Spider fauna (Aranei) of the Mongolian Altai: families Cheiracanthiidae, Clubionidae, Gnaphosidae, Philodromidae, Theridiidae, Thomisidae

Фауна пауков (Aranei) Монгольского Алтая: семейства Cheiracanthiidae, Clubionidae, Gnaphosidae, Philodromidae, Theridiidae, Thomisidae

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Abstract. An annotated check-list of 34 spider species from 13 genera and 6 families the spiders (Arachnida, Aranei) recorded from Mongolian Altai is presented. Nine species, Cheiracanthium oncognathum Thorell, 1871, Gnaphosa lucifuga Walckenaer, 1802, G. orites Chamberlin, 1922, G. pilosa Savelyeva, 1972, G. sticta Kulczyński, 1908, Micaria mongunica Danilov, 1996(1997), M. subopaca Westring, 1861, Parasyrisca logunovi Ovtsharenko, Platnick et Marusik, 1995 and Thanatus tuvinensis Logunov, 1996 are registered for Mongolia for the first time, as well as five species, Gnaphosa wiehlei Schenkel, 1963, Zelotes puritanus Chamberlin, 1922, Thanatus mongolicus Schenkel, 1936, Th. pictus L. Koch, 1881 and Ozyptila inaequalis Kulczyński, 1901 are newly recorded for Mongolian Altai mountains.

Резюме. Представлен аннотированный список 34 видов пауков из 13 родов и 6 семейств, собранных в Монгольском Алтая. Впервые для Монголии отмечено девять видов: Cheiracanthium oncognathum Thorell, 1871, Gnaphosa lucifuga Walckenaer, 1802, G. orites Chamberlin, 1922, G. pilosa Savelyeva, 1972, G. sticta Kulczyński, 1908, Micaria mongunica Danilov, 1996(1997), M. subopaca Westring, 1861, Parasyrisca logunovi Ovtsharenko, Platnick et Marusik, 1995 and Thanatus tuvinensis Logunov, 1996. Пять видов, Gnaphosa wiehlei Schenkel, 1963, Zelotes puritanus Chamberlin, 1922, Thanatus mongolicus Schenkel, 1936, Th. pictus L. Koch, 1881 и Ozyptila inaequalis Kulczyński, 1901 впервые приведены для Монгольского Алтая.

Introduction

As a result of the 1883 Hungarian archaeological expedition E. Skinks described several species of spiders. In 1895, Simon published an article on the composition of the family Thomisidae and described Misumenna grubei (Simon, 1895). In the XX century, a great contribution to the study of the spider fauna was made [Loska, 1965; Tyschenko, 1971; Wunderlich, 1980; Heimer 1985, 1987; Eskov, 1989; Wesołowska, 1981]. In the second half of the XX century, several expeditions were organised in result of which 30 new species were discovered. In the late XX and early XXI centuries, the spider fauna in Mongolia was seriously studied [Eskov, 1989; Marusik, 1989, 1994, 2012, 2018; Logunov, Marusik, 1994(1995), 1998, 1999, 2000, 2003; Marusik et al., 1992, 2014; Eskov, Marusik, 1992, 1994(1995); Marusik, Logunov, 1994(1995), 1998(1999), 2001(2002), 2006; Marusik, Koponen, 1998, 2001; Logunov, 1995; Marusik, Tanasevich, 1998; Szita, Samu, 2000; Marusik, Buchar, 2003(2004); Rychkov, 2003; Volkovsky, Romanenko, 2010; Marusik, Kovylyuk, 2011; Triliukas, 2012; Marusik, Omelko, 2014, 2019; Marusik, Fomichev, 2016]. Based on the material collected on the territory of Mongolia, 546 species belonging to 181 genera of 24 spider families were registered [Marusik, 2012], but this number is increasing by the contemporary study.

This paper presents new data on the spider fauna of Mongolian Altai.

