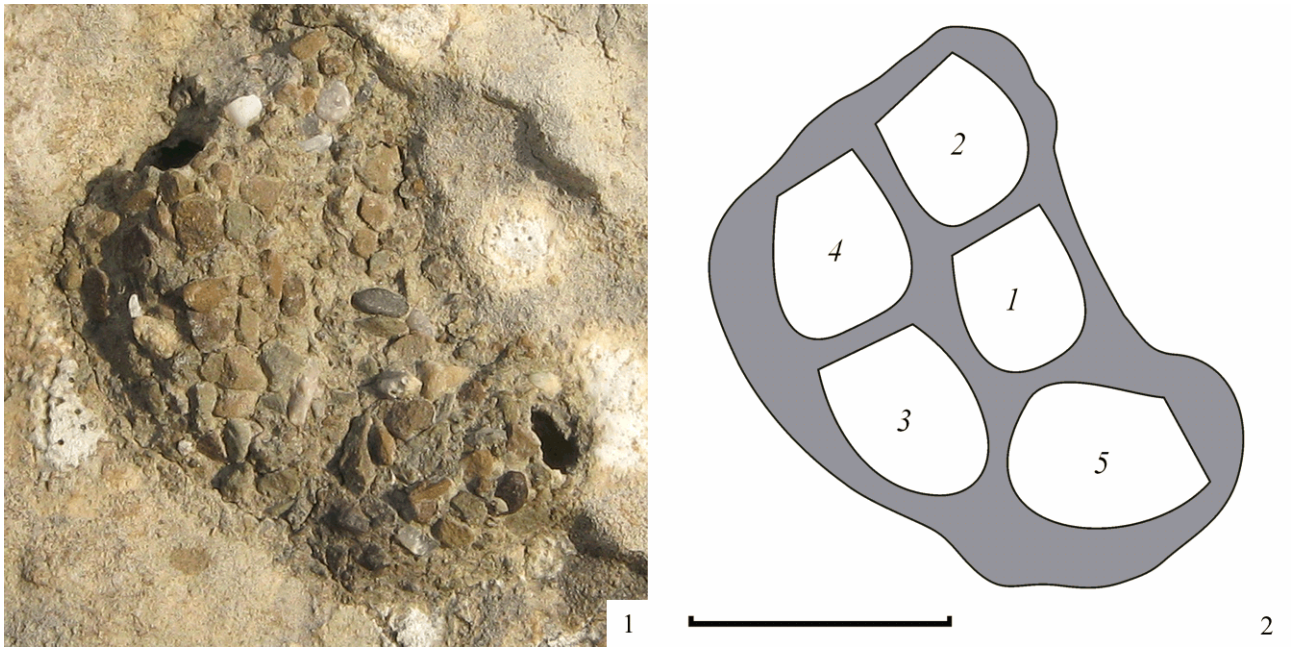
Distribution. Russia: European part (South, Crimea, *North Caucasus).—Western, Northern, Southern, and Eastern Europe, North Africa, Cyprus, Georgia, Armenia, Azerbaijan, Turkey, Syria, Kazakhstan, Turkmenistan, Iran.

Tribe **MEGACHILINI**

Coelioxys* (*Allocoelioxys*) *acanthura (Illiger, 1806)

Material. Russia. *Dagestan*: Tarumovsky Distr., 20 km SSE of Kochubey (44°15′N, 46°40′E), 6.VII.2018, 1 ♀ (M.P., V.L., M.M.) [CAFK]; Derbent Distr., Kamyshchay River valley (41°54′N, 48°13′E), 29.VI.2018, 2 ♀ (M.P., V.L., M.M.) [FSCV].

Distribution. *Russia: European part (North Caucasus).—Western, Southern, and Eastern Europe, North Africa, Cyprus, Georgia, Turkey, Israel, Uzbekistan, Turkmenistan, Iran, Kyrgyzstan, China.



Figs. 1, 2. A nest of *Hoplitis carinata* (Stanek, 1969) on a stone surface (Crimea, Lisya Bay, 2.VII.2011): (1) general view, (2) schematic plan of cell arrangement (*1–5*, cell numbers). Scale bar 1 cm.

Remarks. The record of this species from the North-West of the European part of Russia in the "Fauna Europaea" database (Polaszek, 2013) is a mistake based on misinterpretation of Osytshnjuk et al. (1978) (Fateryga, 2017).

