

New data on spiders (Arachnida: Aranei) from northeastern Yakutia

Новые данные о пауках (Arachnida: Aranei) северо-восточной Якутии

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KEY WORDS: Araneae, biodiversity, distribution, new combination, northeastern Yakutia, Orulgan Mt. Range, taxonomy, first male description, redescription.

КЛЮЧЕВЫЕ СЛОВА: Araneae, биоразнообразие, новая комбинация, первое описание самца, переписание, распространение, северо-восточная Якутия, таксономия.

ABSTRACT. New data on the spider fauna of northeastern Yakutia, Russia, are presented based on material collected from the Orulgan Mountain Range (Eveno-Bytantaysky District), an area previously lacking arachnological records. A total of 11 species from five families are reported, with annotations on their distribution and habitat preferences. Among the most notable findings, *Alopecosa borea* (Kulczyński, 1908) stat.n., a former subspecies of *A. solivaga* (Kulczyński, 1901), is elevated to species rank based on clear divergence in CO1 sequences and phylogenetic placement, despite minimal morphological differences from *A. solivaga*. The male of *A. borea* is described and illustrated for the first time, and the female is redescribed. Additionally, the taxonomic status of *Pardosa groenlandica* (Thorell, 1872) in northeastern Asia is discussed: specimens from Yakutia differ from Greenlandic representatives in the shape of the epigyne and lack of carapace pattern, suggesting that the Siberian population may represent a separate species. Other records include *Aculepeira carbonarioides* (Keyserling, 1892), *Gnaphosa borea* Kulczyński, 1908, *Pardosa algens* (Kulczyński, 1908), *P. sodalis* Holm, 1970, *P. tesquorum* (Odenwall, 1901), *Rhysodromus alascensis* (Keyserling, 1884), and *Xysticus emertoni* Keyserling, 1880, several of which are reported for the first time from the studied grid square. *Pardosa lyrata* is reported from northeastern Yakutia for the first time. Observations of *Araniella displicata* (Hentz, 1847) and *R. alascensis* on naleds (river icings) provide evidence of ballooning in adults.

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РЕЗЮМЕ. Представлены данные по фауне пауков северо-восточной Якутии из Эвено-Быгантайского

района — территории, ранее не изученной в арахнологическом отношении. Всего отмечено 11 видов из пяти семейств, для которых приводятся сведения о распространении и биотопической приуроченности. Среди наиболее значимых результатов — пересмотр статуса *Alopecosa borea* (Kulczyński, 1908) stat.n., ранее считавшегося подвидом *A. solivaga* (Kulczyński, 1901). На основании четких различий в последовательностях гена CO1 таксон повышен до ранга вида, несмотря на минимальные морфологические отличия от *A. solivaga*. Впервые описан и проиллюстрирован самец *A. borea*, а также переписана самка. Кроме того, обсуждается таксономический статус *Pardosa groenlandica* (Thorell, 1872) в северо-восточной Азии: особи из Якутии отличаются от гренландских представителей формой эпигины и отсутствием рисунка на карапаксе, что позволяет предположить принадлежность сибирской популяции к отдельному виду. Другие находки включают *Aculepeira carbonarioides* (Keyserling, 1892), *Gnaphosa borea* Kulczyński, 1908, *Pardosa algens* (Kulczyński, 1908), *P. sodalis* Holm, 1970, *P. tesquorum* (Odenwall, 1901), *Rhysodromus alascensis* (Keyserling, 1884) и *Xysticus emertoni* Keyserling, 1880, причем некоторые из них отмечены впервые для исследованного региона. *Pardosa lyrata* впервые указывается для северо-восточной Якутии. Находки *Araniella displicata* (Hentz, 1847) и *R. alascensis* на наледях свидетельствуют о том, что взрослые особи могут летать на паутине.