Study area, material and methods

A total of 225 specimens belonging to 34 species of 13 genera and 6 families have been studied. Specimens were collected by author by sweeping in the grass, using pitfall traps and hand collecting. All listed material deposited in National research Tomsk state university, biology institute, department zoology invertebrates. The determination of some species is confirmed by Y.M. Marusik (Institute of Biological Problems of the North FEB RAS, Magadan) and A.A. Fomichev (Altai State University, Barnaul).

The specimens were collected in 70 % ethanol and examined under MBS–10 and Zeiss Stemi 2000–C stereomicroscopes. The nomenclature used in this article follows the World Spider Catalog [2020].
**List of localities.** In the following list of species, the section «Material» contains numbers corresponding to the locality in which a sample was collected: *Province Bayan–Ulgii*: 1a — Tsengel vill., basin of Khoton and Khurgen Lakes, 48°39’ N, 88°14’ E, 2085 m a.s.l., 12–20.06.2018; 1b — same, 24–30.07.2019; 2a — Deluun vill., Chigertei tract, 48°20’ N, 90°69’ E, 2477 m a.s.l., 2b — same, 14–20.07.2019; *Province Khovd*: 3 — Munkhhairhan vill., Dolon nuur, 46°57’ N, 91°27’ E, 2885 m a.s.l., 26–31.07.2018; 4 — Munkhhairhan vill., river Shuurhai, 46°54’ N, 91°40’ E, 2865 m a.s.l., 26–31.07.2018; 5a — Tsetseg vill., mountain Aavin undur, 46°49’ N, 93°10’ E, 2543 m a.s.l., 16–19.06.2017; 5b — Tsetseg vill., range Myangan, 46°10’ N, 93°04’ E, 2527 m a.s.l., 1–5.08.2019; 6 — Darvi vill., range Darvi, 46°55’ N, 93°30’ E, 1614 m a.s.l., 24.07.2018; *Province Uvs*: 7 — Turgen vill., mountain Turgenii am, 49°85’ N, 91°47’ E, 2184 m a.s.l., 19.07.2018; 8a — Turgen vill., mountain Turgen Tsunheg, 50°25’ N, 91°37’ E, 2184 m a.s.l., 8–25.06.2019.

The Mongolian Altai is situated in Western Mongolia and includes four aimaks: Bayan-Ulgii, Khovd, Uvs, Gobi-Altai, with the area of about 104478.5 km². Its highest point is located on the mountain massif Tavan-Bogd (3 highest peaks at 4374, 4360 and 3981 m). Four more ridges, Munkhhairhan, Tsast Mountain, Kharkhiraa-Turgen, Sutai Mountain, exceed 4000 m. The territory of Mongolian Altai divided into three morphological types Tavan-Bogd, Munkhhairhan and Kharkhiraa-Turgen according to the location and direction of mountains: Tavan-Bogd, Munkhhairhan and Kharkhiraa-Turgen [Kamelin et al., 2005].

The current glaciation of the Mongolian Altai ranges is relatively small, with the most rich center in the Tavan-Bogd mountain massif where the largest valley glaciers are located [Lkhagvasuren, 2016]. The climate is sharply continental and very harsh. In general, the predominance of sunny days is characteristic, especially in winter, with significant air dryness, low rainfall and strong temperature fluctuations in winter and summer, as well as during the day°. The average temperature for January is 17–24 °C; for July is 12–15 °C. In winter, many areas of the middle categories can be significantly warmer than on the adjacent plains due to inversion [Myagmarsuren, Namkhai, 2015].

A distinctive feature of the vegetation cover of the Mongolian Altai is the almost complete absence of an independent forest belt and the gradual transition of desert-steppe plant communities to high mountain steppes. Only in the North-Eastern part of the mountain range (N slope of the Kharkhiraa-Turgen Mountains) forests are developed with the dominance of Siberian larch (*Larix sibirica* Ledeb.) [Lkhagvasuren, Burmaa, 2017].

