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Spiders (Arachnida: Aranei) of the sparse bogged *Larix cajanderi* forests of the Bureinsky State Nature Reserve (the Russian Far East, Cisamuria)

Пауки (Arachnida: Aranei) редкостойных заболоченных лиственничников Буреинского заповедника (Российский Дальний Восток, Приамурье)

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Ключевые слова: пауки, редкостойные заболоченные лиственничники, доминантные комплексы, ярусы растительности.

Abstract. The results of studies of the spider population of the Bureinsky Reserve's sparse boggy-larch forests representing the indigenous type of vegetation of the area are given. A total of 69 spider species, representing 13 families and 50 genera has been found in the studied habitat. The greatest number of spider species occurs in the herb-shrub layer. Chortobionts represented by species inhabiting the herb-shrub layer in various types of larch forests in the study area. Several species (*Piratula canadensis* (Dondale et Redner, 1981), *Pardosa atrata* (Thorell, 1873), *Xysticus wunderlichi* Logunov, Marusik et Trilikauskas, 2001 and *Asiceratinops kolymensis* (Eskov, 1992)) collected from the sparse boggy-larch forests were not observed in other types of forest and wetland habitats of the Reserve and can be considered indicators. Yet, the nucleus of this species complex is formed by *Gnaphosa microps* Holm, 1939, *Alopecosa aculeata Alopecosa aculeata* (Clerck, 1758), *Pardosa lapponica* (Thorell, 1872) and *Pardosa lyrata* (Odenvall, 1901), which occur in different types of moss larch forests of the Bureinsky Reserve. Holarctic and Palaearctic species predominate in the species complex of sparse bogged larch forests. Their share in sum, as well as that of Siberian and Siberian-American species, is approximately equal to that of the blueberry sphagnum bogs.

Total the share of boreal, boreo-nemoral and polyzonal elements of sparse bogged larch forests and in blueberry sphagnum bogs is equal. The percentage of nemoral species is highest in sparse bogged larch forests.

Резюме. Приведены результаты исследований населения пауков в коренных заболоченных лиственничных лесах Буреинского заповедника. Выявлено 69 видов пауков из 13 семейств и 50 родов. Наибольшее количество видов встречается в травяно-кустарничковом ярусе. Несколько видов (*Piratula canadensis* (Dondale et Redner, 1981), *Pardosa atrata* (Thorell, 1873), *Xysticus wunderlichi* Logunov, Marusik et Trilikauskas, 2001 и *Asiceratinops kolymensis* (Eskov, 1992)), собранные в редкостойных заболоченных лиственничниках, не отмечены в других типах лесных и болотных местообитаний заповедника и могут рассматриваться как индикаторы. Ядро видового комплекса формируют *Gnaphosa microps* Holm, 1939, *Alopecosa aculeata* (Clerck, 1758), *Pardosa lapponica* (Thorell, 1872) и *Pardosa lyrata* (Odenvall, 1901), которые встречаются в различных типах моховых лиственничников Буреинского заповедника. Преобладают голарктические и палеарктические виды — их доля, так же как и доля сибирских и сибирско-американских видов сходна с таковой для голубичных сфагновых болот. Общая доля бореальных, борео-неморальных и полизональных элементов в редкостойных заболоченных лиственничниках и на голубичных сфагновых болотах примерно одинакова. Процент неморальных видов выше в заболоченных лиственничниках.

Introduction

The Bureinsky State Nature Reserve (Fig. 1) is situated in the south part of the Russian Far East, at the confluence of Right and Left Bureya Rivers forming Bureya River, the largest tributary of Amur River. The Reserve's territory is predominantly covered with the larch taiga forest.

The studies of the spider fauna of the Bureinsky Nature Reserve began in 1999. To date over 20 papers on the fauna and ecology of spiders of this region of Cisamuria, including those devoted to spiders of larch forests, have been published [Trilikauskas, 2005; Trilikauskas, Osipov, 2005; Trilikauskas, 2014; etc]. However, the published papers contain either only a rather general information about spiders of larch forests [Trilikauskas, 2005, 2014], or the data on spider spatial distribution in one of the larch forest derivatives (secondary forests).

