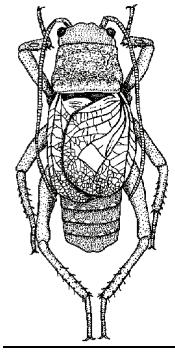

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RARE AND NEW FOR THE FAUNA OF THE RUSSIAN FAR EAST SPIDERS (ARANEI)

Yu. M. Marusik[1)], M. M. Omelko[2,3)], S. Koponen[4)]

1) *Institute for Biological Problems of the North FEB RAS, Portovaya Street 18, Magadan 685000, Russia. E-mail: yurmar@mail.ru*

2) *Gornotaezhnaya Station FEB RAS, Gornotaezhnoe Vil., Ussuriyski Dist., Primorski krai 692533, Russia. E-mail*: *omelkom@gmail.com*

3) *Far Eastern Federal University, Sukhanova 8, Vladivostok 690950, Russia.*

4) *Zoological Museum, University of Turku, FI-20014 Turku, Finland. E-mail: sepkopo@utu.fi*

Five species, *Acantholycosa baltoroi* (Caporiacco, 1935), *Agroeca montana* Hayashi, 1986, *Mimetus testaceus* Yaginuma, 1960, *Moneta caudifera* (Dönitz et Strand, 1906), *Oreonetides longembolus* Wunderlich et Li, 1995 and one genus, *Moneta* O. Pickard-Cambridge, 1870, are reported in Russia for the first time. *Mimetus* Hentz, 1832 was found for the first time in the Asian part of Russia. New distribution records are provided for *Eskovina clava* (Zhu et Wen, 1980), *Gongylidioides ussuricus* Eskov, 1992, *Leucauge subblanda* Bösenberg et Strand, 1906, *L. subgemmea* Bösenberg et Strand, 1906 and *Neottiura margarita* (Yoshida, 1985). The female of *Oreonetides longembolus* is described for the first time, and the taxonomic position of this species is discussed. Diagnostic features are illustrated for all species in the paper.

KEY WORDS: Araneae, spiders, fauna, new records, descriptions, diagnostic features, Asia.

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Впервые для России приводится род *Moneta* O. Pickard-Cambridge, 1870 и 5 видов: *Acantholycosa baltoroi* (Caporiacco, 1935), *Agroeca montana* Hayashi, 1986, *Mimetus testaceus* Yaginuma, 1960, *Moneta caudifera* (Dönitz et Strand, 1906) и *Oreonetides longembolus* Wunderlich et Li, 1995. Род *Mimetus* Hentz, 1832 впервые указывается для азиатской части России. Для *Eskovina clava* (Zhu et Wen, 1980), *Gongylidioides ussuricus* Eskov, 1992, *Leucauge subblanda* Bösenberg et Strand, 1906, *L. subgemmea* Bösenberg et Strand, 1906 и *Neottiura margarita* (Yoshida, 1985) приводятся новые данные по их распространению. Описана ранее неизвестная самка *Oreonetides longembolus* и обсуждается положение этого вида. Для каждого вида приведены иллюстрации диагностических признаков.

**Корреспондирующий автор, Институт биологических проблем севера ДВО РАН, Магадан 685000, Россия.*

INTRODUCTION

The continental part of the southern Russian Far East (Amur and Jewish Oblast, southern Khabarovskii krai and Primorskii krai), or physiographical region T1 (cf. Mikhailov, 2013), is one of the most species rich areas within the former Soviet Union. So far, about 865 species are reported from this region (Mikhailov, 2013; Kronestedt *et al*., 2014; Marusik *et al*., 2015a, b). Only four other regions of the former Soviet Union have more species: Russian plain – 1362, "mountains of South Siberia" – 1022, Caucasus – 987 and mountains of Central Asia – 915 (Mikhailov, 2013). It is worth noting that the two former regions are much larger, and the two latter regions have been subject to numerous taxonomic and faunistic studies. Although the number of species known from the Russian Far East is rather high, the fauna remains poorly studied. Examination of some unsorted material from Khabarovskii krai and Primorskii krai revealed five species and one genus, *Moneta* O. Pickard-Cambridge, 1870, new for the former Soviet Union. In addition, one genus, *Mimetus* Hentz, 1832, was found for the first time in the Asian part of Russia.

The goals of this paper are: 1) to report new species and genus records, 2) to redescribe the male of *Oreonetides longembolus* Wunderlich et Li, 1995 and describe the female of this species for the first time, 3) to discuss the taxonomic position of *Oreonetides longembolus* and 4) to provide diagnostic figures of all newly recorded and several poorly known species.

MATERIAL AND METHODS

Photographs were taken in dishes of different sizes with paraffin at the bottom. Specimens were photographed using a Canon 70D camera attached to an Olympus SZX16 stereomicroscope and with a SEM JEOL JSM-5200 scanning microscope

at the Zoological Museum, University of Turku. Digital images were prepared using “CombineZP” and Zerene Stacker image stacking software. While surveying species we refer to most relevant identification sources. All measurements are given in millimeters (mm).