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Fig. 1. Locality map of spiders in Mongolian Altai.
Рис. 1. Карта сборов пауков в Монгольском Алтае.
Check–list of spider species collected in Mongolian Altai

**Cheiracanthiidae**

*Cheiracanthium incognitum* Thorell, 1871

- **Material.** 1♂ — 1a; 1♀ — 2a; 1♂ — 6a.
- **Habitat.** Lakeshore, High Mountain, Steppe.
- **Distribution.** Europe, Mongolia [Marusik, Fomichev, 2016].
- **Notes.** This is a first record of the species for Mongolia.

**Clubionidae**

*Clubiona kulevskii* Lessert, 1905

- **Material.** 1♂, 1♀ — 1a; 1♂ — 6; 1♀ — 8b.
- **Habitat.** Lakeshores, steppes, mountain steppes.
- **Distribution.** Circum-Holarctic boreo-nemoral range [Marusik et al., 2000].

**Gnaphosidae**

*Callilepis nocturna* (Linnaeus, 1758)

- **Material.** 3♂♀ — 8a.
- **Habitat.** Forest.
- **Distribution.** Europe, Caucasus, Russia (Europe to Far East), Kazakhstan, China, Japan [Marusik et al., 2000].

*Drassodes kaszabi* Loska, 1965

- **Material.** 6♂♂ — 1a.
- **Habitat.** Lakeshore.
- **Distribution.** Russia (Southern Siberia), Mongolia [Loska, 1965].

*Drassodes lapidosus* (Walckenaer, 1802)

- **Material.** 2♂♂♂ ♀♀ — 3a.
- **Habitat.** High Mountain.
- **Distribution.** Trans-Palaearctic range [Marusik, Logunov, 1994(1995)].

*Drassodes villosus* Thorell, 1856

- **Material.** 2♂♂♂ ♀♀ — 1♂; 1♀ — 3♂ — 3a.
- **Habitat.** High Mountain.
- **Distribution.** Europe, Turkey, Russia (Europe to Far East), Iran, Central Asia [Mikhailov, Marusik, 1996].

**Gnaphosa banini**

*Marusik et Koponen, 2001 *

- **Material.** 3♂♂ ♀♀ — 1a.
- **Habitat.** Lakeshore.
- **Distribution.** Russia, (Far Siberia), Altai-Mongolian mountain range.

**Gnaphosa lucifuga** Walckenaer, 1802

- **Material.** 2♂♂♂ ♀♀ — 7♂; 3♂♂♂ ♀♀; 1♀ — 1a.
- **Habitat.** Forest, Lakeshore.

**Gnaphosa lucifuga** Walckenaer, 1802: Ovtsharenko et al., 1992; 5; Marusik, Koponen, 2001: 139.

**Gnaphosa wiehlei** Schenkel, 1963

- **Material.** 1♂ — 8b.
- **Habitat.** Forest.

**Gnaphosa mongolica** Simon, 1895

- **Material.** 3♂♂ ♀♀ — 7♂; 2♂♂ ♀♀ — 8b; 7♂♀ — 5b.
- **Habitat.** Lakeshore, Forest, Mountain steppe.
- **Distribution.** Turkey, Hungary, China [Ovtsharenko et al., 1992].

**Gnaphosa orites Chamberlin, 1922**

- **Material.** 4♂♀ — 7♂.
- **Habitat.** Forest.
- **Distribution.** Circum-Holarctic hemiarctic range.

**Gnaphosa pilosa** Savelyeva, 1972

- **Material.** 1♂ — 1a.
- **Habitat.** Lakeshore.
- **Distribution.** Circum-Holarctic hemiarctic range.

**Gnaphosa pilosa** Savelyeva, 1972: 1238–1241; Ovtsharenko et al., 1992: 24.

**Gnaphosa sticta** Kulczyński, 1908

- **Material.** 1♂ — 1a.
- **Habitat.** Lakeshore.
- **Distribution.** Scandinavia, Russia (Europe to Far East), Mongolia, Japan [Ovtsharenko et al., 1992].

