



REPRESENTATIVES OF THE SUBFAMILY MEGACHILINAE (HYMENOPTERA: MEGACHILIDAE) OF THE ENTOMOLOGICAL COLLECTION OF THE INSTITUTE OF ZOOLOGY OF THE ACADEMY OF SCIENCES OF THE REPUBLIC OF UZBEKISTAN

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Article history:	Abstract:
Received: 11 th August 2022 Accepted: 11 th September 2022 Published: 18 th October 2022	The information is provided in the article on the species of leafcutting bees belonging to Megachilinae subfamily available in the Entomology collection of the Zoology Institute of the Academy of Science of the Republic of Uzbekistan and their distribution areas
Keywords: Megachilinae, subfamily, tribe, entomological collection, individ	

INTRODUCTION

Hymenoptera and its related species are in the third place in terms of number of species (Coleoptera more than 400,000 and Lepidoptera more than 180,000 (Kireychuk A.G. 2019) and number of individuals (<https://www.thoughtco.com/a-guide-to-the-twenty-nine-insect-orders-1968419>).

The family Megachilidae is also known as "leaf cutter wasps". They are a cosmopolitan family and are mostly solitary bees. They differ from other bees in that they collect dust not on their hind legs, but through the ventral part of their abdomen (osprey). All species feed on nectar and pollen, but some kleptoparasites (*Coelioxys* and *Stelis*) feed on pollen collected by other megachilid bees.

Representatives of the Megachilinae subfamily are solitary wasps. Each female builds her own nest: They lay an egg and cover the nest with wax, and never return to it. Next year, offspring will appear, young female bees will leave the parental nest and build new nests next to it. (Michener and others., 1994; Baker & Engel, 2006; Michener, 2007; Gonsales, 2008). Currently, 57 species of the genera have been recorded worldwide (Engel va Beyker, 2006; Michener, 2007). In total, 31 subspecies have been identified in the Western Hemisphere (Raw, 2006).

The purpose of the research work:

The purpose of this research work is to analyze the species composition of bees belonging to the subfamily Hymenoptera: Megachilinae, available in the entomological collection of the Institute of Zoology of the Republic of Uzbekistan.

RESULTS

As a result of our scientific research conducted in the entomology collection of the Institute of Zoology of the Republic of Uzbekistan, the following species belonging to the subfamily Hymenoptera: Megachilinae were studied.

Class: Insecta

Category: Hymenoptera

Family: Megachilidae

Subfamily: Megachilinae

Genera: *Anthidium* Fabricius 1804

1. *Anthidium florentinum* (Fabricius, 1775)

The area where the collection was conducted and the number of individuals: Kashkadarya region (a species of it, 29.05.1969), Yangiyul district of Tashkent region (a species, 20.06.1951-1953), Khiva city of Khorezm region (a species of it, 28.05.1927), Khiva city of Khorezm region (a species of it, 18.05.1927), Smertgi (a species of it, 07.06.1922), Khiva city of Khorezm region (a species of it, 29.05.1927), Smertgi (a species of it, 13.09.1920), Khiva city of Khorezm region (a species, 05.06.1927).

Distribution in the world: Russia: European part (Central, South, North Caucasus, Crimea), Western Siberia (Northern Siberia, Altai), Eastern Siberia (the Republic of Buryat), Far East (Primorsky Territory), – Europe (Western Europe, Southern Europe, Eastern Europe), North Africa, Caucasus, Turkey, Syria, Lebanon, Israel, Iran, Afghanistan, Pakistan, Central Asia, Kazakhstan, China (Northwest region).

Synonyms: *Anthidium florentinum* (Fabricius, 1775) [Apis] *A. subspinosum* Klug, 1832; *A. caucasicum* Radoszkowski, 1862; *A. florentinum* var. *ruiescente* Dusmet, 1908; *A. florentinum* var. *kissi* Alfken, 1935; *A. florentinum cypriacum* Mavromoustakis, 1949. Iatrielle

2. *Anthidium diadema* (Latrielle, 1809)

The area where the collection was conducted and the number of individuals: Tashkent (a species, 01.07.1919.)

Distribution in the world: Russia: European part (North Caucasus, Crimea). – Europe (Western Europe, Southern Europe, Eastern Europe), North Africa, Georgia, Azerbaijan, Turkey, Israel, Iran, Central Asia, Kazakhstan.

