

Fauna of spiders (Aranei) of the Commander Islands

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ABSTRACT. An annotated check-list of spiders of the Commander Islands is provided. To date, 27 spider species from 6 families are known from this area, together with 4 species being new for the fauna of the islands.

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Фауна пауков (Aranei) Командорских островов

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РЕЗЮМЕ. В статье представлен аннотированный список пауков Командорских островов. Всего с территории региона известно 27 видов пауков из 6 семейств, в том числе 4 вида отмечены в фауне островов впервые.

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КЛЮЧЕВЫЕ СЛОВА: Araneae, океанические острова, Пацифика, новые находки, фаунистика, география, биоразнообразие.



Fig. 1. Schematic map of Bering Island (redrawn after: Sokolov, 1991).

Рис. 1. Остров Беринга, картосхема (перерисовано из: Соколов, 1991).

Introduction

The Commander Islands are situated in the oceanic sector of temperate belt in non-icy part of the Bering Sea (Ponomareva, Isachenkova, 1991). There is a peculiar climate with relatively soft winter and cool summer. The Commander Islands are woodless, being mostly occupied by mountain tundra together with grassland (meadow) communities (Ponomareva, Yanitskaya, 1991).

The largest islands in the Commanders are Bering and Mednyi (Copper) ones (Figs 1, 2). Specialized arachnological investigations have never been conducted in the Commander Islands, but spiders were collected by numerous travelers and naturalists of a wide profile. First investigations of the Commander spiders were conducted by American zoologists in 1880–



Fig. 2. Schematic map of Mednyi Island (redrawn after: Sokolov, 1991).

Рис. 2. Остров Медный, картосхема (перерисовано из: Соколов, 1991).

1890ies, mainly during fur-seal expeditions. The first known spider record is the description of a female of *Erigone sibiriana* Keyserling, 1886 (“Marx collection”) from “Commander Island, Siberia” (Keyserling, 1886). The name “Commander Island” was used for Bering Island in 18th, not in 19th century (Tatarenkova, 2018) by this reason the former name is regarded here as a mistake. Ten species are reported in a review paper by Marx (1892) devoted to the “arctic regions” of Eurasia and North America. This author also erroneously gives the islands name as singular — “Commander Island”. Unfortunately, his additional detailed paper with new species descriptions entitled “Description of some Arctic spiders from the Western Hemisphere” has never been published. As a result, 8 spider names are known as *nomina nuda* only — *Dictyna polaris* Marx, *Erigone algens* Marx, *E.*

frigidula Marx, *E. mystacea* Marx, *Liccranium* [sic! — should be *Liocranium*] *boreale* Marx, *Lycosa stejnegerii* Marx, *Philodromus nebulosus* Marx and *Prosthesima siberiana* Marx.

Another American arachnologist, Banks (1899) recorded seven species of spiders from the islands (the total list see below), including one new for science — “*Gonglidium* [sic! — should be *Gongylidium*] *borealis* sp. nov.” (now *Porrhomma boreale* (Banks, 1899)) from Mednyi Island; three additional species were identified to the genus level only: *Erigone* sp. (2 females from Bering Island), *Erigone* sp. (obviously another species, 1 female from Bering Island), *Pardosa* sp. (2 males from Bering Island).

Materials of Banks kept in the National Museum of Natural History, Smithsonian Institution (Washington, DC, USA) were borrowed in 1986 by request of K.G. Mikhailov and examined by Moscow arachnologist Kirill Yu. Eskov. Finding of *Microneta ululabilis* (Keyserling, 1886) from Mednyi Island appeared to refer to “St. Paul, Pribiloff Is.,” according to the original label. Specimens from this sample identified by Banks as “*Microneta ululabilis* (Keys.), *Erigone* sp., etc.,” are actually a mixture of the following species (revised by K.Yu. Eskov in 1986): *Oreonetides vaginatus* (Thorell, 1872) (5 ♀♀), *Hilaira vexatrix* (O. Pickard-Cambridge, 1877) (4 ♀♀), *Erigone arctica arctica* (White, 1852) (3 ♂♂, 5 ♀♀), *Bathyphanes brevipes* (Emerton, 1917) (2 ♀♀), *Collinsia holmgreni* (Thorell, 1872) (now *Halorates holmgreni*, 1 ♂, 3 ♀♀), and Linyphiidae gen.sp. 4 juv. *Microneta ululabilis* was described from Sitka (Alaska), unknown from other localities (aside St. Paul) and regarded now as a junior synonym of *Oreonetides vaginatus*.

Two species of wolf spider genus *Pardosa* were also reported by Fox (1937) from Bering Island. By this paper, the American period of arachnological study of the Commander islands was finished.