Coelioxys* (*Allocoelioxys*) *brevis Eversmann, 1852

Material. Russia. *Astrakhan Prov.*: Volzhskii Distr., vicinity of Volzhskii (46°58′N, 47°32′E), 8.VII.2018, 1 ♀ (M.P., V.L., M.M.) [FSCV].

Distribution. Russia: European part (*South, Crimea, North Caucasus), Urals, Eastern Siberia.—Western, Southern, and Eastern Europe, North Africa, Cyprus, Israel, Caucasus, Turkey, Kazakhstan, Uzbekistan, Tajikistan, China, Japan.

Coelioxys* (*Allocoelioxys*) *caudatus Spinola, 1838

Material. Russia. *Dagestan*: Kumtorkalinskii Distr., Sarykum Sand Dune (43°00′N, 47°14′E), 23–24.VI.2018, 1 ♂ (M.P., V.L., M.M.) [FSCV].

Distribution. Russia: European part (South, Crimea, *North Caucasus).—Western, Southern, and Eastern Europe, North Africa, Caucasus, Turkey, Israel, Uzbekistan, Turkmenistan, Iran, Kyrgyzstan, Tajikistan, China.

Coelioxys* (*Allocoelioxys*) *polycentris Förster, 1853 (= *C. conspersus* Morawitz, 1874)

Material. Russia. *Kalmykia*: Davsna Sands, 20 km E of Khulkhuta (46°17′N, 46°40′E), 16.VI.2018, 1 ♀ (Y.A.) [ZISP]. *Dagestan*: Tarumovskii Distr.: 23 km N of Kochubey (44°36′N, 46°35′E), 17.VI.2018, 1 ♀ (M.P., V.L., M.M.) [FSCV], 2 ♂ (Y.A.) [ZISP]; 13 km NE of Kochubey (44°27′N, 46°42′E), 18.VI.2018, 1 ♂ (M.P., V.L., M.M.) [FSCV]; 20 km SSE of Kochubey (44°15′N, 46°40′E), 6.VII.2018, 1 ♀ (Y.A.) [ZISP]; Kizlyar Distr., 3 km SW of Novoterechnoye Vill. (44°00′N, 47°20′E), 20.VI.2018, 1 ♀ (M.P., V.L., M.M.) [FSCV], 4 ♀, 1 ♂ (Y.A.) [ZISP].

Distribution. Russia: European part (*South, Crimea, North Caucasus), Eastern Siberia.—Western, Southern, and Eastern Europe, Cyprus, Turkey, Iran, Pakistan, China.

Remarks. *Coelioxys conspersus* is a junior synonym of *C. polycentris* (Schwarz and Gusenleitner, 2003). However, when Schwarz and Gusenleitner (2003) designated the lectotype of *C. conspersus* they erroneously wrote "*Coelioxys conspersa* Morawitz 1874 spec. rev." in the headline for this species. Actually, the words "spec. rev." should have been printed in the headline for another species, *C. castanea* Morawitz, 1886, but not *C. conspersus*. *Coelioxys*

castanea was promoted by Schwarz and Gusenleitner (2003) to a distinct species but its headline did not contain the words "spec. rev." This confusion caused further erroneous treatment of *C. conspersus* as a separate species in the "Discover Life" database (Ascher and Pickering, 2019) and in our previous report (Proshchalykin and Fateryga, 2017).

Coelioxys* (*Boreocoelioxys*) *inermis (Kirby, 1802)

Material. Russia. *Krasnodar Terr.*: Temryuk Distr., Verbyanaya Spit (45°23′N, 37°32′E), 5.VII.2013, 1 ♂ (I.P.); Anapa Distr.: Bolshoy Utrish (44°46′N, 37°23′E), 2.VI.2018, 1 ♀ (A.F.); Lobanova Shchel Valley (44°41′N, 37°31′E), on mud, 16.VII.2012, 1 ♂ (I.P.) [CAFK].

Distribution. Russia: European part (North-West, North, Central, East, South, Crimea, *North Caucasus), Urals, Western Siberia, Eastern Siberia, Far East.—Western, Northern, Southern, and Eastern Europe, North Africa, Georgia, Turkey, Kyrgyzstan, China, Japan.