Synonyms: *A. albiventris* Lepeletier de Saint-Fargeau, 1841; *A. ornatum* Lepeletier de Saint-Fargeau, 1841; *A. radoszkowskyi* Mocsary, 1887; *A. seraxense* Radoszkowski, 1893; *A. terminale* Morawitz, 1894; *A. diadema* var. *caucasicum* Frise, 1897; *A. diadema* var. *turcestanicum* Frise, 1897; *A. diadema* var. *obscurum* Frise, 1897

3. *Anthidium cingulatum* (Latreille, 1809)

The area where the collection was conducted and the number of individuals: Smertgi (two species, 27.05.1922).

Distribution in the world: Russia: European part (Central, South, Crimea), Ural Europe (Western Europe, Southern Europe, Eastern Europe), North Africa, Caucasus, Turkey, Iran, Kyrgyzstan, Kazakhstan, Uzbekistan, China (North-western region), India.

Synonyms: *A. oraniensa* L. Lepeletier de Saint-Fargeau, 1841; *A. dissectum* Eversmann, 1852; *A. rufispinum* Costa, 1883; *A. manicatum* var. *undulatafasciatum* Frise, 1917.

Genera: *Lithurgus* Berthold, 1827,

1. *Lithurgus cornutus* (Fabricius, 1787)

The area where the collection was conducted and the number of individuals: Yangiyul district, Tashkent region (a species, 07.08.1952), Gori Qiziltop (a species, 15.07.1952).

Distribution in the world: Russia: European part (Center, East, South, North Caucasus, Crimea), Ural, Western Siberia (Kamerova., Altai), Eastern Siberia (Khakas, Krasnayar). - Europe (Western Europe, Southern Europe, Eastern Europe), North Africa, Turkey, Israel, Iran, Uzbekistan, Kyrgyzstan, Kazakhstan, North America.

Synonyms: [Andrena] *L. umbraculatus* L. Yevropa qismi lepeletier de Saint-Fargeau, 1841; *L. fuseipennis* Lepeletier de Saint-Fargeau, 1841; *L. nasutus* Dufour, 1849; *Megachile monoseros* Eversmann, 1852; *M. dohrni* Radoszkowski, 1872; *Lithurgus maximus* Radoszkowski, 1872; *L. cornutus* var. *obscurus* Cockerell, 1931.

2. *Lithurgus* sp.

The area where the collection was conducted and the number of individuals: Yangiyul district, Tashkent region (a species, 25.06.1952)

Distribution in the world: Two of the three genera are distributed only in South America. The genus *Lithurgus* is widespread and is represented by three species in southern and central Europe.

Synonyms: *Lithurgus sparganotes* (Schletterer 1891), *Megachile sparganotes* Schletterer, 1891.

Genera: *Coelioxys* Latreille 1809

1. *Coelioxys brevis* (Eversmann, 1852)

The area where the collection was conducted and the number of individuals: Yangiyul district of Tashkent region (three species, 10.07.1951, 17.08.1951).

Distribution in the world: Russia: European part (North Caucasus, Crimea), Urals, Eastern Siberia (Tuva).– Europe (Western Europe, Southern Europe, Eastern Europe), North Africa, Caucasus, Turkey, Israel, Tajikistan, Uzbekistan, Kazakhstan, China (Northern region, Northwest, Central region, Southern region), Japan (Hon).

Synonyms: *C. erythropyga* Forster, 1853; *C. erythropyga* var. *rubida* Griboda, 1894; *C. inflatus* Alfken, 1933; *C. brevis armeniaca* Hedicke, 1938.

2. *Coelioxys* sp

The area where the collection was conducted and the number of individuals: Yangiyul district, Tashkent region (two species, 06.08.1951, 29.06.1951).

Distribution in the world: Widespread in Central Europe.

Synonyms: *Coelioxys elongate* L., 1841

Genera: *Megachile* Latreille, 1802

1. *Megachile parietina* (Geoffroy, 1785)

The area where the collection was conducted and the number of individuals: Humson (two species, 07/06/1926)

Distribution in the world: Russia: European part (North Caucasus, Crimea). - Europe (Western Europe, Southern Europe, Eastern Europe), North Africa, Georgia, Azerbaijan, Turkey, Syria, Jordan, Israel, Tajikistan, Uzbekistan, Kyrgyzstan, Kazakhstan.

Synonyms: [Apis] *Apis muraria* Olivier, 1789, nom. praeocc., nec Retzius, 1783; *A. picea* Christ, 1791; *A. varians* Rossi, 1792; *Megachili nestoria* Brulle, 1832; *M. affinis* Brulle, 1832; *M. aegyptica* Lepeletier de Saint-Fergeau, 1841; *Chalicodoma valesina* Alfken, 1931; *Megachile transitoria* Benoist, 1934; *Chalicodoma parietina carpathia* Tkalcu, 1992.