First Russian-Soviet Commander arachnological studies were started in 1980–1990ies only and resulted in several papers by Eskov (1985, 1986, 1988; Tanasevitch, Eskov 1987;

etc.). A new spider collecting on Commander Islands was made by A.S. Sazhnev in 2012–2013. These original data are provided herein.

The goal of this study is to provide survey of all species of spiders found or reported from the Commander Islands.

Material

Spiders from Commander Island is kept in a single Russian spider collection, in the Zoological Museum of the Lomonosov Moscow State University (ZMMU, Moscow Russia). Material collected in 1970–1980ies was identified by K.Yu. Eskov is mostly kept in ZMMU, together with card catalogue of K.Yu. Eskov with exact label data. Specimens collected by A.S. Sazhnev were recently identified by E.A. Kuzmin are also transferred to ZMMU.

A list of original and literature data on spiders of the Commander Islands is given herein. Data on biotopes are given according to the original labels, publications, or cards of K.Yu. Eskov catalogue. Data on nomina nuda (see above) are not provided. Date of Carl Clerck publication (1758, not 1757) is given after ICZN Articles 3 and 20 (ICZN 2021).

Species list

Family ARANEIDAE

Larinioides cornutus (Clerck, 1758)

MATERIAL. 2 ♂♂, 2 ♀♀ (ZMMU), Bering Island, Severnoe Lezhbishche (Severnyi Cape), 12.08.2013, leg. A.S. Sazhnev, det. E.A. Kuzmin.

The species is new for the Commander Islands.

Family LINYPHIIDAE

Agyneta brusnewi (Kulczyński, 1908)

ORIGINAL DATA. 1 ♀, Bering Island, Drovenskoi Cape, scree on hill slope (K.Yu. Eskov card catalogue).

LITERATURE DATA. Bering Island, no biotope (tundra zone) (Eskov, 1985, as *Meioneta b.*).

Missing in ZMMU collection.

Bathyphantes eumenis (L. Koch, 1879)

LITERATURE DATA. Mednyi Island: grassy meadow-like community (Eskov, 1986, as *B. simillimus* (Keyserling, 1886)).

Missing in ZMMU collection.

Bathyphantes pogonias Kulczyński, 1885

MATERIAL. 2 ♂♂, 3 ♀♀ (ZMMU), Mednyi Island, det. K.Yu. Eskov; 1 ♂, Bering Island, Nikol-skoie Village, 31.08.2013, leg. A.S. Sazhnev, det. E.A. Kuzmin.

LITERATURE DATA. Bering Island: several specimens (Banks, 1899) = 2 ♀♀, “Bering Island, July-Aug. 1897. Barrett-Hamilton”, rev. K.Yu. Eskov in 1986; Bering Island: Buyan River (Eskov, Marusik, 1994); Mednyi Island: no biotope (Tanasevitch, 2011).

Bolyphantes alticeps (Sundevall, 1833)

LITERATURE DATA. Mednyi Island: no biotope (Eskov, 1988).

Missing in ZMMU collection.

Ceratinella sp.

LITERATURE DATA. Mednyi Island: graminous meadow-like community (Eskov, 1986). This reference is missing in K.Yu. Eskov card catalogue. Possibly, this specimen was redetermined later.

Missing in ZMMU collection. Moreover, specimens from Commander Islands are missing in all ZMMU *Ceratinella* material.

Dismodicus alticeps Chamberlin et Ivie, 1947

ORIGINAL DATA. 1 ♀, Mednyi Island (K.Yu. Eskov card catalogue).

The species is new for the Commander Islands. Missing in ZMMU collection.

Erigone arctica sibirica Kulczyński, 1908

ORIGINAL DATA. 1 ♂, Mednyi Island (K.Yu. Eskov card catalogue).

The species is new to the Commander Islands. Missing in ZMMU collection.

Erigone cristatopalpus Simon, 1884

= *Erigone simillima* Keyserling, 1886

MATERIAL. Mednyi Island: 1 ♂ (ZMMU), VII–VIII.1978, leg. S.V. Popov, det. K.Yu. Eskov; 1 ♂, 12 ♀♀ (ZMMU), Glinka Bay, multiherbaceous tundra, 30.VI–I.VIII.1983, leg. A.V. Zimenko, det. K.Yu. Eskov. Bering Island, 1 ♂ (ZMMU), Buyan Bay, 25.07.2012, leg. A.S. Sazhnev, det. E.A. Kuzmin.

ORIGINAL DATA. 1 ♂, 8 ♀♀, Mednyi Island, Glinka Bay, multiherbaceous tundra; 1 ♂, Mednyi Island (K.Yu. Eskov card catalogue, as *E. simillima*).

The species is new to the Commander Islands.