Coelioxys* (*Liothyrapis*) *decipiens (Spinola, 1838)

Material. Russia. *Dagestan*: Tarumovskii Distr., Kochubey (44°24′N, 46°32′E), on *Alhagi* sp., 6.VII.2018, 1 ♀, 2 ♂ (Y.A.) [CAFK, ZISP].

Distribution. *Russia: European part (North Caucasus).—Southern Europe (Greece), North Africa, Turkey, Israel, Yemen, Oman, Uzbekistan, Turkmenistan, Kyrgyzstan, Tajikistan, Iran, Iraq, China, India, Burma, Thailand.

Coelioxys* (*Mesocoelioxys*) *argenteus
Lepeletier de Saint-Fargeau, 1841

Material. Russia. *Astrakhan Prov.*: Volzhskii Distr., vicinity of Volzhskii (46°58′N, 47°32′E), 8.VII.2018, 1 ♂ (M.P., V.L., M.M.) [CAFK]. *Dagestan*: Tarumovskii Distr., 20 km SSE of Kochubey (44°15′N, 46°40′E), 6.VII.2018, 1 ♂ (M.P., V.L., M.M.) [FSCV], 1 ♀ (Y.A.) [CAFK].

Distribution. Russia: European part (*South, North Caucasus).—Western, Southern, and Eastern Europe, North Africa, Cyprus, Caucasus, Turkey, Jordan, Israel, Turkmenistan, Iran, Kyrgyzstan, Tajikistan, China.

Remarks. The record of this species from Dagestan by Morawitz (1874) was missed in our previous report (Proshchalykin and Fateryga, 2017). The record of this species from the North-West of the European part of Russia in the "Fauna Europaea" database (Polaszek, 2013) is a mistake based on misinterpretation of Osytshnjuk et al. (1978) (Fateryga, 2017).

Megachile* (*Chalicodoma*) *albonotata Radoszkowski, 1886

Material. Russia. *Dagestan*: Levashi Distr., vicinity of Tsudakhar, Mountain Botanical Garden (42°20′N, 47°10′E), 23.VI.2018, 1 ♀ (A.F.) [CAFK].

Distribution. *Russia: European part (North Caucasus).—Southern Europe, Armenia, Turkey, Israel, Turkmenistan, Iran.

Megachile* (*Chalicodoma*) *pyrenaica
(Lepeletier de Saint-Fargeau, 1841)

Material. Russia. *Karachay-Cherkessia*: Teberda (43°27′N, 41°45′E), 9.VI.1938, 1 ♂ (S. Nikulin); 21–24.VI.1938, 1 ♀ (S. Nikulin) [ZMMU].

Distribution. *Russia: European part (North Caucasus).—Western, Southern, and Eastern Europe, North Africa, Armenia, Turkey, Israel, Kazakhstan, Tajikistan.

Megachile* (*Creightonella*) *albisecta (Klug, 1817)

Material. Russia. *Astrakhan Prov.*: Volzhskii Distr., vicinity of Volzhskii (46°58′N, 47°32′E), 8.VII.2018, 1 ♀ (M.P., V.L., M.M.) [FSCV].

Distribution. Russia: European part (*South, Crimea, North Caucasus).—Western, Southern, and Eastern Europe, North Africa, Cyprus, Azerbaijan, Turkey, Syria, Israel, Kazakhstan, Uzbekistan, Turkmenistan, Iran, Kyrgyzstan.

Megachile* (*Eutricharaea*) *burdigalensis
Benoist, 1940

Material. Russia. *Dagestan*: Tarumovskii Distr., 13 km NE of Kochubey (44°27′N, 46°42′E), 18.VI.2018, 1 ♂ (M.P., V.L., M.M.) [CAFK].

Distribution. *Russia: European part (North Caucasus).—Western and Southern Europe, Georgia, Armenia, Kazakhstan.