The present work summarizes the results of long-term studies of the spider population of the Reserve's

Fig. 1. Map showing location of Bureinsky Nature Reserve.
Рис. 1. Географическое положение Буреинского заповедника.

sparse bogged larch forests representing the indigenous type of the vegetation in that area. A considerable part of Reserve's forests represent different stages of a successional forest recovery after natural fires. Waterlogging of these forests is associated with the shallow permafrost.

Waterlogging and the dominance of sphagnum mosses create a specific living environment for spiders, as compared with other types of the larch forests in the studied area. This is reflected in the composition and structure of spider community and in spider spatial distribution.

Material and Methods

The material was collected by the author in 1999–2001 near the «Strelka» Cordon of the Bureinsky State Nature Reserve, in the lower reaches of Pravaya (the tract «Gidropost») and Levaya Bureya Rivers (near the mouth of Chapkhos River). The studied spider material was collected by pitfall traps, hand-collecting and sweeping. A total more than 700 adult specimens was collected and identified.

As a rule, the sparse bogged larch (*Larix cajanderi*) forest is formed by undersized, oppressed and sparsely standing larches. The shrub layer is usually formed by *Betula divaricata* Ledeb. with the Siberian dwarf pine (*Pinus pumila* (Pall.) Regel. The tree crown cover greatly varies and during our studies it ranged from 0.15 to 0.60. The shrub layer is formed by *Ledum palustre* L. and *Vaccinium uliginosum* L. A projective cover ranged from 20 to 70 %. The moss layer with projective cover of 100 % is formed by *Sphagnum angustifolium* (C.E.O. Jensen ex Russow) C.E.O.Jensen with some other species.

A species dominance was determined by the Wozny methods [Wozny, 1992], as follows: superdominants are the species with their share of over 30 %, eudominants — the share of over 10 %, dominants — the share from 5.1 to 10 %; and subdominants — the share from 2.1 to 5 %.

For the spatial distribution of individual species the following terms have been used: stratobiont — the species occurring in the forest litter (in our case moss); herpetobiont — the species occurring on forest litter/ground surface; chortobiont — the species occurring in herbs/grasses stratum; tamnobiont — a shrub dweller; and dendrobiont — a tree dweller.

The following zoogeographical terms have been used in order to characterize species distributional patterns: Holarctic — the species distributed in both the Palaearctic and the Nearctic Regions (including those known from the Palaearctic Region and from a part of the Nearctic region (e.g., *Hackmania prominula, Mecynargus monticola, Neottiura bimaculata*); Palaearctic — the species distributed in the entire Palaearctic

Region or its significant part (e.g., *Dismodicus bifrons*); Siberian — the species distributed in Siberia (including such East Siberian species as *Emblyna zherikhini* and *Xysticus wunderlichi*, South Siberian-Far Eastern *Gonatium pacificum* and East Palaearctic *Walckenaeria korobeinikovi*); Siberian-American — species distributed both in Siberia and in the Nearctic Region (usually in its NW part).

The following terms are used in describing species zonal distribution: boreal — the species occurring in the taiga zone; boreo-nemoral — the species occurring in the taiga and the nemoral forest zone; nemoral — the species occurring in the nemoral forest, forest-steppes and steppes zones; polyzonal — the species occurring in several natural zones; hypoarctic — the species occurring in the subzone of southern tundras, forest-tundra and partly the subzone of northern taiga [Chernov, 1978]; arcto-boreal — the species occurring from the arctic to boreal zones; boreo-montane — the species occurring in the taiga zone but in Siberia are also found in the mountain tundra above the timber-line zone; boreo-alpine — the species occurring in the taiga zone and also above the timber-line zone in the mountains in a broad sense (e.g., in the alpine meadows).

Results and Discussion

A species checklist of spiders and their spatial distribution in the sparse bogged larch forests of the Bureinsky Nature Reserve are given in Table 1. A total of 69 spider species, representing 13 families and 50 genera has been found in the studied habitat. The families Linyphiidae and Araneidae were most taxonomically diverse (18 and 11 species respectively). As compared with other well-studied habitats of the Reserve [see Trilikauskas, 2008, 2010], the families Lycosidae and Gnaphosidae also consist of a rather high number of species (6 and 7 species respectively). Surprisingly, in the sparse bogged larch forest with sphagnum moss the litter dwelling linyphiids account only for 15 species. For comparison, the green moss larch forest of the same area is inhabited by 48 litter-dwelling linyphiid species [Trilikauskas, 2008]. Obviously, the damp mat of sphagnum moss create very extreme conditions for small litter dwelling spiders.