Gnathonarium suppositum (Kulczyński, 1885)

= *Erigone sibiriana* Keyserling, 1886

MATERIAL. 1 ♂ (ZMMU), Mednyi Island, VII–VIII.1978, leg. A. Pantelev, det. K.Yu. Eskov (as *G. famelicum* (Keyserling, 1886)); 1 ♂ (ZMMU), Mednyi Island, Drovenskoi (Glinka) Cape, multiherbaceous tundra, under logs, 8.VII.1983, leg. A.V. Zimenko, det. K.Yu. Eskov.

ORIGINAL DATA. 1 ♂, 4 ♀♀, Bering Island, Pogrebnaya (Peregrebnyaya) Bay, meadow-type tundra; 1 ♂, 2 ♀♀, Mednyi Island (K.Yu. Eskov card catalogue, as *G. famelicum*).

LITERATURE DATA. Commander Island [sic!] (Keyserling, 1886, as *Erigone sibiriana*); Mednyi Island: graminous meadow-like community (Eskov, 1986, as *G. taczanowskii* (O. Pickard-Cambridge, 1873), 1988).

Hilaira herniosa (Thorell, 1875)

MATERIAL. 1 ♀ (ZMMU), Bering Island, Shipitinskaya (Shipitsynskaya) Bay, in a hut, 24–26.VIII.1982, leg. A.V. Zimenko.

LITERATURE DATA. Mednyi Island: graminous-multiherbaceous meadow-like community (Eskov, 1981); Mednyi Island: no biotope (Eskov, 1987).

Improphantes complicatus (Emerton, 1882)

MATERIAL. 1 ♂ (ZMMU), Mednyi Island, VII–VIII.1978, leg. S.V. Popov, det. K.Yu. Eskov.

LITERATURE DATA. Mednyi Island (1 ♂ by K.Yu. Eskov card catalogue): graminous meadow-like community (Eskov, 1986, as *Lepthyphanes*).

Lepthyphantes leprosus (Ohlert, 1867)

MATERIAL. 1 ♀ (ZMMU), Mednyi Island, VII–VIII.1978, leg. S.V. Popov, det. K.Yu. Eskov.

LITERATURE DATA. Mednyi Island (1 ♀ by K.Yu. Eskov card catalogue), no biotope (Tanasevitch, 1987).

Mermessus maculatus (Banks, 1892)

LITERATURE DATA. Mednyi Island: Glinka Bay (Eskov, Marusik, 1994, as *Eperigone maculata*).

Missing in ZMMU collection. Possibly misidentified (Yu.M. Marusik, personal communication).

Oreoneta arctica (Holm, 1960)

LITERATURE DATA. Bering Island (1 ♂ by K.Yu. Eskov card catalogue), no biotope (tundra zone) (Eskov, 1985, as *Hilaira montigena arctica*).

Missing in ZMMU collection.

Oreonetides vaginatus (Thorell, 1872)

MATERIAL. 1 ♀, (ZMMU), Mednyi Island, Glinka Bay, 4.VII.1983, leg. A.V. Zimenko, det. K.Yu. Eskov.

ORIGINAL DATA. 1 ♀, Mednyi Island, Glinka Bay (K.Yu. Eskov card catalogue).

LITERATURE DATA. Mednyi Island, no biotope (Eskov, 1988).

Porrhomma boreale (Banks, 1899)

LITERATURE DATA. Mednyi Island, “two specimens, male and female”, as *Gonglydium* (sic!) *borealis* (Banks, 1899); Commanders (Eskov, 1988, literature data).

It was recently reported from the Attu Island (Aleutians) (Růžička, 2018).

Sisicottus panopeus Miller, 1999

LITERATURE DATA. Commanders (Marusik, 2002).

Missing in ZMMU collection.

Tenuiphantes mengei (Kulczyński, 1887)

LITERATURE DATA. “Copper Island, Aug. 1897. B[arrett-].H[amilton].” (Banks, 1899, as *Bathypantes arctica* (Keyserling, 1886), one specimen); Mednyi Island (Tanasevitch, Eskov 1987, Banks material revised); Bering Island (Holm, 1970, as *Lepthyphanes m.*); Commanders (Eskov, 1988, literature data).

Missing in ZMMU collection.

Tenuiphantes nigriventris (L. Koch, 1879)

MATERIAL. 1 ♀, (ZMMU), Bering Island, meadow tundra, 5.IX.1982, leg. A.V. Zimenko, det. K.Yu. Eskov (as *Lepthyphanes camtschaticus* Kulczyński, 1926).

ORIGINAL DATA. 1 ♀, Bering Island, meadow tundra (K.Yu. Eskov card catalogue).

LITERATURE DATA. Bering Island: no biotope (Tanasevitch, 1987); Commanders (Eskov, 1988, literature data).