Specimens treated here belong to the following institutions: ISEA – Museum of the Institute of Systematics and Ecology of Animals, Novosibirsk and ZMMU – Zoological Museum of the Moscow State University, Russia.

RESULTS

Family Linyphiidae

***Eskovina clava* (Zhu et Wen, 1980)**
Figs 1–3

Oinia trilineata Eskov, 1984: 1341, pl. 2, figs 1-5 (♂♀).

MATERIAL EXAMINED. Russia: Primorskii krai, environs of Vladivostok, Botanical garden, 43°13' N, 131°58' E, summer 2010, 3♀, coll. V.M. Loktionov, S.A. Shabalin (ZMMU).

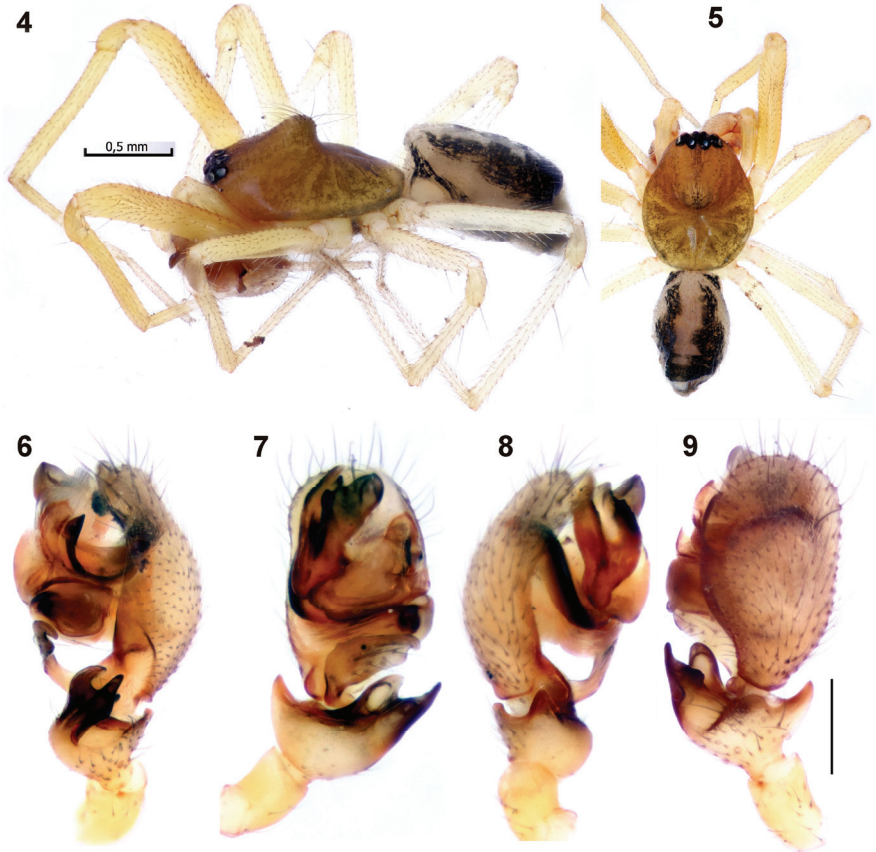
Figs 1–3. Female of *Eskovina clava*. 1 – habitus, dorsal; 2 – epigyne, ventral; 3 – abdomen, ventral, displaying characteristic pattern. Scale = 0.2 mm if not otherwise indicated.

NOTES. This species is rather common in the southern part of the Russian Far East and in adjacent Korea and China (Eskov, 1994). Here we provide diagnostic figures of the female which are missing in the literature. It has a very characteristic pattern (two black sublateral longitudinal bands on the venter of the abdomen, Fig. 3) and epigyne (Fig. 2). Notably, some specimens have no ventral black bands (cf. Mikhailov & Temereva, 2015).

***Gongylidioides ussuricus* Eskov, 1992**
Figs 4–9

Gongylidioides ussuricus Eskov, 1992: 159, figs 21–26 (♂♀).

MATERIAL EXAMINED. Russia: Primorskii krai, environs of Vladivostok, Botanical garden, 43°13' N, 131°58' E, summer 2010, 1♂, coll. V.M. Loktionov, S.A. Shabalin (ZMMU).