Megachile* (*Eutricharaea*) *deceptoria Pérez, 1890

Material. Russia. *Dagestan*: Tarumovskii Distr.: 23 km N of Kochubey (44°36′N, 46°35′E), 17.VI.2018, 1 ♂ (Y.A.); Kochubey (44°24′N,

46°32′E): on *Convolvulus arvensis*, 19.VI.2018, 1 ♂ (Y.A.); on *Alhagi* sp., 6.VII.2018, 3 ♂ (Y.A.) [ZISP]; 13 km NE of Kochubey (44°27′N, 46°42′E), 18.VI.2018, 3 ♀, 3 ♂ (M.P., V.L., M.M.) [FSCV], 1 ♀, 1 ♂ (Y.A.) [ZISP]; 20 km SSE of Kochubey (44°15′N, 46°40′E), 6.VII.2018, 4 ♂ (M.P., V.L., M.M.) [FSCV], 2 ♂ (Y.A.) [ZISP]; Kizlyar Distr.: 3 km SW of Novoterechnoye Vill. (44°00′N, 47°20′E), 20.VI.2018, 2 ♂ (M.P., V.L., M.M.) [FSCV], 2 ♀, 1 ♂ (Y.A.) [ZISP]; 7 km NW of Staroterechnoye Vill. (43°54′N, 47°24′E), 19.VI.2018, 1 ♂ (M.P., V.L., M.M.); Kumtorkalinskii Distr., Sarykum Sand Dune (43°00′N, 47°14′E), 23–24.VI.2018, 1 ♂ (M.P., V.L., M.M.); Izberbash (42°35′N, 47°49′E), 27.VI.2018, 2 ♂ (M.P., V.L., M.M.); Derbent Distr., Kamyshchay River valley (41°54′N, 48°13′E), 29.VI.2018, 3 ♀, 1 ♂ (M.P., V.L., M.M.) [FSCV], 1 ♀, 1 ♂ (Y.A.) [ZISP]; Kayakent Distr., 6 km SE of Novokayakent (42°20′N, 48°04′E), 27.VI.2018, 1 ♀, 2 ♂ (M.P., V.L., M.M.) [FSCV].

Distribution. Russia: European part (South, Crimea, *North Caucasus), Western Siberia, Eastern Siberia.—Western, Southern, and Eastern Europe, North Africa, Azerbaijan, Turkey, Kazakhstan, Turkmenistan, Pakistan.

Megachile (*Eutricharaea*) *giraudi* Gerstäcker, 1869

Material. Russia. *Dagestan*: Levashi Distr., vicinity of Tsudakhar, Mountain Botanical Garden (42°20′N, 47°10′E), 23.VI.2018, 1 ♀ (A.F.); Tabasaranskii Distr., 5 km N of Darvag (42°05′N, 48°05′E), on *Securigera varia*, 14.VI.2018, 1 ♀ (A.F.) [CAFK].

Distribution. Russia: European part (Crimea, *North Caucasus).—Western, Southern, and Eastern Europe, Armenia, Turkey, Uzbekistan.

Megachile (*Eutricharaea*) *leucomalla* Gerstäcker, 1869

Material. Russia. *Volgograd Prov.*: Sarepta [currently Volgograd] (48°31′N, 44°31′E), 1 ♀ (A.K. Becker) [ZISP]. *Dagestan*: Kumtorkalinskii Distr., Sarykum Sand Dune (43°00′N, 47°14′E), 23–24.VI.2018, 1 ♀ (M.P., V.L., M.M.) [FSCV]; 24.VI.2018, 1 ♀ (A.F.) [CAFK]; Derbent Distr., Kamyshchay River valley (41°54′N, 48°13′E), 29.VI.2018, 1 ♀ (Y.A.). **Iran.** *Ardabil Prov.*: Mugan Plain, Ungut Distr., 21.VI.1927, 1 ♀ (Bocharnikov) [ZISP].

Distribution. Russia: European part (*South, Crimea, *North Caucasus).—Western, Southern, and Eastern Europe, North Africa, Georgia, Azerbaijan, Turkey, Jordan, Kazakhstan, *Iran.

Megachile (*Eutricharaea*) *marginata* Smith, 1853

Material. Russia. *Dagestan*: Kumtorkalinskii Distr., Sarykum Sand Dune (43°00′N, 47°14′E), 23–24.VI.2018, 1 ♂ (M.P., V.L., M.M.) [FSCV], 1 ♀ (Y.A.); 26.VI.2018, 1 ♂ (Y.A.); Izberbash (42°35′N, 47°49′E), 27.VI.2018, 1 ♂ (Y.A.) [ZISP]; Derbent (42°06′N, 48°17′E), 28–29.VI.2018, 1 ♀ (M.P., V.L., M.M.); Derbent Distr., Kamyshchay River valley (41°54′N, 48°13′E), 29.VI.2018, 6 ♀ (M.P., V.L., M.M.) [FSCV], 2 ♀ (Y.A.); Magaramkent Distr., Samur Reserve, 3 km NW of Primorsky (41°52′N, 48°33′E), 2–4.VII.2018, 1 ♀ (Y.A.) [ZISP].

