



Far Eastern Entomologist

Дальневосточный энтомолог

Journal published by Far East Branch
of the Russian Entomological Society
and Laboratory of Entomology,
Institute of Biology and Soil Science,
Vladivostok

Number 229: 1-6
2011

ISSN 1026-051X

August

CONTRIBUTION TO THE BEE FAUNA (HYMENOPTERA, APOIDEA: MEGACHILIDAE, APIDAE) OF SHANTAR ISLANDS

A. N. Kupianskaya, M. Yu. Proshchalykin and A. S. Lelej

*Institute of Biology and Soil Science, Far Eastern Branch of Russian Academy of
Sciences, Vladivostok-22, 690022, Russia. E-mail: maxim@biosoil.ru,
lelej@biosoil.ru*

An annotated list of eight species in two families of bees is given. Six species: *Megachile willughbiella* (Kirby), *M. ligniseca* (Kirby), *Bombus lucorum albocinctus* Smith, *B. consobrinus wittenburgi* Vogt, *B. sichelii* Radoszkowski, and *B. hypnorum calidus* Erichson are newly recorded from Shantar Islands (Khabarovskii krai). Patterns of bees diversity in the Shantar Islands and Russian Far East are discussed.

KEY WORDS: bees, bumble-bees, Russian Far East, biodiversity, new records.

А. Н. Купьянская, М. Ю. Прощалькин, А. С. Лелей. К фауне пчел (Hymenoptera, Apoidea: Megachilidae, Apidae) Шантарских островов // Дальневосточный энтомолог. 2011. № 229. С. 1-6.

Приведен аннотированный список 8 видов пчёл из двух семейств. Шесть видов: *Megachile willughbiella* (Kirby), *M. ligniseca* (Kirby), *Bombus lucorum albocinctus* Smith, *B. consobrinus wittenburgi* Vogt, *B. sichelii* Radoszkowski и *B. hypnorum calidus* Erichson, впервые указываются для фауны Шантарских островов (Хабаровский край). Обсуждаются особенности разнообразия пчел на Шантарских островах и на Дальнем Востоке России.

Биолого-почвенный институт, Дальневосточное отделение Российской академии наук, Владивосток-22, 690022, Россия.

INTRODUCTION

The Shantar Islands are a group of fifteen islands that lie in Uda Bay, in the south-western zone of the Sea of Okhotsk (Fig. 1). These islands are located close to the shores of the Khabarovskii krai. Most islands have rugged cliffs, but they are of moderate height; the highest point in the island group is 720 m (Bolshoi Shantar Island). The largest island in the Shantar group is Bolshoi Shantar Island (1790 km²). It is about 72 km in length and 49 km in width. It has a large brackish lake (Bolshoe Lake) in its northern end which is connected to the sea through a narrow passage. Other islands include Feklistova Island (372 km²), Malyi Shantar Island, (100 km²), Prokofyeva, Sakharnaya Golova, Belichii, Kusova, Ptichii, Utichii, Yuzhnyi, Srednii, Severnyi, Sivuch'i kamni and finally Medvezhii, which lies very close to the coast. Administratively this island group belongs to the Khabarovskii krai of the Russia.

Only *Bombus jonellus* (Kirby, 1802) and *B. hypnorum* (Linnaeus, 1758) have been recorded from the Shantar Islands until now (Panfilov, 1984). The distribution data on the Russian Far East for the included species are taken from Kupianskaya (1995), Lelej & Kupianskaya (2000), Proshchalykin (2006, 2007), Proshchalykin et al. (2004).

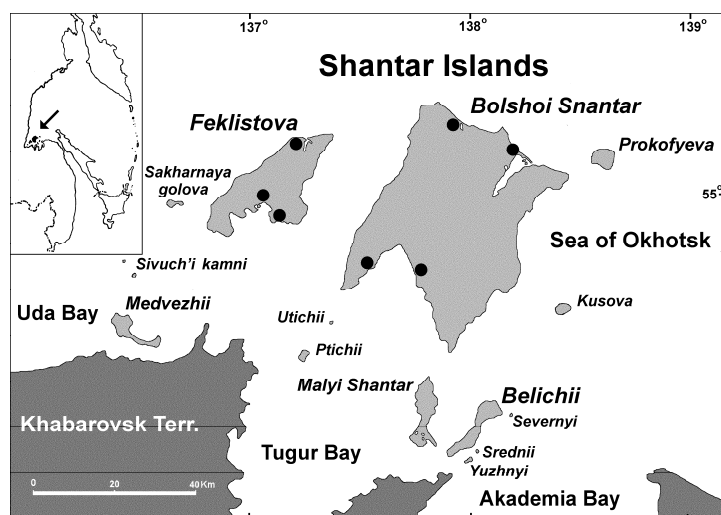


Fig. 1. The collecting places (black cycles) of the bees in the Shantar Islands.