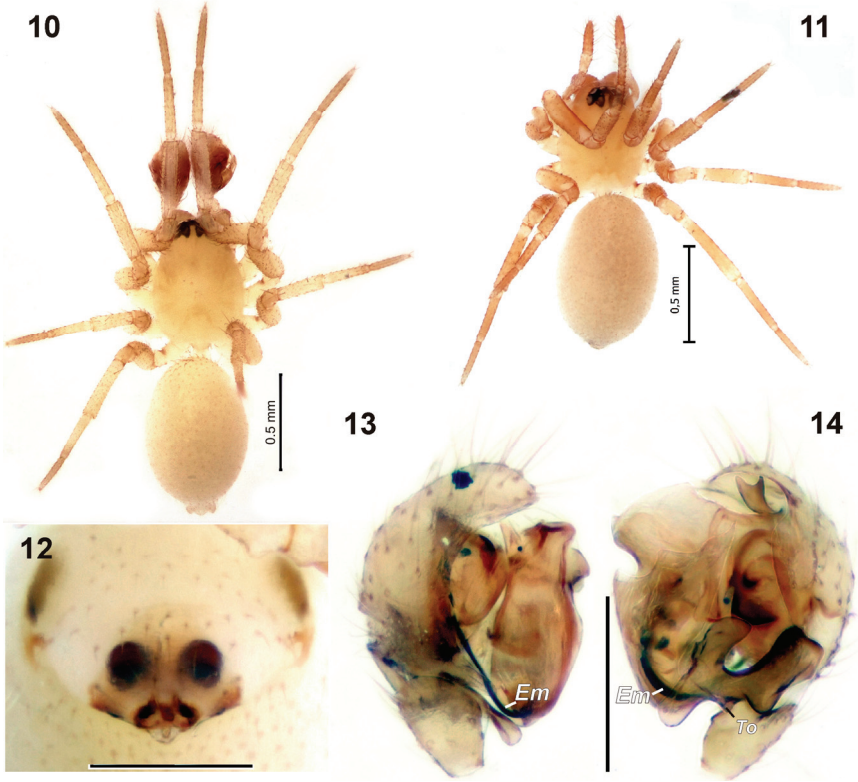
Figs 4–9. Male of *Gongylidioides ussuricus*. 4 – habitus, lateral; 5 – the same, dorsal; 6 – palp, retrolateral; 7 – palp, ventral; 8 – palp, prolateral; 9 – palp, dorsal. Scale = 0.2 mm if not otherwise indicated.

NOTES. Previously, this species was only known in Russia from the Primorskii krai: Kedrovaya Pad' Reserve and Popova Island (Eskov, 1992) and in China from Badaogou, Jilin Province (41.5° N, 127.2° E) (Song *et al*., 1999). The record from Vladivostok is the northeasternmost in the range. We provide figure of the characteristic male carapace showing the hump covered with long setae (Figs 4–5) and the male palp with complex tibial apophyses (Figs 6–9).

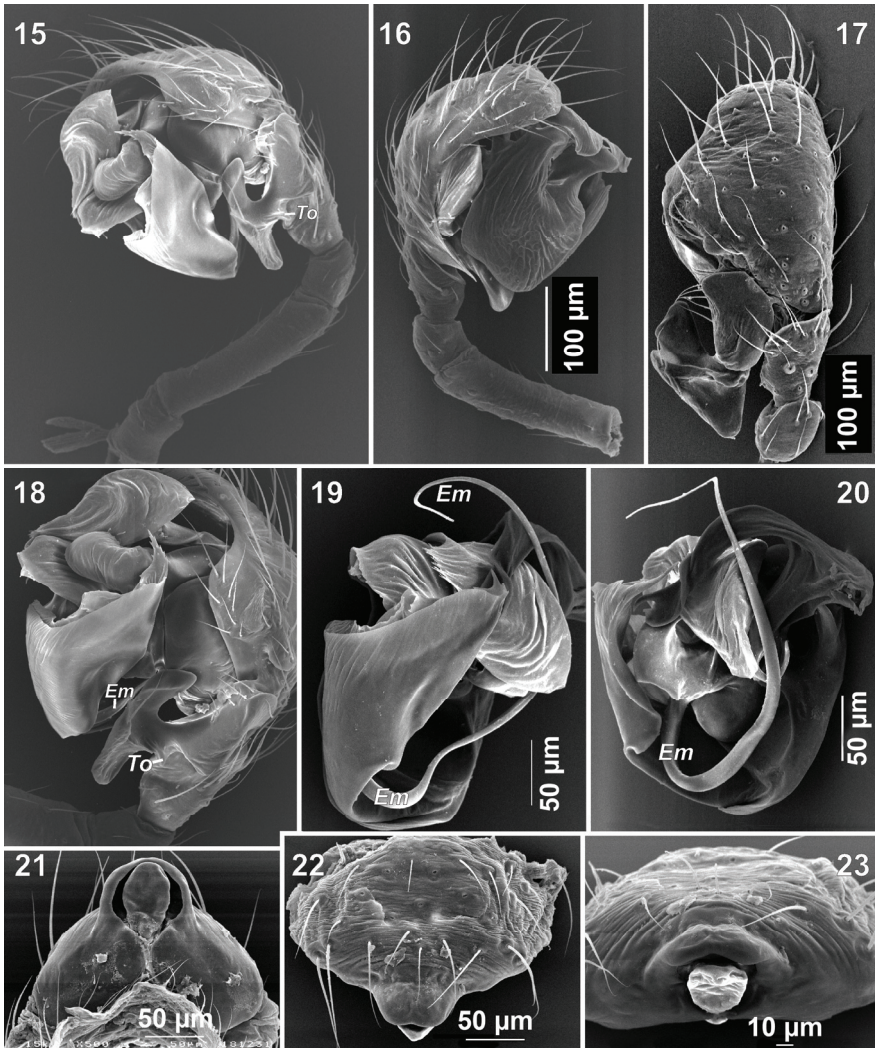
"*Oreonetides*" *longembolus* Wunderlich et Li, 1995
Figs 10–23

