Arthropoda Selecta 15 (3): 255–258

On a small linyphiid spider collection from Simushir Island, Kurile Islands, Russia, with notes on *Stemonyphantes sibiricus* Grube (Aranei: Linyphiidae)

О небольшой коллекции пауков-линифиид с острова Симушир (Курильские о-ва, Россия) с заметками о *Stemonyphantes sibiricus* Grube (Aranei: Linyphiidae)

A.V. Tanasevitch
А.В. Танасевич

Centre for Forest Ecology and Production Russian Academy of Sciences, Profsoyuznaya Str., 84/32, Moscow 117997 Russia.
Центр по проблемам экологии и продуктивности лесов РАН, Профсоюзная ул., 84/32, Москва 117997 Россия.

KEY WORDS: Spiders Linyphiidae, taxonomy, faunistics, Kurile Islands.
КЛЮЧЕВЫЕ СЛОВА: Пауки, Linyphiidae, систематика, фаунистика, Курильские о-ва.

ABSTRACT. A small linyphiid collection from Simushir Island contains 17 identified species, five of which are new to the Kurile list. *Walckenaeria kochi* (O. Pickard-Cambridge, 1872) is being found in East Siberia (east of Evenkia) for the first time. The status and affinities of *Stemonyphantes sibiricus* (Grube, 1861) are discussed. *S. lineatus blauveltae* Gertsch, 1951 is elevated in rank to full species (*S. blauveltae* stat.n.). It is found out that *S. sibiricus* and *S. blauveltae* are extremely close to each other, and can be separated by only one character in the male palp. Distribution of *S. blauveltae* is restricted only to the Nearctic.

РЕЗЮМЕ. В небольшой коллекции пауков с о-ва Симушир обнаружено 17 видов пауков-линифиид, 5 из которых новые для Курильских о-вов. Вид *Walckenaeria kochi* (O. Pickard-Cambridge, 1872) впервые найден в Восточной Сибири. Обсужден статус *Stemonyphantes sibiricus* (Grube, 1861) и проанализированы его связи с двумя другими близкими видами. Статус *S. lineatus blauveltae* Gertsch, 1951 поднят до ранга вида (*S. blauveltae* stat.n.). Установлено, что *S. sibiricus* и *S. blauveltae* чрезвычайно близки друг к другу и могут быть разграничены лишь одним признаком; распространение последнего ограничено Неарктикой.

Introduction

The Kurile Islands are a chain of volcanic islands (~ 1200 km from north to south) lying between Kamchatka Peninsula, Russia and Hokkaido Island, Japan. The Kuriles are usually divided into two parts, i.e. the northern and the southern Kurile Islands, based on the presence/absence, and the amount, of Chinese and Japanese biotic elements. The fact that Simushir Island lies exactly in the middle part of the Kurile chain (see Map) makes its fauna especially interesting.

Even though the linyphiid fauna of the Kurile Islands is rather well known, comprising more than 80 species [Eskov, 1993, 1994; Marusik et al., 1993a, 2000; Mikhailov, 1997; Tanasevitch, 2000; Saaristo & Marusik, 2004], not a single spider has hitherto been recorded from Simushir Island. The small collection of linyphiids taken from this island and reported here sheds at least some light on its spider fauna.

A list of 17 linyphiid species from Simushir Island is given below, five of which are new to the fauna of the Kurile Islands. In addition, the confusion concerning the status and affinities of *Stemonyphantes sibiricus* (Grube, 1861) is discussed to clear it up.

Materials and Methods

This paper is based on the author's material collected in Simushir Island during two days in August 2002. A total of about 400 samples of linyphiids were taken there, of which only 110 were represented by adults belonging to 17 identified species. Another two species based solely on females (*Agyneta* sp. and *Anguliphantes* sp.) remained unidentified.

Spiders were collected in two habitats:

Habitat 1 (H1 in the list): Simushir Island, Brouton Bay area, 47°8'27.91" N, 152°15'58.79" E: Shrubby slopes on coast of Brouton Bay with *Alnus* sp. and *Betula* sp., *Pinus pumila*, in litter and under stones, 15–16.VIII.2002, leg. A. Tanasevitch.