Walckenaeria cuspidata Blackwall, 1833

MATERIAL. 1 ♀, (ZMMU), Mednyi Island, Glinka Bay, coastal terrace, multiherbaceous tundra, under canopy of herbs, 27.VII.1983, leg. A.V. Zimenko, det. K.Yu. Eskov.

ORIGINAL DATA. 1 ♀, Mednyi Island, Glinka Bay, coastal terrace, multiherbaceous tundra (K.Yu. Eskov card catalogue).

LITERATURE DATA. Mednyi Island, no biotope (Eskov, 1988, as *W-ria* (*Cornicularia*) *c-ta*).

Family LYCOSIDAE

Pardosa palustris (Linnaeus, 1758)

LITERATURE DATA. Bering Island, no biotope (Fox, 1937, as *P. tarsalis* (Thorell, 1856)).

Pardosa riparia (C.L. Koch, 1847)

LITERATURE DATA. Bering Island, no biotope (Fox, 1937, as *P. cursoria* (C.L. Koch, 1847)).

Family PHILODROMIDAE

Tibellus oblongus (Walckenaer, 1802)

LITERATURE DATA. Commander Island (Marx, 1892).

Family TETRAGNATHIDAE

Tetragnatha extensa (Linnaeus, 1758)

MATERIAL. 1 ♀ (ZMMU), Bering Island, Severnoe Lezhbishche (Severnyi Cape), 12.08.2013, leg. A.S. Sazhnev, det. E.A. Kuzmin.

LITERATURE DATA. Commander Island [sic!] (Marx, 1892; Strand, 1906, literature data).

Family THERIDIIDAE

Enoplognatha caricis (Fickert, 1876)

MATERIAL. 1 ♀ (ZMMU), Bering Island, Severnoe Lezhbishche (Severnyi Cape), 12.08.2013, leg. A.S. Sazhnev, det. E.A. Kuzmin.

The species is new to the Commander Islands.

Rugathodes sexpunctatus (Emerton, 1882)

LITERATURE DATA. Bering Island: Bobrovaya Bay; Mednyi Island: Glinka Bay (Marusik, 1989: *Theridion sexpunctatum*).

Missing in ZMMU collection.

Thymoites oleatus (L. Koch, 1879)

LITERATURE DATA. Mednyi Island, no biotope (Eskov, 1988).

Missing in ZMMU collection.

Discussion

To date, 27 spider species from six families are known from the Commander Islands; among them, four species are reported from, the islands for the first time.

Biota of the Commander Islands seems to be most close to that of Kamchatka, being its de-

pleted variant, as shown by vascular plants (Ponomareva, Yanitskaya, 1991) and numerous groups of insects. In comparison to 250 Commander insect species (Sviridov, 1987; Lobkova, 2010; Chuzhekova, Sazhnev, 2013; Pekar-sky, 2014; Anikin, Sinev, 2015; Sazhnev, 2015, 2017, 2018a,b; Lobkova, Semenov, 2017), more than 3700 insect species are known from Kamchatka (Storozhenko *et al.*, 2002), and similarity of both territories by this parameter is being ca. 85% (Lobkova, 2010). The absence of dragonflies, orthopterans, aboriginal ant species, certain families of beetles and lepidopterans, all distributed in continental Kamchatka, is peculiar to the Commanders (Sazhnev, 2017). Extremely uneven level of research for different insect and other invertebrate groups in the islands should be also taken into consideration.

Similarity of Commander and Kamchatka spider faunas is hardly to estimate due to insufficient knowledge of the former one. To date, for 27 spider species known from the islands, 22, or 81.5% are found also in Kamchatka, and 5 species, or 18.5% are not found there.

Among the five latter species, *Agyneia brunewi* and *Oreoneta arctica* are tundra-inhabitants in Russia and also (*O. arctica*) in Alaska (Saaristo, Marusik, 2004; Marusik, Eskov, 2009); these species can be found in Kamchatka in the future. Three more species are widely distributed in North America with *Rugathodes sexpunctatus* and *Sisicottus panopeus* being known from its northern part including Alaska (Miller, 1999; Davidson, Merrett, 2014), and *Mermessus maculatus* — mainly in the eastern part of the continent (Millidge, 1987). All these five species could settle the Commander Islands from the eastward and may constitute a specific component differing from the Kamchatka spider fauna.

As for spiders from Alaska, 19 species from Commanders, or 70.4%, are known from this region, including *Erigone arctica arctica* (White, 1852) and *Walckenaeria cuspidata brevicula* (Crosby et Bishop, 1931) (Paquin *et al.*, 2010; WSC, 2021). To date, spider fauna of Commander Islands is slightly closer to the Kamchatka one.

Compliance with ethical standards

CONFLICTS OF INTEREST: The authors declare that they have no conflicts of interest.

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