The greatest number of spider species occurs in the herb-shrub layer (30 species). The dominant complex of spider-chortobionts includes 6 species (Table 1), among which the most abundant is *Tibellus oblongus*. Chortobionts represented by species inhabiting the herb-shrub layer in various types of larch forests in the study area [Trilikauskas, 2014]. Yet, poorly developed tree and shrub layers are inhabited by a small number of species (5 and 8 species respectively).

Several species collected from the sparse bogged larch forests were not observed in other types of forest and wetland ecosystems of the Reserve and can be considered indicators. First of all, it is *Piratula canaden-*

Table 1. Species composition and spatial distribution of spiders in the sparse bogged larch forests of the Bureinsky State Nature Reserve

Таблица 1. Видовой состав и пространственное распределение пауков в редкостойных заболоченных лиственничниках Буреинского заповедника

Taxon	S	H	Ch	T	Dn
Araneidae					
Aculepeira packardi (Thorell, 1875)	–	–	SD	D	+
Araneus sp.*	–	–	–	–	+
Araneus marmoreus Clerck, 1758	–	–	–	+	–
Araneus nordmanni (Thorell, 1870)	–	–	+	–	+
Araneus quadratus Clerck, 1758	–	–	+	+	–
Araneus yukon Levi, 1971	–	–	–	+	–
Araniella displicata (Hentz, 1847)	–	–	D	+	–
Hypsosinga albovittata (Westring, 1851)	–	–	+	–	–
Hypsosinga sanguinea (C.L. Koch, 1844)	–	–	+	–	–
Larinioides patagiatus (Clerck, 1758)	–	–	+	+	+
Nuctenea silvicultrix (Clerck, 1844)	–	–	–	–	+
Cheiracanthiidae					
Cheiracanthium erraticum (Walckenaer, 1802)	–	–	+	–	–
Dictynidae					
Dictyna arundinacea (Linnaeus, 1758)	–	–	+	–	–
Emblyna zherikhini (Marusik, 1988)	–	–	+	–	–
Hackmania prominula (Tullgren, 1948)	–	+	–	–	–

Table 1. (continuation)
Таблица 1. (продолжение)

Taxon	S	H	Ch	T	Dn
Gnaphosidae					
Drassodes serratidens Schenkel, 1963	–	+	–	–	–
Drassyllus pussillus (C.L. Koch, 1833)	–	+	–	–	–
Gnaphosa gracilior Kulczyński, 1901	–	+	–	–	–
Gnaphosa microps Holm, 1939	–	E	–	–	–
Gnaphosa muscorum L. Koch, 1866)	–	+	–	–	–
Haplodrassus hiemalis (Emerton, 1909)	–	+	–	–	–
Haplodrassus soerenseni (Strand, 1900)	–	+	–	–	–
Linyphiidae					
Agyneta pseudosaxatilis Tanasevitch, 1984	+	–	–	–	–
Anguliphantes dybowskii (O. Pickard-Cambridge, 1873)	+	–	–	–	–
Asiceratinops kolymensis (Eskov, 1992)	+	+	–	–	–
Carorita limnea (Crosby et Bishop, 1927)	+	–	–	–	–
Ceraticelus bulbosus (Emerton, 1882)	+	–	–	–	–
Ceratinella brevis (Wider, 1834)	+	–	–	–	–
Diplocentria bidentata (Emerton, 1882)	+	–	–	–	–
Dismodicus bifrons (Blackwall, 1841)	–	+	–	–	–
Erigone atra Blackwall, 1833	–	+	–	–	–
Estrandia grandaeva (Keyserling, 1866)	–	–	D	–	–
Glyphesis asiaticus Eskov, 1989	+	–	–	–	–
Gonatium pacificum Eskov, 1989	+	+	D	–	–
Hypomma bituberculatum (Wider, 1834)	–	–	+	–	–
Incestophantes laricetorum (Tanasevitch et Eskov, 1987)	–	–	SD	–	–
Mecynargus monticola (Holm, 1943)	+	–	–	–	–
Metopobactrus prominulus (O. Pickard-Cambridge, 1873)	+	–	–	–	–
Silometopoides sibiricus (Eskov, 1989)	+	–	–	–	–
Walckenaeria korobeinikovi Esyunin et Efimik, 1996	+	–	–	–	–
Lycosidae					
Alopecosa aculeata (Clerck, 1758)	–	E	–	–	–
Pardosa adustella Roewer, 1951	–	+	–	–	–
Pardosa atrata (Thorell, 1873)	–	+	–	–	–
Pardosa lapponica (Thorell, 1872)	–	SP	–	–	–
Pardosa lyrata (Odenvall, 1901)	–	SD	–	–	–
Piratula canadensis (Dondale et Redner, 1981)	–	+	–	–	–
Oxyopidae					
Oxyopes licenti Schenkel, 1953	–	–	+	+	–
Philodromidae					
Philodromus mysticus Dondale et Redner, 1975	–	–	+	–	–
Thanatus arcticus Thorell, 1872	–	+	–	–	–
Thanatus coloradensis Keyserling, 1880	–	+	–	–	–
Tibellus maritimus (Menge, 1875)	–	–	+	–	–
Tibellus oblongus (Walckenaer, 1802)	–	–	E	–	–