**Gnaphosa tuvinica**

*Marusik et Logunov, 1992 *

- **Material.** 3♂♂ ♀♀ — 1a.
- **Habitat.** Lakeshore.
- **Comments.** The presence of this species in Mongolia was firstly indicated without precise material data [Marusik et al., 2000]. The record from Altai extends slightly, about 100 km, it’s the known range from West Tuva southwest to Bayan-Olgiy Aimak in Mongolia to the west.

**Gnaphosa wiehlei** Schenkel, 1963

- **Material.** 1♂ — 8b.
- **Habitat.** Forest.
**Distribution.** Russia (Southern Siberia), Mongolia, China [Ovtsharenko et al., 1992; Song et al., 1999].

**Comments.** This species is similar to *G. muscorum* from which it can be separated by the shape of the scape and smaller sizes.

**Notes.** The species is registered for Mongolian Altai for the first time.

*Gnaphosa* sp.

**Material.** $\infty \infty \infty$ — 8h.

**Habitat.** Forest.

**Comments.** This unidentified species is similar to *G. zhaoi* [Ovtsharenko et al., 1992; Song et al., 1999, 2004].

**Parasyrisca logunovi**

Ovtsharenko, Platnick et Marusik, 1995

**Material.** $\infty \infty \infty$ — 7a.

**Habitat.** Forest.

**Distribution.** Russia (Southern Siberia) [Marusik, Logunov, 1994(1995); Song et al., 1999].

**Notes.** This is a first record of the species for Mongolia.

**Micaria lenzi**

Bösenberg, 1899

**Material.** $\infty \infty$ — 5a.

**Habitat.** Mountain steppe.

**Distribution.** Trans-Palaearctic-West Nearctic polyzonal range: from Central Europe, north to southern Sweden, north-east to Kolyma River mouth [Marusik et al., 1992] and southward to Karakorum [Danilov, 1996(1997)], Xinjiang [Song et al., 1999], and Middle Gobi [Marusik, Logunov, 1998(1999)].

**Micaria mongunica**

Danilov, 1996(1997)

**Material.** $\infty \infty$ — 1a.

**Habitat.** Lakeshore.

**Distribution.** Previously was known from the type locality only, Mongun-Taighinskiy Kuzhuun, Tuva; Mongolia.

**Note.** This is a first record of the species from Mongolia.

**Micaria rossica**

Thorell, 1875

**Material.** $\infty \infty$ — 6a.

**Habitat.** Mountain steppe.

**Distribution.** Trans-Palaearctic-West Nearctic polyzonal range: from Central Europe northeast to Kolyma River mouth [Marusik et al., 1992] and southward to Inner Mongolia and Shaanxi [Danilov, 1996(1997)]. Known from Nearctic western half, from Alaska to California [Platnick, Dondale, 1992].

**Micaria subopaca**

Westring, 1861

**Material.** $\infty \infty$ — 6a.

**Habitat.** Mountain steppe.

**Distribution.** European-Central Siberian neritic range [Tuneva, 2006(2007)].

**Note.** The species is firstly registered for Mongolia.

**Parasyrisca logunovi**

Ovtsharenko, Platnick et Marusik, 1995

**Material.** $\infty \infty \infty \infty$ — 7a.

**Habitat.** Forest.

**Distribution.** Russia (Southern Siberia) [Marusik, Logunov, 1994(1995); Song et al., 1999].

**Notes.** This is a first record of the species for Mongolia.

**Zelotes puritanus**

Chamberlin, 1922

**Material.** $\infty \infty \infty$ — 8b.

**Habitat.** Forest.

**Distribution.** Circum-Holarctic disjunctive polyzonal (steppe?) range: mountains of Central Europe, South Siberia northward along azonal steppes in Yakutia and Magadan Area [Marusik et al., 1992]. In Nearctic known from Alaska to New Brunswick, south to California and Massachusetts [Dondale et al., 1997].