Habitat 2 (H2 in the list): Environs of Brouton Bay, 47°6'42.77" N, 152°11'26.24" E, top of ridge (300–350 m a.s.l.), lichen-moss tundra with shrubs of *Pinus pumila*; *Empetrum* sp. & *Arctous* sp., 15–16.VIII.2002, leg. A. Tanasevitch.

Map. Location of Simushir Island.
Карта. Местонахождение о-ва Симушир.

All material is temporarily stored in the personal collection of the author.

To examine the status and affinities of *Stemonyphantes sibiricus*, comparative material from Europe, the Caucasus, Siberia, the Russian Far East and Canada (see below) has been studied.

Abbreviations

The following abbreviations are used in the text: NK — northern Kurile Islands; SK — southern Kurile Islands; CAT — personal collection of Andrei Tanasevitch, Moscow, Russia; CDB — personal collection of Donald Buckle, Saskatoon, Canada; CNC — Canadian National Collection, Ottawa; ZMMU — Zoological Museum of the Moscow State University, Moscow, Russia, ZMTU — Zoological Museum of the Turku University, Finland.

A list of linyphiid species from Simushir Island

Species marked with an asterisk (*) are recorded in the Kurile Islands for the first time.

Aphileta misera (O. Pickard-Cambridge, 1882)*: 2 ♀♀, H1. Comments: New to the Kurile Islands.

Bathyphantes eumenis (L. Koch, 1879): 1 ♀, H2. Comments: NK: Paramushir & Shumshu.

Bathyphantes pogonias Kulczyński, 1885: 4 ♂♂, 12 ♀♀, H1. Comments: NK: Paramushir & Shumshu; SK: Kunashir & Iturup.

Centromerus sylvaticus (Blackwall, 1841): 1 ♀, H1. Comments: NK: Shumshu; SK: Iturup.

Ceratinella wideri (Thorell, 1871)*: 2 ♀♀, 2 ♂ subad., H2. Comments: New to the Kurile Islands.

Epibellowia septentrionalis (Oi, 1960): 1 ♀, H1. Comments: SK: Kunashir.

Gnathonarium dentatum (Wider, 1834): 4 ♀♀, H1; 4 ♂♂, 17 ♀♀, H2. Comments: NK: Paramushir; SK: Kunashir & Iturup.

Hilaira herniosa (Thorell, 1875): 25 ♀♀, H2. Comments: NK: Shumshu.

Leptorhoptrum robustum (Westring, 1851): 4 ♂♂, 5 ♀♀, H1. Comments: NK: Paramushir; SK: Iturup.

Micrargus herbigradus (Blackwall, 1854): 3 ♀♀, H2. Comments: NK: Paramushir.

Praestigia kulczynskii Eskov, 1979: 3 ♀♀, H1. Comments: NK: Paramushir; SK: Kunashir.

Savignia saitoi Eskov, 1988: 5 ♀♀, H1; 1 ♂, 1 ♀, H2. Comments: SK: Kunashir & Iturup.

Stemonyphantes sibiricus (Grube, 1861): 1 ♀, H1. Comments: NK: Shumshu.

Tmeticus bipunctis (Bösenberg & Strand, 1906): 2 ♂♂, H1. Comments: NK: Paramushir; SK: Kunashir & Iturup.

Ummeliata insecticeps (Bösenberg & Strand, 1906)*: 1 ♂, 9 ♀♀, H1. Comments: New to the Kurile Islands.

Walckenaeria karpinskii (O. Pickard-Cambridge, 1873)*: 1 ♀, H1; 5 ♀♀, H2. Comments: New to the Kurile Islands.

Walckenaeria kochi (O. Pickard-Cambridge, 1872)*: 1 ♀, H2. Comments: New to the Kurile Islands. In Siberia, this species has hitherto not been known east of Evenkia. The female from Simushir Island shows no differences whatever in the conformation of the epigyne and vulva from European and West Siberian specimens.