Distribution. Russia: European part (Crimea, *North Caucasus).—Western and Southern Europe, North Africa, Cyprus, Azerbaijan, Turkey, Iran, Iraq, Kyrgyzstan, Tajikistan, Afghanistan, Pakistan.

Megachile (*Eutricharaea*) sp. (= *M. semicircularis* auct., nec van der Zanden, 1996)

Material. Russia. *Dagestan*: Nogayskii Distr., 22 km SW of Terekli-Mekteb (44°02′N, 45°38′E), 21–22.VI.2018, 1 ♀ (Y.A.) [ZISP]; Kumtorkalinskii Distr., Sarykum Sand Dune (43°00′N, 47°14′E), 23–24.VI.2018, 1 ♀ (M.P., V.L., M.M.) [FSCV]; Derbent Distr., Kamyshchay River valley (41°54′N, 48°13′E), 13.VI.2018, 1 ♀ (A.F.) [CAFK].

Distribution. Russia: European part (Crimea, *North Caucasus).—Southern Europe (Greece), Turkey, Iran.

Remarks. The description of female *M. semicircularis* by van der Zanden (1996) perfectly fits the characters of the specimens listed in the above material; however, the type series includes several taxa and the male holotype does not belong to this species but belongs to *M. apicalis* (C.J. Praz, in litt.).

Megachile (*Pseudomegachile*) *flavipes* Spinola, 1838

Material. Russia. *Dagestan*: Derbent (42°06′N, 48°17′E), 28–29.VI.2018, 7 ♀ (M.P., V.L., M.M.) [CAFK, FSCV], 12 ♀, 3 ♂ (Y.A.) [CAFK, ZISP]; Derbent Distr., Kamyshchay River valley (41°54′N,

48°13′E), 29.VI.2018, 1 ♂ (M.P., V.L., M.M.) [CAFK], 1 ♀ (Y.A.) [ZISP].

Distribution. *Russia: European part (North Caucasus).—Southern Europe (Greece), North Africa, ?Cyprus, Armenia, Turkey, Syria, Israel, Saudi Arabia, Oman, Uzbekistan, Turkmenistan, Iran, Iraq, Kyrgyzstan, Tajikistan, Afghanistan, Pakistan, India.

Megachile* (*Pseudomegachile*) *saussurei Radoszkowski, 1874

Material. Russia. *Dagestan*: Kizlyar Distr., 7 km NW of Staroterechnoye Vill. (43°54′N, 47°24′E), 20.VI.2018, 1 ♂ (M.P., V.L., M.M.) [CAFK].

Distribution. Russia: European part (East, South, *North Caucasus).—Georgia, Turkey, Kazakhstan, Uzbekistan, Turkmenistan, Iran, Kyrgyzstan, Tajikistan, Pakistan, China.

Megachile* (*Pseudomegachile*) *tecta Radoszkowski, 1888

Material. Russia. *Kalmykia*: Davsna Sands, 20 km E of Khulkhuta (46°17′N, 46°40′E), 16.06.2016, 1 ♂ (Y.A.). *Dagestan*: Tarumovskii Distr., Kochubey (44°24′N, 46°32′E), on *Alhagi* sp., 6.VII.2018, 8 ♀, 5 ♂ (Y.A.) [CAFK, ZISP]; Derbent Distr., Kamyshchay River valley (41°54′N, 48°13′E), 29.VI.2018, 1 ♀ (Y.A.) [CAFK].

Distribution. *Russia: European part (South, North Caucasus).—Kazakhstan, Turkmenistan, Iran, Kyrgyzstan, China.

CONCLUSION

In addition to new regional records, 11 species of megachilid bees are reported from Russia for the first time, and *Hoplitis ravouxi* is excluded from the list of the Russian fauna. At present, 212 species of megachilid bees are known from Russia and 115 of them are known in the North Caucasus.

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