**Comments.** All specimens available for the study were collected in xeric meadows or steppe habitats.

**Notes.** The species is registered for Mongolian Altai for the first time.

**Philodromidae**

**Rhysodromus fallax**

Sundevall, 1833

**Material.** $\infty \infty$ — 6a.

**Habitat.** Steppe.

**Distribution.** Trans-Palaearctic polyzonal range [Szia, Logunov, 2008; Helsdingen, 2013; Mikhailov, 2013].

**Thanatus arcticus**

Thorell, 1872

**Material.** $\infty \infty$ — 1; $\infty \infty$ — 8h.

**Habitat.** Lakeshore, Forest.

**Distribution.** Circum-Holarctic polyzonal range: from north Fennoscandia to Polar Ural, via the whole of Siberia to Chukotka Peninsula, and south to Tiva and Mongolia [Esyunin, Efimik, 1996; Marusik et al., 1992; Logunov et al., 1998; Marusik, Logunov, 1998(1999)]. In Nearctic distributed NW part and in W Greenland [Dondale et al., 1997].

**Comments.** Inhabits dry steppe with *Nanophyton erinaceus* and *Artemisia-Stipa* steppes, stony mountain meadows, sloping stony steppes and wet meadows. Wide geographical range and occurrence both in tundra and steppe biotopes indicates that it may be a complex species.

**Thanatus formicinus**

(Clerck, 1757)

**Material.** $\infty \infty$ — 1a.

**Habitat.** Lakeshore.

**Distribution.** North America, North Africa, Turkey, Caucasus, Russia (Europe to Far East), Iran, Kazakhstan, Central Asia, China, Japan [Martynovchenko, Mikhailov, 2014].

**Thanatus mikhailoi**

Logunov, 1996

**Material.** $\infty \infty$ — 1a.

**Habitat.** Lakeshore.

**Distribution.** Russia (Europe, Southern Siberia), Kazakhstan, Central Asia [Logunov, 1996].

**Thanatus mongolicus**

Schenkel, 1936

**Material.** $\infty \infty \infty$ — 8h.

**Habitat.** Forest.

**Distribution.** West and Central Palaearctic sub-boreal range. This species is known from Crimea and Rostovskaya Oblast [Ponomarev, 2011; Ponomarev, Dvanenko, 2012] to Mongolia and China [Logunov, 1996]; it seems to be a disjunction of its range in Middle Asia as there are no records of *T. mongolicus* between Rostovskaya Oblast of Russia and Xinjiang Province of China.
Notes. The species is registered for Mongolian Altai for the first time.

Thanatus pictus L. Koch, 1881

Thanatus pictus L. Koch, 1881: Logunov, 1996: 139; Lyakhov, 2000: 226.

Material. 1♂ — 1b.

Habitat. Lakeshore.

Distribution. West-Central Palaearctic subboreal range. This species is known from Germany in the west to the Altai in the east and from Poland and Novosibirsk in the north to Turkey in the south [Logunov, 1996; Lyakhov, 2000; Helsing, 2013].

Notes. The species is registered for Mongolian Altai for the first time.

Thanatus tavinensis Logunov, 1996

Material. 1♂ — 1a; 2♀♂ — 8b.

Habitat. Inhabits sloping stony steppe, mountain stony steppe, Artemisia-Stipa-Caragana shrub steppe and dry stony steppe with Nanophyton erinaceus.

Distribution. Central Asian-Siberian boreo-montage range: from north Tien-Shang and Tuva to upper Kolyama (Logunov, 1996).

Comments. Judging from the figures in Song, Zhu [1997], one could assume that species might be a junior synonym of T. neimongol Urita et Song, 1987, known from Inner Mongolia [Song et al., 1999].

Notes. This is a first record of the species for Mongolia.