Table 1. (continuation)
Таблица 1. (продолжение)

Taxon	S	H	Ch	T	Dn
Pisauridae					
Pisaura ancora Paik, 1969	–	–	+	–	–
Salticidae					
Evarcha arcuata (Clerck, 1758)	–	–	+	–	–
Evarcha laetabunda (C.L. Koch, 1846)	–	–	+	–	–
Evarcha proszynskii Marusik et Logunov, 1998	–	–	+	–	–
Heliophanus camtschadalicus Kulczyński, 1885	–	–	+	–	–
Heliophanus lineiventris Simon, 1868	–	–	+	–	–
Pseudeuophrys obsoleta (Simon, 1868)	–	–	+	–	–
Talavera minuta (Banks, 1895)	–	+	–	–	–
Theridiidae					
Neottiura bimaculata (Linnaeus, 1767)	–	–	+	–	–
Phylloneta impressa (L. Koch, 1881)	–	–	+	+	–
Platnickina sterninotata (Bösenberg et Strand, 1906)	–	–	+	–	–
Thomisidae					
Ozyptila sincera Kulczyński, 1926	–	+	–	–	–
Xysticus audax (Schrank, 1803)	–	–	+	–	–
Xysticus britcheri Gertsch, 1934	–	+	+	–	–
Xysticus emertoni Keyserling ,1880	–	+	+	–	–
Xysticus wunderlichi Logunov, Marusik et Trilikauskas, 2001	–	+	–	–	–
Zoridae					
Zora cf. *nemoralis* (Blackwall, 1861)	–	+	–	–	–
All	13	25	30	8	5

Notes: S — stratobiont, H — herpetobiont, Ch — chortobiont, T — tamnobiont, Dn — dendrobiont, SP — superdominant, E — eudominant, D — dominant, SD — subdominant (see Material and Methods); + — share of this species less than 2.1 %. * *Araneus* sp. is undescribed species.

Примечания: S — стратобионты, H — герпетобионты, Ch — хортобионты, T — тамнобионты, Dn — дендробионты, SP — супердоминанты, E — эудоминанты, D — доминанты, SD — субдоминанты (см. Материал и методы); + — представленность вида менее 2,1 %. * *Araneus* sp. — неописанный вид.

sis which in other parts of its range inhabits the sphagnum bogs [Omelko et al., 2001] and the black spruce muskeg [Dondale, Redner, 1990]. *Pardosa atrata* and *Xysticus wunderlichi* were only found in the bogged larch forests. Outside the Reserve, in the upper reaches of Bureya River (in the vicinity of Chegdomyn), *Pardosa atrata* can be found in the sedge moors. In other parts of its range it is also associated with the sedge and sphagnum bogs [Marusik, 2005]. Of the litter dwelling web spiders one should mention *Asiceratinops kolymensis* which inhabits the bogged larch forests in the study area, as well as in the upper reaches of the Kolyma River [Eskov, 1992]. All the aforementioned species are not abundant. The nucleus of the herpetobiont complex is formed by *Gnaphosa microps, Alopecosa aculeata, Pardosa lapponica* and *Pardosa lyrata*. These species are widespread in the Bureinsky Nature Reserve in different types of the larch forests with well-developed moss litter.