?*Oreonetides longembolus* Wunderlich & Li, 1995: 338, figs 18-22 (♂).
Oreonetides longembolus: Song *et al*., 1999: 199, figs 114A-B (♂).

MATERIAL EXAMINED. Russia: Primorskii krai, environs of Vladivostok, Botanical garden, 43°13' N, 131°58' E, summer 2010, 1♂, coll. V.M. Loktionov, S.A. Shabalin (ZMMU); Ussuriyskii District, Kamenushka vill., 43°36.45' N, 132°13.60' E, 29.VIII 2001, 10♀, coll. G.N. Azarkina, Y.M. Marusik (ZMMU, ISEA).



Figs 10–14. Male and female of "*Oreonetides*" *longembolus*.10 – male habitus, dorsal; 11 – female habitus, dorsal; 12 – epigyne, ventral; 13, 14 – male palp, pro- and retrolateral. Scale = 0.2 mm if not otherwise indicated.



Figs 15–23. Copulatory organs of "*Oreonetides*" *longembolus.* 15, 16 – male palp, retro- and prolateral; 17 – patella-cymbium of male palp, dorsal; 18 – terminal part of male palp, retrolateral; 19, 20 – embolic division, different aspects; 21–23 – epigyne, dorsal; ventral and caudal.

NOTES. This species was described based on the holotype male from Liaoning Province, China, and the female of this species was unknown until our discovery. Wunderlich & Li (1995) doubted that this species belong to *Oreonetides* Strand, 1901. It is smaller than other species (1.4–1.5 mm, whereas other *Oreonetides* species are longer than 1.6 mm) and has a long, filamentous embolus (Figs 19, 20),

unknown in other Micronetinae. Here we provide diagnostic figures of the poorly known male (Figs 10, 13,14, 15–20) and previously unknown female (Figs 11, 12, 21–23).

The discovery of the female and study of the embolic division of the male still do not allow correct taxonomic placement of this species. On one hand, the epigyne (Figs 12, 21, 22) is characteristic of *Maro* O. Pickard-Cambridge, 1906, with the triangular epigynal plate (cf. Saaristo, 1971; Eskov, 1991; Tanasevitch, 2006), but on the other hand, it lacks the posterior median plate characteristic of illustrated *Maro* species (Eskov, 1991; Tanasevitch, 2006). The paracymbium (Figs 15, 18) looks like that found in *Oreonetides* and has a ventral triangular outgrowth (*To*) as in *O. vaginatus* (Thorell, 1872) and other congeners (cf. Eskov, 1991). This outgrowth is lacking in *Maro* (cf. Saaristo, 1971; Tanasevitch, 2006). There are several other characters indicating close relationships with either *Oreonetides* or *Maro*, but the shape of the embolic division (Figs 19, 20) and particularly the embolus (*Em*) is unique for Micronetinae. All other Micronetinae (cf. Marusik & Koponen, 2008: Plates 1-4) genera have a membranous embolus, but *O. longembolus* has a long, whiplike embolus. Most likely this species should be attributed to a separate genus

Family Liocranidae

Agroeca montana Hayashi, 1986

Figs 24, 25

Agroeca montana Hayashi, 1986: 24, figs 1-10 (♂♀); Kamura & Hayashi, 2009: 549, figs 1-3 (♂♀).

MATERIAL EXAMINED. Russia: Primorskii krai, environs of Vladivostok, Botanical garden, 43°13' N, 131°58' E, summer 2010, 1♀, coll. V.M. Loktionov, S.A. Shabalin (ZMMU).

NOTES. This species was previously known from China (Liaoning), Korea and Japan (from middle to north Honshu) (Song *et al*., 1999; Kamura & Hayashi, 2009). The record of *A. montana* from Vladivostok is the northernmost in its entire range. This species can be easily recognized by the pattern (Fig. 24), shape of the epigyne and particularly by the shape of copulatory ducts visible through integument (Fig. 25).