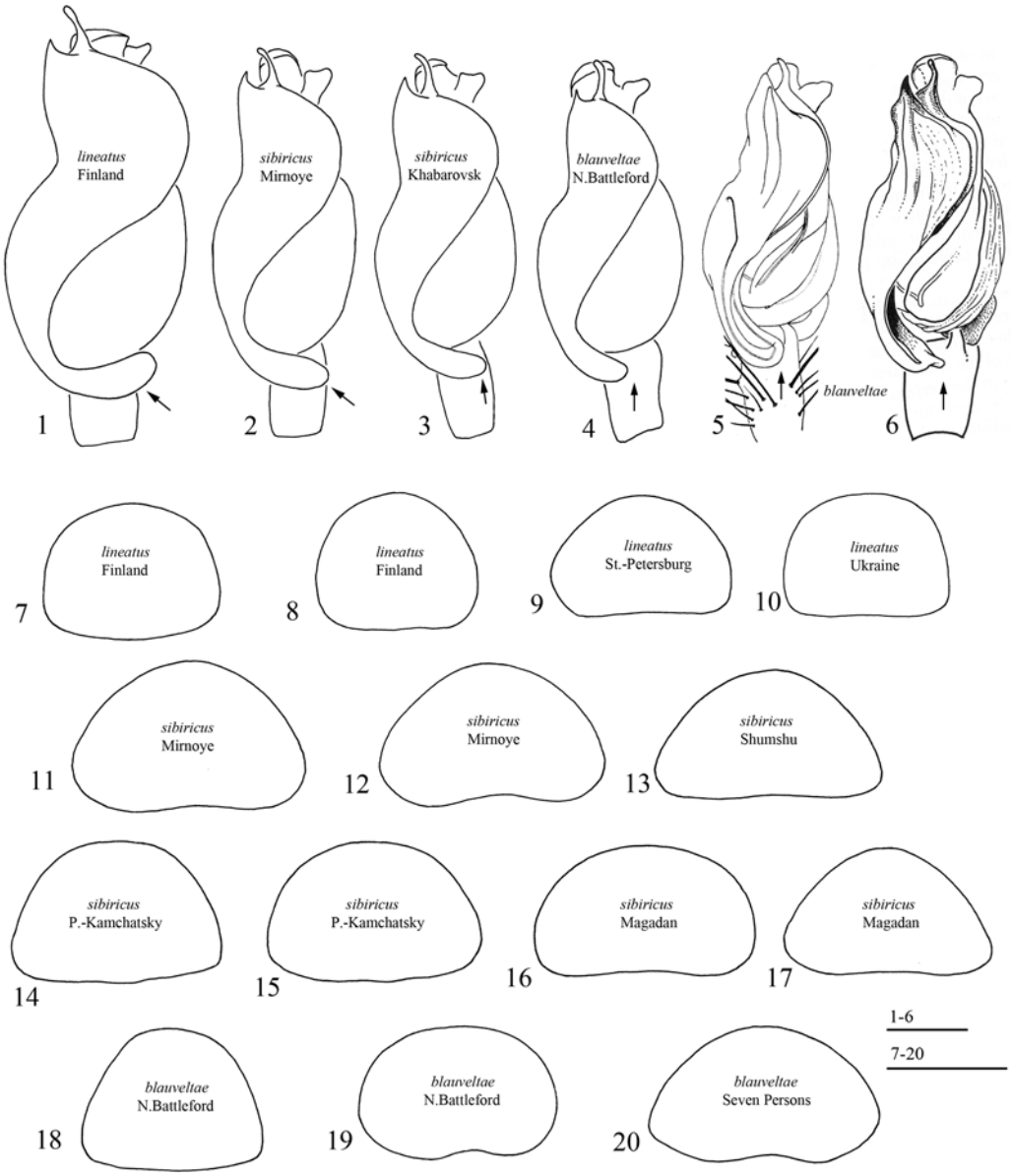
Stemonyphantes sibiricus (Grube, 1861)
Figs 2, 3, 11–17.