This study is based on material (146 specimens) collected by well-known Russian malacologist Dr. V.V. Bogatov (Institute of Biology and Soil Science [= IBSS], Russian Academy of Sciences, Vladivostok) during field survey in Shantar Islands in August 2010. All specimens were collected by V.V. Bogatov, so the collector's name is omitted in the text. All material deposit in the collection of the IBSS. The symbol "♀" is used for the workers in the material. New records in the distribution section are asterisked (*).

LIST OF THE SPECIES
Family Megachilidae

1. *Megachile (Xanthosarus) willughbiella* (Kirby, 1802)

MATERIAL EXAMINED. **Bolshoi Shantar:** Bolshoi Anaur River (54°45'61"N, 137°36'05"E), 13,14.VIII 2010, 1 ♀.

DISTRIBUTION. Russia: Magadanskaya oblast, Khabarovskii krai (including *Shantar Islands), Amurskaya oblast, Primorskii krai, Sakhalin, Kuril Islands (Kunashir), Transbaikalia, Irkutskaya oblast, Yakutia, European part. – Japan (Hokkaido, Honshu), Europe.

2. *Megachile (Megachile) ligniseca* (Kirby, 1802)

MATERIAL EXAMINED. **Feklistova:** Lisie Lake (55°06'26"N, 137°05'48"E), 20.VIII 2010, 1 ♂.

DISTRIBUTION. Russia: Kamchatskii krai, Khabarovskii krai (including *Shantar Islands), Amurskaya oblast, Primorskii krai, Sakhalin, Kuril Islands (Kunashir), Irkutskaya oblast, Yakutia, Western Siberia, European part. – Japan (Hokkaido, Honshu), North-Eastern China, Europe.

Family Apidae

1. *Bombus (Bombus) lucorum albocinctus* Smith, 1854

MATERIAL EXAMINED. **Bolshoi Shantar:** Bolshoi Anaur River (54°45'61"N, 137°36'05"E), 13,14.VIII 2010, 1 ♀, 5 ♂, 22 ♀; Topaznaya Bay (54°48'63"N, 137°20'93"E), 16.VIII 2010, 1 ♀; Omokoi Lake (55°09'46"N, 137°42'96"E), 21.VIII 2010, 1 ♀; Bolshoe Lake (55°03'21"N, 138°03'36"E), 22.VIII 2010, 2 ♂, 7 ♀. **Feklistova:** Rosseta Bay (54°57'58"N, 136°54'96"E), 17.VIII 2010, 1 ♀, 7 ♂, 10 ♀; Arka (54°53'70"N, 136°46'74"E), 18,19.VIII 2010, 1 ♀; Lisie Lake (55°06'26"N, 137°05'48"E), 20.VIII 2010, 1 ♂.

DISTRIBUTION. Russia: Magadanskaya oblast, Kamchatskii krai, Khabarovskii krai (including *Shantar Islands), Amurskaya oblast, Primorskii krai, Sakhalin, Moneron, Kuril Islands (Polonskogo, Iturup, Simushir, Ketoi, Rasshua, Matua, Shishkotan, Ekarma, Kharimkotan, Onekotan, Makanrushi, Antsiferova, Paramushir, Shumshu, Atlasova). – North Korea.

2. *Bombus (Megabombus) consobrinus wittenburgi* Vogt, 1911

MATERIAL EXAMINED. **Bolshoi Shantar:** Bolshoi Anaur River (54°45'61"N, 137°36'05"E), 13,14.VIII 2010, 1 ♀; Topaznaya Bay (54°48'63"N, 137°20'93"E), 16.VIII 2010, 1 ♀.