Family Lycosidae

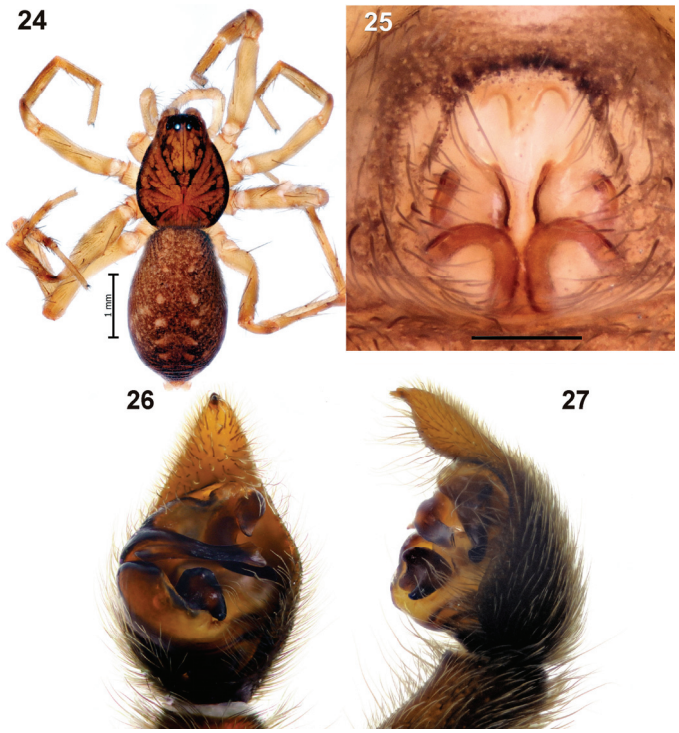
Acantholycosa ? *baltoroi* (Caporiacco, 1935)

Figs 26, 27

Acantholycosa baltoroi: Song *et al*., 1999: 310, figs 186A, M (♂♀); Marusik *et al*., 2004: 112, fig. 60 (♂).

MATERIAL EXAMINED. Russia: Khabarovskii krai, Slavyanka, ca. 49°28' N, 136°46' E, 1990, 1♂, coll. S. Golovatch (ZMMU).

NOTES. This species was described from northern Pakistan and later reported from Nepal and several provinces of China (Sichuan, Xizang, Shaanxi, Inner Mongolia and Jilin). There are some doubts whether different populations are conspecific as the type material has not been studied, and Marusik *et al*. (2004) noticed some differences in the male palp structure. The male from Slavyanka is more similar to specimens illustrated from China than those from Nepal. The record of this species from Khabarovskii krai is the northeasternmost in the whole range. The male palp is illustrated on Figs 26, 27.



Figs 24-27. Female of *Agroeca montana* (24, 25) and male of ?*Acantholycosa baltoroi* (26, 27). 24 – habitus, dorsal; 25 – epigyne, ventral; 26, 27 – male palp, ventral and retrolateral. Scale = 0.2 mm if not otherwise indicated.

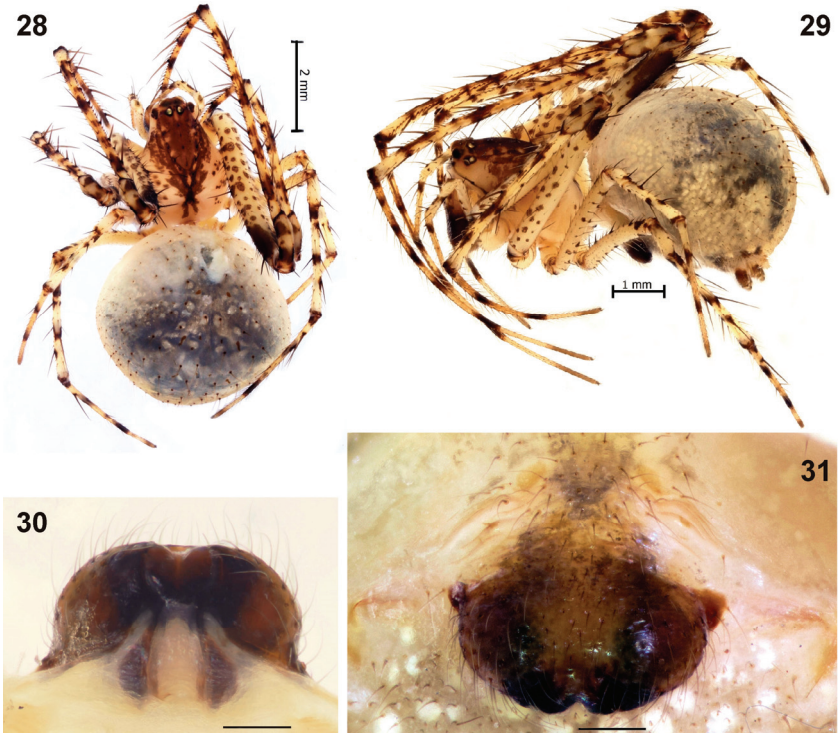
Family Mimetidae

***Mimetus testaceus* Yaginuma, 1960**
Figs 28–31

Mimetus testaceus: Song *et al*., 1999: 74, figs 30J-K, U-V (♂♀); Yoshida & Tanikawa, 2009: 252, figs 13-15 (♂♀).