Linyphia sibirica Grube, 1861: 165, f.

COMPARATIVE MATERIAL studied:

S. lineatus. **ZMTU**: ♂♂ & ♀♀, southern Finland, numerous localities. **ZMMU**: 9 ♂♂, 2 ♀♀, Ukraine, Sakskiy, near Pribrezhnaya Railway Station, 4–27.III.2000, leg. N. Kovblyuk; 1 ♀, Russia, near St.-Petersburg, summer 1981, leg. Yu. Marusik; 1 ♂, 1 ♀, Russia, Caucasus, North Osetia, Alagir Valley, near Uval, 1200 m a.s.l., 15.X–9.XI. 1985, leg. S. Alexeev; 1 ♂, 1 ♀, same area, Tsey Mt. Ridge, 2300 m a.s.l., 28.V.1985, leg. S. Alexeev; 1 ♂, same locality, 5–15.IV.1985, leg. S. Alexeev; 1 ♂, Caucasus, Azerbaijan, Shakhbuz, 1900 m a.s.l., 22.IV.1983, leg. S. Golovatch; 1 ♂, Shamakhinskiy Distr., Pirkuli Nature Reserve, swamp, 1300 m a.s.l., 10.X.1984, leg. S. Golovatch; 1 ♀, same, 1300 m a.s.l., *Juncus* tussocks, 18.IX.1984, leg. D. Logunov; 1 ♀, Bichenek Pass, 1900 m a.s.l., 22.IV.1983, leg. S. Golovatch.

S. sibiricus. **ZMMU**: 1 ♀, Russia, middle flow of Yenisey River, Mirnoye, left side of Yenisei River, watershed *Larix* taiga, 20.VI.1978, leg. K. Eskov; 1 ♀, same, 10.VI.1978; 1 ♀, same, on river bank, 11.VI.1978, leg. K. Eskov; 1 ♂, 1 ♀, Mirnoye, in pile of logs, 23.VIII.1978, leg. K. Eskov; 1 ♀, same, watershed taiga, 23.VIII.1978, leg. K. Eskov; 1 ♀, 10 km E Yenisei River, in pile of logs, 24.VIII.1979, leg. K. Eskov; 1 ♀, watershed taiga, 23.VI.1978, leg. K.Eskov; 1 ♂, Krasnoyarsk Area, Taimyr National Distr., near Karaul, pitfall traps, 15–22.VIII.1994, leg. L. Rybalov; 1 ♂, Irkutsk Area, Lake Baikal, Marituy Field Station, bank of Marituy River, *Alnus* forest, 2.VII.1988, leg. K. Mikhailov; 3 ♂♂, 4 ♀♀, Magadan Area, Aborigen Field Station, 24.VII.1983, leg. Yu. Marusik; 2 ♂♂, 3 ♀♀, upper reaches of Kolyma River, Bolshoy Annachag Mt. Ridge, near Sibit-Tyellakh, summer 1988, leg. Yu. Marusik; 1 ♀, 15 km NE of Magadan, Gertner Bay, SE slope, 11.IV.1987, leg. Yu. Marusik; 1 ♂, 6 ♀♀, Sakhalin, Okha Distr., near Tenga, 1–4.VI.1987, leg. A. Basarukin; 1 ♂, 2 ♀♀, Khabarovsk Area, Bolshekhekhtsyrskiy Nature Reserve, near Sosninskiy Klyuch Cordon, 400 m a.s.l., spruce-fir forest, 18.VI.1987, leg. D. Logunov; 2 ♀♀, Kurile Islands, Shumshu Island, Lake Bolshoe,18–22.VIII.1989, leg. A. Basarukin; 3 ♂♂, 2 ♀♀, Mongolia, Tov Aimak, 48°22' N, 100°18' E, 23.VI.1997, leg. Yu. Marusik. **CAT**: 3 ♂♂, Tyumen' Area, 40 air-km S of Nefteyugansk, Pyt'-Yakh, 13.VIII.2005, leg. V. Semenov; 1 ♂, Tyumen' Area, near Luginetskiy, 8.VIII.1998, leg. A. Tanasevitch (referred to as *S. lineatus* in Tanasevitch [1998: 74], **misidentification**); 1 ♂, Krasnoyarsk Area, Ermakovo Distr.,