The structure of zoogeographical and zonal spider components are presented in table 2 and in comparison with those of the moss larch taiga [Trilikauskas, 2008] and the blueberry sphagnum bogs [Trilikauskas, 2015] of the Bureinsky Nature Reserve is given in tables 3 and 4. The fauna of the sparse bogged larch forests is dominated by species with wide ranges, such as Holarctic and Palaearctic ones. Total their share is higher than that in the moss larch forests and approximately equal to that of the blueberry sphagnum bogs. The share of the Siberian and Siberian-American species in the two habitats are also very close in their values (Table 3).

Compared to the moss larch forests and the blueberry sphagnum bogs, the share of boreal, boreo-nemoral and polyzonal elements in sum are more or less equal in the sparse bogged larch forests. The percentage of nemoral species is highest in the sparse bogged larch forests.

Conclusions

The spider fauna of the sparse bogged larch forests of the Bureinsky Nature Reserve consists of 69 species. The families Lycosidae and Gnaphosidae are among the

Table 2. Zoogeographical and zonal distribution of spiders collected from the sparse bogged larch forests of the Bureinsky State Nature Reserve

Таблица 2. Зоогеографическое и зональное распространение пауков, собранных в редкостойных заболоченных лиственничниках Буреинского заповедника

Taxon	Zoogeographical disrtibution	Zonal distribution
Araneidae		
Aculepeira packardi (Thorell, 1875)	Holarctic	boreal
Araneus sp.	unknown	unknown
Araneus marmoreus Clerck, 1758	Holarctic	boreo-nemoral
Araneus nordmanni (Thorell, 1870)	Holarctic	boreo-nemoral
Araneus quadratus Clerck, 1758	Palaearctic	boreo-nemoral
Araneus yukon Levi, 1971	Siberian-American	boreal
Araniella displicata (Hentz, 1847)	Holarctic	boreo-nemoral
Hypsosinga albovittata (Westring, 1851)	Palaearctic	polyzonal
Hypsosinga sanguinea (C.L. Koch, 1844)	Palaearctic	polyzonal
Larinioides patagiatus (Clerck, 1758)	Palaearctic	boreo-nemoral
Nuctenea silvicultrix (Clerck, 1844)	Palaearctic	boreo-nemoral
Cheiracanthiidae		
Cheiracanthium erraticum (Walckenaer, 1802)	Palaearctic	boreo-nemoral
Dictynidae		
Dictyna arundinacea (Linnaeus, 1758)	Holarctic	polyzonal
Emblyna zherikhini (Marusik, 1988)	East Siberian	boreal
Hackmania prominula (Tullgren, 1948)	Holarctic	boreal
Gnaphosidae		
Drassodes serratidens Schenkel, 1963	Mongolian-Manchurian	nemoral-steppe
Drassyllus pussillus (C.L. Koch, 1833)	Palaearctic	nemoral
Gnaphosa gracilior Kulczyński, 1901	Siberian	polyzonal
Gnaphosa microps Holm, 1939	Holarctic	boreal
Gnaphosa muscorum L. Koch, 1866)	Holarctic	polyzonal
Haplodrassus hiemalis (Emerton, 1909)	Siberian-American	Hypoarcto-boreo-alpine
Haplodrassus soerenseni (Strand, 1900)	Palaearctic	boreo-nemoral
Linyphiidae		
Agyneta pseudosaxatilis Tanasevitch, 1984	Siberian	arcto-boreal
Anguliphantes dybowskii (O. Pickard-Cambridge, 1873)	Siberian	boreal
Asiceratinops kolymensis (Eskov, 1992)	South-East Siberian	boreal
Carorita limnea (Crosby et Bishop, 1927)	Holarctic	boreal
Ceraticelus bulbosus (Emerton, 1882)	Holarctic	boreal
Ceratinella brevis (Wider, 1834)	Palaearctic	polyzonal
Diplocentria bidentata (Emerton, 1882)	Holarctic	boreal
Dismodicus bifrons (Blackwall, 1841)	Palaearctic	boreo-nemoral
Erigone atra Blackwall, 1833	Holarctic	polyzonal
Estrandia grandaeva (Keyserling, 1866)	Holarctic	boreal
Glyphesis asiaticus Eskov, 1989	Siberian	boreal
Gonatium pacificum Eskov, 1989	South Siberian-Far Eastern	boreo-montane
Hypomma bituberculatum (Wider, 1834)	Palaearctic	polyzonal
Incestophantes laricetorum (Tanasevitch et Eskov, 1987)	Siberian	boreal
Mecynargus monticola (Holm, 1943)	Holarctic	boreal