Theridiidae

Steatoda albomaculata (De Geer, 1778)

Steatoda albomaculata (De Geer, 1778): Roberts, 1995: 274; Knoflach, 1996: 6; Song et al., 1999: 67.

Material. 2♀♂, 3♀ — 7a; 1♂, 1♀ — 1a; 7♂♂, 12♀ — 1a; 4♀♀ — 2d; (6♀: 1♀ — 8b; 3♀♀ — 5b).

Habitat. Forest, Lakeshore, Steppe, Mountain steppe. Occurs in various xerophilic habitats, from pebbly river banks to dry steppes.

Distribution. Circum-Holarctic polyzonal range: almost all of Palaearctic except Siberia. In Nearctic known from Yukon territory to New Brunswick, south to California and Connecticut [Dondale et al., 1997]. In East Chukotka, single female was found on pebbly river banks with in a kind of tree oasis in tundra zone [Marusik, 1994].

Thomisidae

Ozyptila inaequalis Kulczyński, 1901**

Ozyptila inaequalis Kulczyński, 1901: Song, Zhu, 1997: 8; Marusik, Logunov, 1995: 42; Marusik et al., 2000: 27.

Material. 1♀ — 1a.

Habitat. Lakeshore.

Distribution. Central Asia, Southern Kazakhstan, Mongolia, Central China [Marusik, Logunov, 1994(1995); Song, Zhu, 1997].

Notes. The species is registered for Mongolian Altai for the first time.

Psammitis nenilini (Marusik, 1989)

Xysticus nenilini Marusik, 1989: 140—145; Logunov, Marusik, 1994(1995): 8.

Material. 1♀ — 1a; 1♂ — 4a; 1♀ — 8b.

Habitat. Lakeshore, Forest.

Distribution. Siberio-Mongolian steppe range: from Tuva northeast to Central Yakutia [Marusik, 1989] and southward to south Mongolia [Marusik, Logunov, 1998].

Xysticus audax/cristatus

Material. 2♀ — 5b.

Habitat. Mountain steppe.

Distribution. Europe, Turkey, Caucasus, Russia (Europe to Far East), Kazakhstan, Iran, Japan [Azarkina, Logunov, 2000].

Comments. X. audax was recorded from central part of Mongolia (Central and Bulgan aimags) [Marusik, Logunov, 2006]. Due to difficulties of identifying specimens after females it is hard to conclude what species was collected. Moreover there are high possibilities that X. pseudocristatus Azarkina et Logunov, 2001 occurs in western part of Mongolia [Azarkina, Logunov, 2001]. So, the name X. audax/cristatus is kept till male from this area will be collected.

Xysticus austrosibiricus

Logunov et Marusik, 1998

Material. 1♂, 1♀ — 1a; 1♂, 2♀ — 5b.

Habitat. Lakeshore, Mountain steppe.

Distribution. Mongolia: range from Altai eastward to Buryata [Logunov, Marusik, 1994(1995)] almost all aimaks of Mongolia and Inner Mongolia [Schenkel, 1963].

Comments. Occupies various xeric habitats.

Discussion

The fauna of Russian part of Altai is well studied, 229 spider species from 88 genus of 22 families are registered [Volkovsky, Romanenko, 2010]. 150 species of spiders from 61 genera belonging to 17 families are known for the Mongolian Altai. 88 species from 14 genera of the family Gnaphosidae are known to Mongolia, and 11 genera and 34 species to Mongolian Altai. The family Thomisidae is represented in Mongolia with 43 species from 10 genera, 14 species from two genera recorded for Mongolian Altai. 25 species from 9 genera of Philodromidae are known from Mongolia, three species from two genera are known from Mongolian Altai. 27 species from three Theridiidae genera occurring in Mongolia, of which 7 species from 3 genera are in the Mongolian Altai. The family Clubionidae in Mongolia is presented with 15 species from two genera, one species from one genus is the Mongolian Altai.

Six species from one genus of the family Cheiracanthiidae are known from Mongolia, and a species in the Mongolian Altai.

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