DISTRIBUTION. Russia: Magadanskaya oblast, Kamchatskii krai, Khabarovskii krai (including *Shantar Islands), Amurskaya oblast, Primorskii krai, Sakhalin, Eastern Siberia. – North China, North Korea, Mongolia, Japan (Honshu).

3. *Bombus (Melanobombus) sichelii* Radoszkowski, 1859

MATERIAL EXAMINED. **Bolshoi Shantar:** Bolshoi Anaur River (54°45'61"N, 137°36'05"E), 13,14.VIII 2010, 2 ♀; Topasnaya Bay (54°48'63"N, 137°20'93"E), 16.VIII 2010, 3 ♀; Bolshoe Lake (55°03'21"N, 138°03'36"E), 22.VIII 2010, 1 ♂, 9 ♀. **Feklistova:** Lisie Lake (55°06'26"N, 137°05'48"E), 20.VIII 2010, 2 ♂, 4 ♀.

DISTRIBUTION. Russia: Magadanskaya oblast, Kamchatskii krai, Khabarovskii krai (including *Shantar Islands), Amurskaya oblast, North of Primorskii krai, Sakhalin, Kuril Islands (Shumshu); Transbaikalia, Eastern Siberia, European part, Caucasus. – North China, North Korea, Mongolia, mountains of Central and Southern Europe.

4. *Bombus (Pyrobombus) hypnorum calidus* Erichson, 1851

Bombus hypnorum: Panfilov, 1984: 28 (map).

MATERIAL EXAMINED. **Bolshoi Shantar:** Bolshoi Anaur River (54°45'61"N, 137°36'05"E), 13,14.VIII 2010, 2 ♂; Topasnaya Bay (54°48'63"N, 137°20'93"E), 16.VIII 2010, 1 ♂; Bolshoe Lake (55°03'21"N, 138°03'36"E), 22.VIII 2010, 1 ♀, 10 ♀. **Feklistova:** Rosseta Bay (54°57'58"N, 136°54'96"E), 17.VIII 2010, 5 ♂, 34 ♀; Arka (N54°53'70"N, 136°46'74"E), 18.VIII 2010, 1 ♀, 1 ♂; Lisie Lake (55°06'26"N, 137°05'48"E), 20.VIII 2010, 2 ♀.

DISTRIBUTION. Russia: Magadanskaya oblast, Kamchatskii krai, Khabarovskii krai (including Shantar Islands), Amurskaya oblast, Primorskii krai, Sakhalin, Kuril Islands (Kharimkotan, Onekotan, Makanrushi, Paramushir, Shumshu); Transbaikalia, Ural, European part. – North Korea.

5. *Bombus (Pyrobombus) jonellus* (Kirby, 1802)

Bombus jonellus: Panfilov, 1982: 28 (map).

MATERIAL EXAMINED. **Bolshoi Shantar:** Bolshoe Lake (55°03'21"N, 138°03'36"E), 22.VIII 2010, 1 ♂.

DISTRIBUTION. Russia: Chukotka, Magadanskaya oblast, Kamchatskii krai, Khabarovskii krai (including Shantar Islands), Sakhalin; Siberia, European part. – Europe.

6. *Bombus (Thoracobombus) schrencki schrencki* Morawitz, 1881

MATERIAL EXAMINED. **Bolshoi Shantar:** Bolshoi Anaur River (54°45'61"N, 137°36'05"E), 13,14.VIII 2010, 1 ♂, 3 ♀.

DISTRIBUTION. Russia: Magadanskaya oblast, Kamchatskii krai, Khabarovskii krai (including *Shantar Islands), Amurskaya oblast, Primorskii krai – Korea, North-Eastern China.

PATTERNS OF DIVERSITY

Two species of carpenter bees (Megachilidae: *Megachile*) and six species of bumble-bees (Apidae: *Bombus*) are discovered in the Shantar Islands. The bees are collected on two largest islands: Bolshoi Shantar – 7 species, and Feklistova – four species. All species from the Shantar Islands have been known from the mainland (Khabarovskii krai) also. The Shantar Islands are the northern sites of these species in Khabarovskii krai.

The bee fauna of Shantar Islands is far from the complete, because the time of collecting was short (August 13-20). From six known from the Russian Far East bee families probably five ones are distributed on the Shantar Islands. Besides collected Megachilidae and Apidae three additional families should be found here: Colletidae, Andrenidae, and Halictidae. Because Shantar Islands currently have not settled places their nature saved from the fairs.