2. *M. desertorum* (Morawitz, 1875)

The area where the collection was conducted and the number of individuals: Khiva, Khorezm region (a species, 07.07.1927), Aumeativskiy (a species, 28.05.1920), Urga, Khorezm region, North Caucasus (two species, 06.05.1952)

Distribution in the world: Russia: Western Siberia (Tuva, Buryat), Turkmenistan, Uzbekistan, Kazakhstan, Mongolia, China (North Caucasus).

3. *M. rubripes* (Morawitz, 1875)

The area where the collection was conducted and the number of individuals: Korlonbek, Tashkent region (a species, 08.06.1921)

4. *M. lagopoda* (Linnaeus, 1761)

The area where the collection was conducted and the number of individuals: Semerchi gorn Zlidiavchilovki (a species, 18.08.1922).

Distribution in the world: Russia: European part (Central, Eastern, Southern, North Caucasus, Crimea), Urals, Western Siberia (Northern Siberia, Kemerova, Altai), Eastern Siberia (Khakas, Krasnoyarsk, Buryat, Zabaikalsky region), Far East (Armenia, Khabarovsk region, Primorsky region). – Europe (Western Europe, Northern Europe, Southern Europe, Eastern Europe), North Africa, Azerbaijan, Turkey, Israel, Iran, Tajikistan, Kyrgyzstan, Kazakhstan, China (Northwest, Central, Western, Southeast), Korean Peninsula, Japan (Hok, Hon).

Synonyms: [Apis] *M. pyrina* Lepeletier de Saint-Fergeau, 1841, nom. praeocc., nec Nylander, 1852; *M. lagopoda* var. *nigricans* Alfken, 1914; *M. baleina* Cockerell, 1928; *M. lagopoda albohirta* Alfken, 1930; *M. lagopoda pieli* Cockerell, 1931; *M. lagopoda* var. *fulvohirta* Alfken, 1935, nom. praeocc., nec Alfken, 1926; *M. furukawai* Yasumatsu, 1938; *M. lagopoda aljkeni* van der Zanden, 1988.

5. *M. nitidicollis* (Morawitz, 1875)

The area where the collection was conducted and the number of individuals: Karakum lucerne (a species, 22.06.1922).

6. *M. leachella* (Curtis, 1828)

The area where the collection was conducted and the number of individuals: Yangiyul district, Tashkent region (a species, 24.07.1951).

Distribution in the world: Russia: European part (South, North Caucasus, Crimea), Ural, Western Siberia (Kamerova vil.), Eastern Siberia (Buryat, Zabaikalsky), Far East (Amur, Khabarovsk, Primorsky region). - Europe (Western Europe, Northern Europe, Southern Europe, Eastern Europe), North Africa, Georgia, Azerbaijan, Turkey, Iran, China (North, North-west).

Synonyms: *M. dorsalis* Pérez, 1879; *M. argentata* var. *fossoria* Ferton, 1909; *M. leachella maadiensis* van der Zanden, 1986; *M. argentata* auct.

7. *M. derasa* (Gerstäcker, 1869)

The area where the collection was conducted and the number of individuals: Yangiyul district, Tashkent region (a species, 10.08.1951).

***M. albisecta* (Klug, 1817)**

The area where the collection was conducted and the number of individuals: Yangiyul district, Tashkent region (a species, 17.07.1951).

Distribution in the world: Russia: European part (North Caucasus, Crimea). - Europe (Western Europe, Southern Europe, Eastern Europe), North Africa, Caucasus, Turkey, Syria, Israel, Iran, Turkmenistan, Uzbekistan, Kyrgyzstan, Kazakhstan.

Synonyms: [Anthophora] *M. sericans* Fonscolombe, 1832; *M. caucasica* Lepeletier de Saint-Fergeau, 1841; *M. dufouri* Lepeletier de Saint-Fergeau, 1841; *M. odontura* Smith, 1849; *M. carinulata* Costa, 1882; *M. gerszabiensis* Radoszkowski, 1886; *M. germabensis* Radoszkowski, 1893).

Genera: *Osmia* Panzer, 1806

1. *Osmia caerulescens* (Linnaeus, 1758)

The area where the collection was conducted and the number of individuals: Aktosh, Tashkent (a species, 01.07.1922)

Distribution in the world: Russia: European part (Center, East, South, North Caucasus, Crimea). - Europe (Western Europe, Southern Europe, Eastern Europe, Northern Europe), North Africa, Caucasus, Turkey, Syria, Jordan, Israel, Iran, Central Asia, Kazakhstan, China, India, North America, New Zealand.