MATERI XAMINED. Russia: Primorskii krai, Ussuriskii District, 22 km SW of Krounovka AL E vill., 43°36' N, 131°31' E, 20-27.VI 2012, 1♀, coll. M.M. Omelko (ZMMU).

NOTES. This species was previously known from China (Zhejiang, Hunan, Guizhou and Guangxi Provinces), Japan (from Kyushu up to Honshu) and Korea (Song *et al*., 1999; Yoshida & Tanikawa, 2009). The record from Primorskii krai is the northernmost in the whole range and the first record of the genus in the Asian part of Russia. This species is easily differentiated from the other mimetid genus *Ero* C.L. Koch, 1873 known from the Far East by having an elongate, pear-shaped carapace (egg shaped in *Ero*) and the abdomen is as long as wide (Figs 28, 29). The shape of the epigyne of this species is also characteristic (Figs 30, 31). *Mimetus testaceus* is the second species of the genus in Russia and in the entire former Soviet Union.



Figs 28-31. Female of *Mimetus testaceus*. 28, 29 – habitus, dorsal and lateral; 30, 31 – epigyne, caudal and ventral. Scale = 0.2 mm if not otherwise indicated.

Family Tetragnathidae

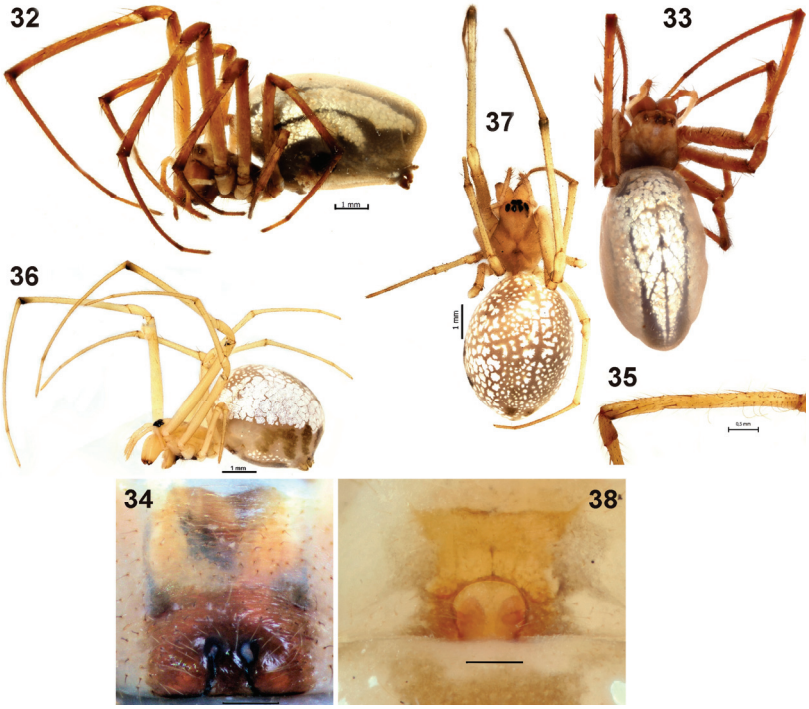
Leucauge subblanda Bösenberg et Strand, 1906

Figs 32–35, 39–42

Leucauge subblanda: Tanikawa, 2007: 102, figs 350-353, 804-805 (♂♀); Tanikawa, 2009: 412, figs 41-42 (mf); Yoshida, 2009b: 12, figs 5-8 (♂♀).

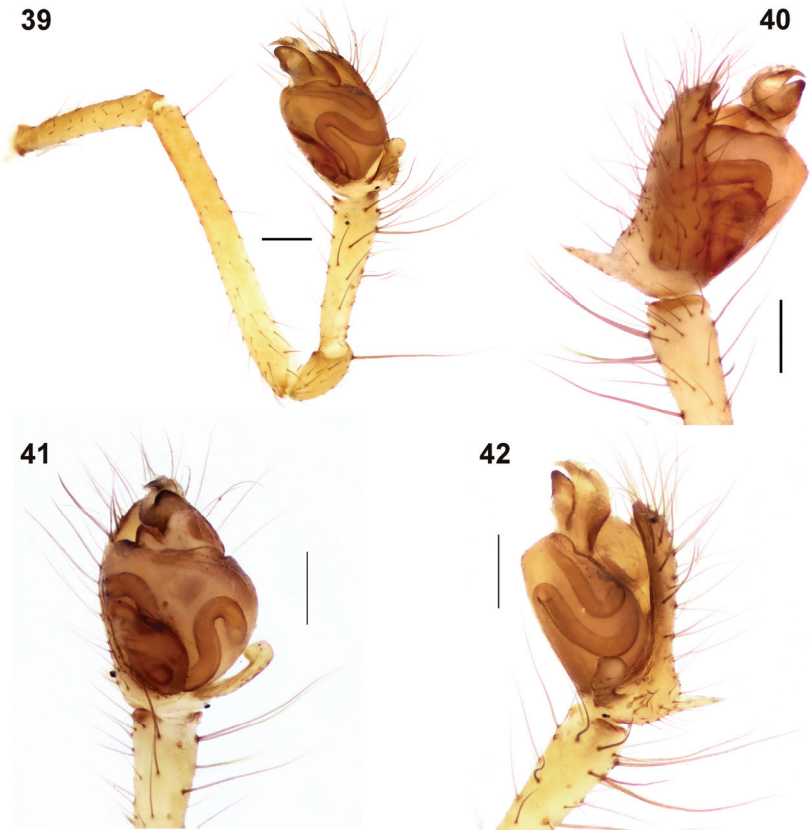
Leucauge bimaculata Zhu, Song & Zhang, 2003: 219, figs 116A-F (♂♀).