Table 2. (continuation)
Таблица 2. (прожолдение)

Taxon	Zoogeographical disrtibution	Zonal distribution
Linyphiidae		
Metopobactrus prominulus (O. Pickard-Cambridge, 1873)	Holarctic	polyzonal
Silometopoides sibiricus (Eskov, 1989)	Siberian	boreal
Walckenaeria korobeinikovi Esyunin et Efimik, 1996	East Palaearctic	arcto-boreal
Lycosidae		
Alopecosa aculeata (Clerck, 1758)	Holarctic	boreo-nemoral
Pardosa adustella Roewer, 1951	Siberian	boreal
Pardosa atrata (Thorell, 1873)	Palaearctic	hypoarcto-boreo-montane
Pardosa lapponica (Thorell, 1872)	Holarctic	arcto-boreal
Pardosa lyrata (Odenvall, 1901)	Siberian	boreal
Piratula canadensis (Dondale et Redner, 1981)	Far East-Amarican	boreal
Oxyopidae		
Oxyopes licenti Schenkel, 1953	Siberian	polyzonal
Philodromidae		
Philodromus mysticus Dondale et Redner, 1975	Siberian-American	boreal
Thanatus arcticus Thorell, 1872	Holarctic	polyzonal
Thanatus coloradensis Keyserling, 1880	Holarctic	boreo-montane
Tibellus maritimus (Menge, 1875)	Holarctic	polyzonal
Tibellus oblongus (Walckenaer, 1802)	Holarctic	boreo-nemoral
Pisauridae		
Pisaura ancora Paik, 1969	Mongolian-Manchurian	nemoral
Salticidae		
Evarcha arcuata (Clerck, 1758)	Palaearctic	boreo-nemoral
Evarcha laetabunda (C.L. Koch, 1846)	Palaearctic	boreo-nemoral
Evarcha proszynskii Marusik et Logunov, 1998	Siberio-American	boreo-nemoral
Heliophanus camtschadalicus Kulczyński, 1885	Palaearctic	boreal
Heliophanus lineiventris Simon, 1868	Palaearctic	boreo-nemoral
Pseudeuophrys obsoleta (Simon, 1868)	South Palaearctic	nemoral
Talavera minuta (Banks, 1895)	Siberian-American	boreo-nemoral
Theridiidae		
Neottiura bimaculata (Linnaeus, 1767)	Palaearctic North-Western Nearctic	nemoral
Phylloneta impressa (L. Koch, 1881)	Holarctic	polyzonal
Platnickina sterninotata (Bösenberg et Strand, 1906)	Far East	nemoral
Thomisidae		
Ozyptila sincera Kulczyński, 1926	Siberian-American	boreal
Xysticus audax (Schrank, 1803)	Palaearctic	boreo-nemoral
Xysticus britcheri Gertsch, 1934	Siberian-American	boreal
Xysticus emertoni Keyserling ,1880	Siberian-American	boreo-nemoral
Xysticus wunderlichi Logunov, Marusik et Trilikauskas, 2001	Siberian	boreal
Zoridae		
Zora cf. *nemoralis* (Blackwall, 1861)	Siberian	boreo-nemoral

most taxonomically diverse groups in the area at hand. The family Linyphiidae is most diverse (18 species), being predominantly represented by litter dwelling forms. Surprisingly, the linyphiid fauna of the green moss larch forests of the Bureinsky Reserve is almost three times as diverse (48 species). Obviously the green moss larch forests create more favourable conditions for litter dewelling linyphhiid spiders, than sphagnum moss mat

of sparse bogged larch forests. The greatest number of spider species occurs in the herb-shrub layer, where the most abundant is *Tibellus oblongus*.