Figs 1–20. Left palp (1–6, ventral view) & mesal plate of epigyne (7–20, posterior view) of *Stemonyphantes lineatus* (Linnaeus, 1758) (1, 7–10), *S. sibiricus* Grube, 1861 (2, 3, 11–17), & *S. blauveltae* Gertsch, 1951 (4–6, 18–20): 1, 7, 8 — Southern Finland; 9 — Russia, near St.-Petersburg; 10 — Ukraine, Sakskiy; 2, 11, 12 — Yenisei River, Mirnoye; 3 — Khabarovsk Area, Bolshekhekhtsyrskiy Nature Reserve; 4, 18, 19 — Canada, Sasckachevan, North Battleford; 5 — after Helsdingen [1968: fig. 21]; 6 — after Hormiga [1994: fig. 2b]; 13 — Kurile Islands, Shumshu Isl.; 14, 15 — Petropavlovsk-Kamchatsky; 16, 17 — Magadan; 20 — Canada, Alberta, Seven Persons.

Рис. 1–20. Левая пальпа (1–6, вентрально) и mesal plate (7–20, вид сзади) *Stemonyphantes lineatus* (Linnaeus, 1758) (1, 7–10), *S. sibiricus* Grube, 1861 (2, 3, 11–17), & *S. blauveltae* Gertsch, 1951 (4–6, 18–20): 1, 7, 8 — Южная Финляндия; 9 — Россия, окр. С.-Петербурга; 10 — Украина, Сакский; 2, 11, 12 — Енисей, Мирное; 3 — Хабаровский край, Большехехцирский заповедник; 4, 18, 19 — Канада, Саскачеван, North Battleford; 5 — по Хельсдингену [1968: рис. 21]; 6 — по Ормига [1994: рис. 2b]; 13 — Курильские о-ва, о-в Шумшу; 14, 15 — Петропавловск-Камчатский; 16, 17 — Магадан; 20 — Канада, Альберта, Seven Persons.

West Sayan Mts, 8–10 km SSW of Lake Oiskoye, Olen'ya Rechka River (52º48' N, 93º12' E), 1900 m a.s.l., mountain tundra, 10 & 11.VII.1990, leg. D. Logunov (**new locality**); 1 ♂, Tuva, Piy-Khemskiy Distr., 5 km NW Seserlig (51º54' N, 94º11' E), *Larix* forest, 1000–1200 m, leg. D. Logunov; 1 ♂, same, Torgalyg, 15–19.VII.1985, leg. N. Formozov; 1 ♂, Toora-Khem Distr., bank of Lake Azas, slide-rocks, 19–23.VI.1989, leg. D. Logunov; 3 ♀♀, Kamchatka Area, Petropavlovsk-Kamchatsky, hill on bank of bay, *Betula* forest, 22.VIII.1987, leg. A. Tanasevitch; 2 ♂♂, 2 ♀♀, Khabarovsk Area, Bureinskiy Nature Reserve, 1–18.VII, 2002, leg. L. Trilikauskas; 1 ♂, same, *Populus* forest, 2–7.VI.2004, leg. L. Trilikauskas; 1 ♂, 2 ♀♀, Amur Area, Selemdzhinskiy Distr., Selemdzha River, 4 km upstream of Ekimchan, upstream of Unerikan Rill mouth, 494 m a.s.l., in rotten wood, under bark of willow and birch stumps, 28.VIII.2006, leg. A. Ryvkin.