MATERIAL EXAMINED. Russia: Primorskii krai, Ussuriyskii District, Gornotaezhnaya Station, 43°41'68" N, 132°9'25" E, 1.VII 2002, 1♂, coll. M. Omelko (ZMMU); Gornotaezhnaya Station, Kabaniy Spring, 43°50'58" N, 132°7'48" E, 5.VI 2002, 3♀, coll. M. Omelko (ZMMU); Kamenushka vill., ca. 43°37' N, 132°14' E, summer 1981, 7♀, coll. G. Belova (ZMMU).



Figs 32-38. *Leucauge subblanda* (32–35) and *L. subgemmea* (36–38). 32, 36 – female habitus, lateral; 33, 37 – female habitus, dorsal; 34, 38 – epigyne, ventral; 35 – femur IV of male showing 2 rows of trichobothria. Scale = 0.2 mm if not otherwise indicated.

NOTES. This species has a Palaearchaearctic range and is known from Japan, Korea, Taiwan, China (WSC, 2016) and Primorskii krai (Marusik, 1989). Recently, this species was confused with *L. magnifica* Yaginuma, 1954 = *L. celebesiana* (Walckenaer, 1841) by Chinese and Korean authors (Kim *et al*., 1999; Namkung, 2002; Song *et al*., 1999; Zhu *et al*., 2003: see WSC, 2016), and it was even considered a junior synonym of *L. celebesiana*. Yoshida (2009b) revalidated *L. subblanda*. In the latest catalog of Russian spiders (Mikhailov, 2013) it is listed as *L. celebesiana*. Males of *L. subblanda* (Figs 39–42) are rather similar to several other congeners occurring in Southeast Asia, although females are easily differentiated from all other species (Fig. 34). *Leucauge subblanda* is easily differentiated from another *Leucauge, L. subgemmea*, occurring in the Russian Far East, by having a more elongate abdomen and longitudinal lines on the dorsum of the abdomen (Figs 32, 33 and 36, 37).



Figs 39–42. Male palp of *Leucauge subblanda*. 39 – whole palp, retrolateral; 40–42 – terminal part of palp, pro-lateral, ventral and retrolateral. Scale = 0.2 mm.

***Leucauge subgemmea* Bösenberg et Strand, 1906**
Figs 36–38

Leucauge subgemmea: Zhu *et al.*, 2003: 239, figs 131A-G (♂♀); Tanikawa, 2007: 102, figs 359-363, 810-811 (♂♀).

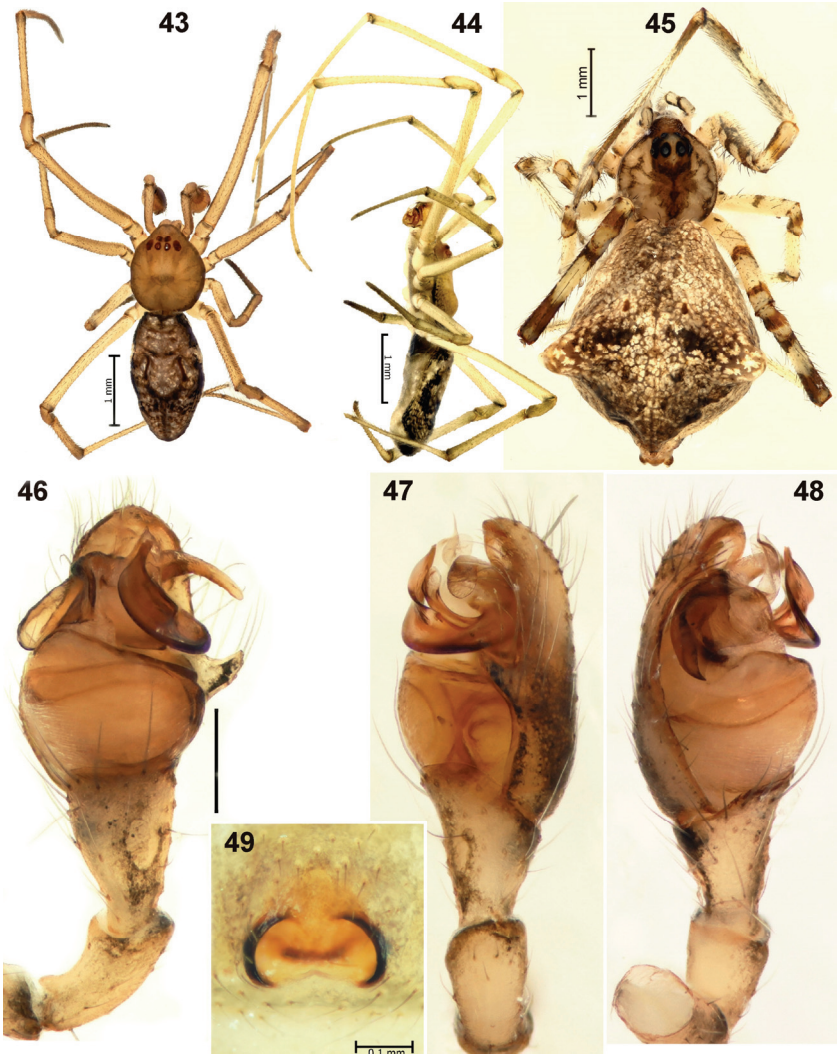
MATERIAL EXAMINED. Russia: Khabarovskii krai, env. of Khabarovsk, Bolshekhektsyrski Reserve, Odyr Kordon, Belaya River, 19.VIII 1992, 17♀, coll. D. Kurenshchikov (ZMMU).