Bee fauna of southern part of Khabarovskii krai includes 188 species in 35 genera, while from the Khabarovskii krai north of Tugur (53°46'00"N, 136°50'00"E) only seven bumble bees are known (Proshchalykin, 2011). It is difficult to account the estimated number of bee species in the Shantar Islands. The small island Moneron (southwards of Sakhalin) inhabits 15 species (including seven bumble bees) in five genera (Proshchalykin, 2006) but Moneron square (30 km²) almost in 60 times less than one of Bolshoi Shantar. Quite possible that bee fauna of Shantar Islands is similar to that of North Sakhalin which numbers 49 bee species in eleven genera (Proshchalykin et al., 2004). Furthermore all bee species discovered in the Shantar Islands are distributed in North Sakhalin also.

ACKNOWLEDGEMENTS

Our great thanks to Dr. V.V. Bogatov (IBSS, Vladivostok) who collected the bees. The work was supported by the Russian Found of Basic Research (No. 11-04-00624, 11-04-90454, 11-04-98549, 11-04-98585) and the Far Eastern Branch of the Russian Academy of Sciences (No. 11-III-Д-06-012, 09-III-A-06-174).

REFERENCES

- Kupianskaya, A.N. 1995. Family Apidae. In: Lelej, A.S., Kupianskaya, A.N., Kurzenko, N.V. & Nemkov, P.G. (Eds). *Key to the insects of Russian Far East. Vol. 4. Neuropteroidea, Mecoptera, Hymenoptera. Pt. 1.* St. Petersburg: Nauka: 551–580. (In Russian).
- Lelej, A.S., Kupianskaya, A.N. 2000. The bumble-bees (Hymenoptera, Apidae, Bompinae) of the Kuril Islands. *Far Eastern Entomologist*, 95: 1–17.
- Panfilov, D.V. 1984. Map 186: *Bombus hypnorum* (Linnaeus, 1758). Map 187: *Bombus muscorum* (Fabricius, 1775). Map 188: *Bombus balteatus* Dahlbom, 1832. Map 189: *Bombus proteus* Gerstaecker, 1869. Map 190: *Bombus confusus* Schenck, 1859. Map 191: *Bombus ruderatus* (Fabricius, 1775). Map 192: *Bombus fragrans* (Pallas, 1771). In: Gorodkov, K.B. (ed.). *Provisional Atlas of Insects of the European Part of the USSR. Maps 179–221.* Leningrad: Nauka: 28–32. (In Russian).

- Proshchalykin, M.Yu. 2006. Bees (Hymenoptera, Apoidea) of Moneron Island. *In: Storozhenko, S.Yu., Bogatov, V.V., Lelej, A.S., Barkalov, V.Yu. & Makarchenko, E.A. (Eds). Flora and fauna of Moneron Island. Materials of the International Sakhalin Island Project.* Vladivostok: Dalnauka: 250–254. (In Russian).
- Proshchalykin, M.Yu. 2007. Family Megachilidae; Family Apidae. *In: Lelej, A.S., Belokobylskij, S.A., Kasparyan, D.R., Kupianskaya, A.N. & Proshchalykin, M.Yu. (Eds). Key to the insects of Russian Far East. Vol. 4. Neuropteroidea, Mecoptera, Hymenoptera. Pt. 5.* Vladivostok: Dalnauka: 889–908. (In Russian).
- Proshchalykin, M.Yu. 2011. Patterns of distribution of bees (Hymenoptera: Apiformes) in the Russian Far East. *In: Lelej, A.S., Storozhenko, S.Yu., Kupianskaya, A.N. & Proshchalykin, M.Yu. (Eds). Key to the insects of Russian Far East. Additional volume. Analysis of the fauna and general index of the names.* Vladivostok: Dalnauka: 101–115. (In Russian).
- Proshchalykin, M.Yu., Lelej, A.S. & Kupianskaya, A.N. 2004. Bee fauna (Hymenoptera, Apoidea) of Sakhalin Island. *In: Storozhenko, S.Yu., Bogatov, V.V., Lelej, A.S. & Makarchenko, E.A. (Eds). Flora and fauna of Sakhalin Island. Materials of the International Sakhalin Island Project. Part 1.* Vladivostok: Dalnauka: 154–192. (In Russian).