S. blauveltae: **CNC**: 1 ♂, Canada, New Scotia, Bridgewater, 10.VII.1967, leg. D. Embree; 1 ♀, Kouchibouguac National Park, sand dunes, 27.VI.1977, leg. G. Calderwood; 2 ♀♀, Alberta, Seven

Persons, grass at field's edge, in traps, 14.V–8.VI.1963, leg. A. Turnbull; 2 ♂♂, Ontario, Fitzroy Twp., Carleton Co., pitfalls in stony pasture, 21.V–11.VI.1974, leg. C. J. Edwards-Anderka; **CDB**: 1 ♀, Canada, Saskatchewan, North Battleford, 6–26.V.1997, *Fescue* grassland, leg. K. Pivnick; 1 ♂, same, *Fescue* with trees, 7–26.VIII.1996, leg. K. Pivnick.

TAXONOMIC REMARKS. *S. sibiricus* seems to be one of the most enigmatic Siberian linyphiid species. It was originally described from a single female from the Vilyui River flow region, Yakutia (now Sakha Republic), Middle Siberia [Grube, 1861], and it has since never been redescribed.

In the literature, this species has actually been recorded under three different names, i.e. *S. bucculentus* (Clerck, 1757) and *S. lineatus* (Linnaeus, 1758) from Siberia, Mongolia and China, and *S. blauveltae* Gertsch, 1951 from the Far East (for more details see Eskov [1994]). Van Helsdingen [1978] synonymized *S. sibiricus* under *S. lineatus*, but Eskov [1992: 53] revalidated *S. sibiricus*, considering it, together with *S. blauveltae*, as allopatric subspecies of *S. lineatus*. Marusik et al. [1993b: 69] elevated *S. l. sibiricus* to the rank of full species, but said nothing about *S. l. blauveltae*, thus leaving its status unchanged. So *S. blauveltae* formally still remains a subspecies.

Van Helsdingen [1978: 186], during his study of the type of *S. sibiricus*, did not dissect the female holotype to examine its vulva. Since he failed to find the main difference between *S. sibiricus* and *S. lineatus*, he synonymized them. Indeed, these species are very similar and it is impossible to separate them based on the shape of the mesal plate (sensu Van Helsdingen [1968]) of the epigyne. However, the vulvae of *S. lineatus* and *S. sibiricus* prove to differ considerably: *S. lineatus* has five coils of the seminal ducts, whereas *S. sibiricus* shows only three loops. So the females can easily be distinguished by the conformation of the vulva.

In the males, differences are less clear-cut. Males can be separated by the shape of the proximal part of the embolic division: in *S. lineatus* this part is longer, more strongly curved and protruding beyond the palpal tibia (cp Figs 1 & 2, 3). The somatic characters like chaetotaxy, stridulating fields, ratio of cephalothorax length to length of femur I, and others, proposed by Van Helsdingen for separating *S. lineatus* from *S. blauveltae*, are highly variable and overlapping. In addition, it seems worth mentioning that *S. lineatus* is larger than *S. sibiricus*, same as its palp. Not only the epigyne's ventral view, but also the posterior views of the mesal plate of *S. lineatus* and *S. sibiricus*, as well as of *S. blauveltae*, are highly variable (see Figs 7–20).

Concerning the separation of *S. sibiricus* and *S. blauveltae*, I have failed to find any reliable differences both in somatic and genitalic characters except for the shape of the proximal part of the embolic division. In *S. sibiricus*, it is a little more strongly curved and is longer, reaching the edge of the palpal tibia, whereas in *S. blauveltae* it reaches only the middle of the tibia (cp Figs 2, 3 & 4–6). The epigynes of these species are of the same conformation and show similar variations; in both the vulva has three loops.

I am not quite sure that the only small but stable difference, i.e. length of the proximal part of the embolic division, is indeed of full specific rank. *S. blauveltae* could be considered as a subspecies of *S. sibiricus*; both being separated by the Pacific Ocean. On the other hand, they are entirely allopatric, while the "weight" of the separating character may be treated by authors in different ways. In addition, some further differences might be found in the future.