NOTES. This species has a Palaearchaearctic range and is known from Japan, Korea, China and Russia (WSC, 2016). In Russia it previously has been reported only from three localities in Primorskii krai (Marusik & Koponen, 2000). The record from Khabarovsk is the northernmost in the entire range. This species can be easily distinguished from the another *Leucauge* species, *L. subblanda*, occurring the Russian Far East by having an oval abdomen (Figs 36, 37) that lacks transverse dark stripes and by the round epigynal fovea (Fig. 38).

Family Theridiidae

Genus *Moneta* O. Pickard-Cambridge, 1870

NOTES. Currently this genus includes 21 species distributed chiefly in Southeast Asia and Australasia (WSC, 2016). *Moneta* has never been recorded from Russia, and the record of this genus from Primorskii krai is the northernmost in the entire range.



Figs 43–49. Habitus and copulatory organs of *Moneta caudifera*. 43, 44 – male habitus, dorsal and lateral; 45 – female habitus, dorsal; 46–48 – male palp, ventral, retro- and prolateral; 49 – epigyne. Scale = 0.2 mm if not otherwise indicated.

***Moneta caudifera* (Dönitz et Strand, 1906)**
Figs 43–49

Moneta caudifer: Zhu, 1998: 280, figs 188A-E (♂♀); Yoshida, 2009a: 367, figs 107-109 (♂♀).

MATERIAL EXAMINED. Russia: Primorskii krai, Shkotovskii District, slope of Falaza Mt., 43°6' N, 132°47' E, 17-22.VI 2015, 1♂, 1♀, coll. M.M. Omelko (ZMMU).

NOTES. This species previously was known from China (Jiangxi and Shanxi provinces), Korea and all of Japan (Song *et al*., 1999; Yoshida, 2009a). The record from Primorskii krai is the northernmost in the whole range and the first record for Russia. *Moneta caudifera* can be easily recognized by the pentagonal abdomen of the female with distinct humps directed laterally (Fig. 45) and the flat abdomen of the male (Fig. 44). The male palp (Figs 46–48) and epigyne (Fig. 49) are also characteristic and not similar to any other species occurring in the Russian Far East.

Figs 50-53. Male of *Neottiura margarita*. 50 – habitus, 51, 52 – terminal part of palp, ventral and retrolateral; 53 – whole palp, retrolateral. Scale = 0.2 mm if not otherwise indicated.

***Neottiura margarita* (Yoshida, 1985)**
Figs 50–53

Theridion margaritum: Zhu, 1998: 177, figs 113A-F (♂♀).
Neottiura margarita: Yoshida, 2009a: 376, figs 180-181 (♂♀).

MATERIAL EXAMINED. Russia: Primorskii krai, Lazo Reserve, Korpad' Gorge, 23–30.VI 2006, 1♂, coll. M. Smirnov (ZMMU).

NOTES. Previously this species has been reported from Kamenushka (Ussuriyskii District) based on female specimens (Marusik, 1989). It is very similar to the West Palaearctic *N. herbigrada* (Simon, 1873) known from Madeira to Crimea and Israel (WSC, 2016). Both species have a similarly shaped cymbium, and the female abdominal pattern comprises 7 dots on a white background. *Neottiura herbigrada* is also reported from East Asia (northeastern Eastern China and Korea) based exclusively on females. It is very likely that records of this species from Far East Asia refer to *N. margarita*. Here we provide diagnostic figures of the male of this species (Figs 50–53). The record of this species from the Lazo Reserve is the northernmost in the range.

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