Piratula canadensis, Pardosa atrata, Xysticus wundelichi and *Asiceratinops kolymensis* are the indicator species of the sparse bogged larch forests of the Bureinsky Nature Reserve. Yet, the nucleus of this species complex is formed by *Gnaphosa microps, Alopecosa aculeata, Pardosa lapponica* and *Pardosa lyrata*, which occur in different types of moss larch forests of the Bureinsky Reserve.

Holarctic and Palaearctic species predominate in the species complex of sparse bogged larch forests. Their share in sum, as well as that of Siberian and Siberian-American species, is approximately equal to that of the blueberry sphagnum bogs.

Total the share of boreal, boreo-nemoral and polyzonal elements of sparse bogged larch forests and in blueberry sphagnum bogs is equal. The percentage of nemoral species is highest in sparse bogged larch forests.

Table 3. Percentage of different zoogeographical elements in some habitats of the Bureinsky Nature Reserve

Таблица 3. Доля различных зоогеографических элементов в некоторых местообитаниях Буреинского заповедника

Zoogeographical elements	1	2	3
Holarctic	35	32	40
Palaearctic	26	19	20
Siberian	22	32	20
Siberio-American	12	10	12
Others	5	7	8

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References

Chernov Yu.I. 1978. [Structure of the animal populations in subarctic]. Moscow: Nauka. 167 p. [In Russian].

Dondale C.D., Redner J.H. 1990. The insects and arachnids of Canada, Part 17. The wolf spiders, nurseryweb spiders, and lynx spiders of Canada and Alaska, Araneae: Lycosidae, Pisauridae, and Oxyopodae. Recearch Bracnch Agriculture Canada. Puble. No.1856. 383 p.

Eskov K.Yu. 1992. A restudy of the generic composition of the linyphiid spider fauna of the Far East (Araneida: Linyphiidae) // Entomologica Scandinavica. Vol.23. No.2. P.153–168.

Marusik Yu.M. 2005. [Arachnids (Arachnida: Aranei, Opiliones) of northern Cisokhotia] // Evrasiatskii entomologicheskii zhurnal. Vol.4. No.3. P.187–208. [In Russian].

Omelko M.M., Marusik Yu.M., Koponen S. 2011. A survey of the East Palaearctic Lycosidae (Aranei). 8. The genera *Pirata* Sundevall, 1883 and *Piratula* Roewer, 1960 in the Russian Far East // Arthropoda selecta. Vol.20. No.3. P.195–232.

Trilikauskas L.A. 2005. [Larch forests spiders of the Bureinsky Nature Reserve and adjacent terrotories: annotated checklist of species] // Urusov V.M. (Ed.): Investigation and construction of landscapes of the Russian Far East and Siberia. Vladivostok: Dalnauka. Vol.6. P.207–217. [In Russian].

Trilikauskas L.A. 2008. [Influence of the layaer structure of the vegetation on spiders distribution in four forest ecosystems] // Proceeding of the Bureinsky State Nature Reserve. Khabarovsk. Vol.4. P.44–56. [In Russian].

Trilikauskas L.A. 2010. [A late spring aspect in the epigeic spider population of the floodland birch forest of the Bureinsky Reserve (Khabarovsk Region)] // Vestnik Mordovskogo universiteta. Vol.1. P.218–220. [In Russian].

Trilikauskas L.A. 2014. [On the spider population (Arachnida: Aranei) of the brushwood of march labrador tea (*Ledum palustre* L.) in the larch taiga forest of the boreal-forest zone of the Bureinsky Reserve (Russia)] // Journal of Biology of the Tomsk State University. Vol.1. No.25. P.111–120. [In Russian].

Trilikauskas L.A. 2015. [On the spiders population (Arachnida: Aranei) of blueberry-sphagnum bogs in Bureinsky strict Nature Reserve] // Mountain ecosystems of South Siberia: study, conservation and rational nature use. Proceeding of the Tigirek State Natural Reserve. Vol.7. P.230–235. [In Russian].

Trilikauskas L. A., S. V. Osipov 2005. [Spider Population of Four Forest Ecosystems of the Bureya Upland (Russian Far East)] // Siberian ecological journal. Vol.3. P.375–384. [In Russian].

Wozny M. 1992. Wplyw wilgotnosci podloza na zgrupowania pajakow oraz dynamika liczebnosci gatunkow dominujących borow sosnowych Wzgorz ostrzeszowskich // Acta Universitatis Wratislaviensis. Vol.1124. P.25–82.

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