On balance, for the time being and before more detailed studies have been performed, I am rather inclined to consider these taxa as independent species, thus formally elevating *S. lineatus blauveltae* to the status to full species: *S. blauveltae*, **stat.n.**

To distinguish *S. sibiricus* and *S. blauveltae* from the other congeners, the excellent drawings of Van Helsdingen, [1968: figs 19–29, as *S. blauveltae*] can be used, keeping in mind that the former lives in the East Palaearctic, while the latter is the Nearctic species. To separate both from each other, one is invited to see Figs 2,3 & 4–6.

DISTRIBUTION.

S. lineatus: Europe, West Siberia (?), Caucasus, mountains of Middle Asia. Range: West Palaearctic or European Ancient-Mediterranean.

S. sibiricus: Eastern Kazakhstan, West, Middle and East Siberia, Far East (including Sakhalin and Kurile Islands), mountains of South Siberia, Mongolia and probably China (as *S. lineatus*). Range: East Palaearctic.

S. blauveltae: Nearctic. All records of *S. blauveltae* in the Palaearctic actually concern *S. sibiricus* (checked).

ACKNOWLEDGEMENTS. I am deeply obliged to K. Mikhailov (Moscow, Russia), who allowed me to study the spider collection of ZMMU, to Ch. Dondale (Ottawa, Canada) and D. Buckle (Saskatoon, Canada) for the comparative material which they kindly sent me for investigation. I wish to thank all persons whose material served as the basis for this paper. I am most grateful also to S. Koponen (Turku, Finland) for the help in practical work and to S. Golovatch for checking the English of the final draft. This work was supported in part by the Academy of Sciences of Finland (Project 114501).

References

Eskov K.Yu. 1993. Several new linyphiid spider genera (Aranei Linyphiidae) from the Russia Far East // Arthropoda Selecta. Vol.2. No.3. P.43–60.

Eskov K.Yu. 1994. Catalogue of the linyphiid spiders of northern Asia (Arachnida, Araneae, Linyphiidae). Sofia: Pensoft Publishers. 144 pp.

Grube E. 1861a. Beschreibungen neuer, von den Herren L. v. Schrenk, Maack, C v. Ditmar u. a. im Amurlande und in Ostsibirien gesammelter Araneiden // Bull. Acad. Imp. Sci. St.-Petersbourg. 3 sér. T.4. No.3. S.161–180.

Helsdingen P. J. van. 1968. Comparative notes on the species of the Holarctic genus *Stemonyphantes* Menge (Araneida, Linyphiidae) // Zool. Meded. Leiden. D.43. No10. P.117–139.

Helsdingen P. J. van. 1978. Some synonymies in Old World spiders // Zool. Meded. Leiden. D.53. No.17. P.185–197.

Hormiga G. 1994. A revision and cladistic analysis of the spider family Pimoidae (Araneoidea: Araneae) // Smithson. Contrib. Zool. No.549. P.1–104.

Marusik Yu.M., Eskov K.Yu., Logunov D.V., Basarukin A.M. 1993a. A check-list of spiders (Arachnida Aranei) from Sakhalin and Kurile Islands // Arthropoda Selecta. Vol.1. No.4. P.73–85.

Marusik Yu.M., Eskov K.Yu., Koponen S., Vinokurov N.N. 1993b. A check-list of the spiders (Aranei) of Yakutia, Siberia // Arthropoda Selecta. Vol.2. No.2. P.63–79.

Marusik Yu.M., Logunov D. V., Koponen S. 2000. Spiders of Tuva, south Siberia. Institute for Biological Problems of the North. Magadan. 253 pp.

Mikhailov K. G. 1997. Catalogue of the spiders of the territories of the former Soviet Union (Arachnida, Aranei). Moscow. 416 pp.

Saaristo M.I., Marusik Yu.M. 2004. Revision of the Holarctic spider genus *Oreoneta* Kulczyński, 1894 (Arachnida: Aranei: Linyphiidae) // Arthropoda Selecta. Vol.12. No.3–4. P.207–249.

Tanasevitch A.V. 2000. On some Palaearctic species of the spider genus *Agyneta* Hull, 1911, with description of four new species (Aranei, Linyphiidae) // Arthropoda Selecta. Vol.8. No.3. P.201–213.