Synonyms: [Apis] *Apis aenea* Linnaeus, 1761; *A. superbus* Harris, 1776; *A. muraria* Retzius, 1783, nom. praeocc., nec Geoffroy, 1785, nec Olivier, 1789; *A. cuprea* Geoffrey, 1785; *Andrena cupraria* Walckenaer, 1802; *Osmia rustica* Cresson, 1864, nom. praeocc., nec Geoffroy, 1785; *O. purpurea* Cresson, 1864).

2. *Osmia caucasica* Friese, 1920

The area where the collection was conducted and the number of individuals: Tashkent region (a species),

Collection time: 07.07.1922

Genera: *Icteranthidium* Michener, 1948.

1. *Icteranthidium laterale* (Latreille, 1809)

The area where the collection was conducted and the number of individuals: Gori Kiziltou (a species)

Collection time: 15.07.1922

Distribution in the world: According to www.gbif.org

Synonyms: [Anthidium] *Anthidium quadrilobum* Lepeletier de Saint-Fargeau, 1841; *A. auripes* Eversmann, 1852; *A. annulare* Schenck, 1870; *A. sexmaculatum* Chevrier, 1872; *A. perrisii* Dours, 1873.

2. *Icteranthidium fedtschenkoi* (Morawitz, 1875)

The area where the collection was conducted and the number of individuals: Ashgabat region (a species, 20.06.1921), Ashgabat region (a species, 20.06.1921), Yangiyul district of Tashkent region (a species, 28.08.1951), G. Skobelov (a species, 28.03.1920)

Distribution in the world: Russia: European part (Center, South, Crimea), Ural, Western Siberia (Novosibirsk, Altai), Eastern Siberia (Tuva, Krosnayark). - Europe (Western Europe, Southern Europe, Eastern Europe), North Africa, Caucasus, Turkey, Iran, Turkmenistan, Kyrgyzstan, Kazakhstan, China (Northwest).

Synonyms: [Anthidium] *Anthidium quadrilobum* Lepeletier de Saint-Fargeau, 1841; *A. auripes* Eversmann, 1852; *A. annulare* Schenck, 1870; *A. sexmaculatum* Chevrier, 1872; *A. perrisii* Dours, 1873.

Genera: *Stelis* Panzer, 1806

1. *Stelis* sp

The area where the collection was conducted and the number of individuals: Semertchi, Vernigo (a species)

Collection time: 24.07.1922

Genera: *Coelioxys* Latreille, 1809

1. *Coelioxys sogdiana* (Morawitz, 1875)

The area where the collection was conducted and the number of individuals: Tashkent (a species, 25.06.1923)

2. *Coelioxys brevis* (Eversmann, 1852)

The area where the collection was conducted and the number of individuals: G.Skobelov (a species, 16.06.1916)

Distribution in the world: Russia: European part (North Caucasus, Crimea), Urals, Eastern Siberia (Tuva). - Europe (Western Europe, Southern Europe, Eastern Europe), North Africa, Caucasus, Turkey, Israel, Tajikistan, Uzbekistan, Kazakhstan, China (North, North-West, Central, South-West), Japan (Hon)

Synonyms: *C. erythropyga* Förster, 1853; *C. erythropyga* var. *rubida* Gribodo, 1894; *C. inflatus* Alfken, 1933; *C. brevis armeniaca* Hedicke, 1938

3. *Coelioxys afra* (Lepeletier 1841)

The area where the collection was conducted and the number of individuals: G.Skobelov (a species, 22.08.1920)

Distribution in the world: Widespread in North Africa, from Iberia to the North Caucasus Ocean, Taiwan and Java (Scheuchl & Willner 2016: 323).

Synonyms: *Coelioxys pusilla* Gerstaker 1858, *Coelioxys afer* Lepeletier 1841, *Coelioxys pusilla* Gerstaker 1858.

3. *Coelioxys tricarinata* (Morawitz, 1875)

The area where the collection was conducted and the number of individuals: Semirtch, Vernigo (a species, 21.06.1922).

CONCLUSION:

Thus, it should be noted that as a result of the research, 3 species belonging to *Anthidium* (Fabricius, 1804), 2 species belonging to *Lithurgus* (Berthold, 1827), *Coelioxys* (Latreille 1809) 2 species belonging to, 9 species belonging to *Megachile* (Latreille, 1802), 2 species belonging to *Osmia* (Panzer, 1806), 2 species belonging to *Icteranthidium* (Michener, 1948), a species belonging to *Stelis* (Panzer, 1806), 4 species belonging to *Coelioxys* (Latreille, 1809), the distribution area of the species and their synonyms were studied.

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