Introduction

Yakutia, the largest administrative region of Russia by area, is relatively well-studied in terms of its spider fauna. To date, approximately 450 spider species have been recorded in the region [Marusik *et al.*, 1993a, with

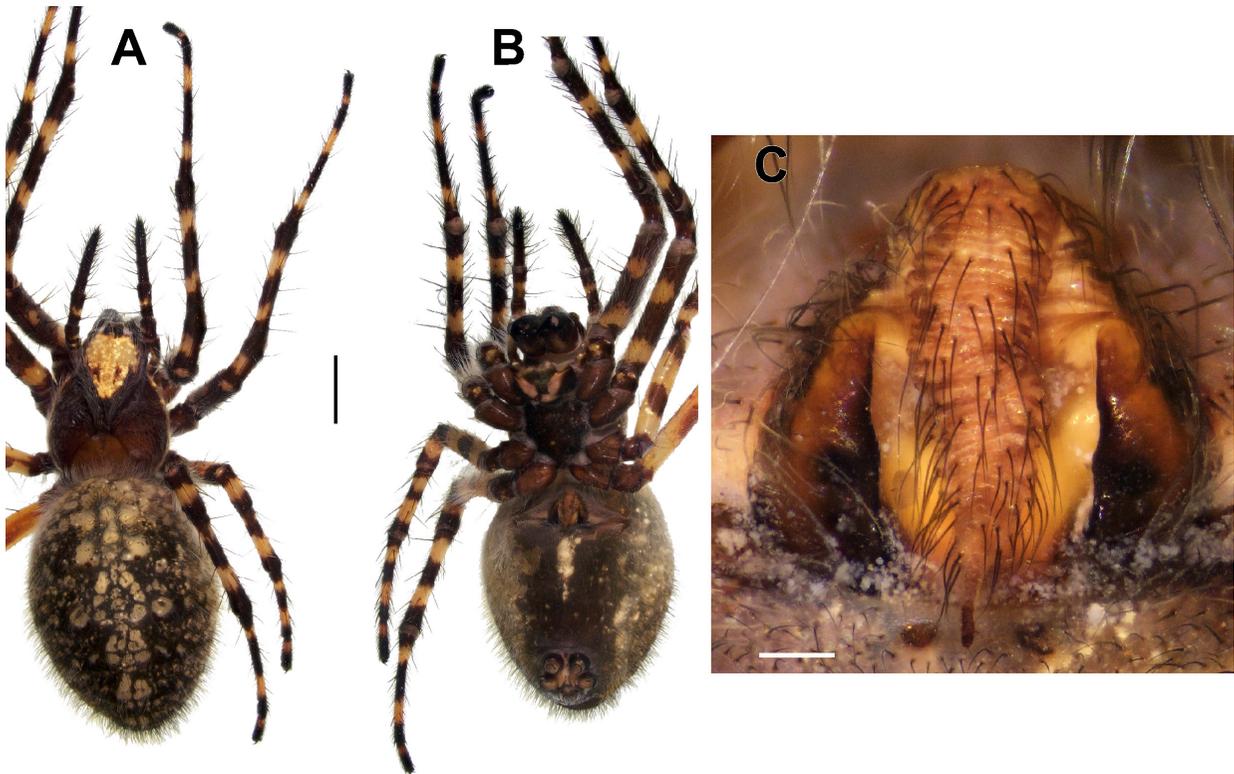


Fig. 1. General appearance (A–B) and epigyne (C) of female of *Aculepeira carbonarioides*. A — dorsal; B–C — ventral. Scale bars: A–B — 2 mm; C — 0.2 mm.

Рис. 1. Внешний вид (A–B), и эпигина (C) самки *Aculepeira carbonarioides*. A — дорсально; B–C — вентрально. Масштаб: A–B — 2 мм; C — 0,2 мм.

subsequent publications and unpublished data]. This number is similar to those documented for the Magadan Area [Marusik *et al.*, 1992], Middle Siberia [Marusik *et al.*, 2002], and Sakhalin Oblast [Marusik *et al.*, 1993b]. As in other parts of Siberia, research efforts have been uneven. Most collection localities are associated with major rivers or coastal areas. In the checklist of Yakutian spiders [Marusik *et al.*, 1993a], the region was subdivided into 30 grid squares, each 6° latitude by 5° longitude (Fig. 9B). Five large squares (a, b, k, q, and u) contain no spider records. Another five squares (l, m, n, p, and r) include only two recorded localities each. Recently, we obtained material from several adjacent localities in the Eveno-Bytantaysky District, located within square 'n' (Fig. 9B). The goal of this paper is to present data on the spider species collected in this area.

Material and methods

This study is based on spider specimens collected by Yuri Berezhnoy during field trip in 2021. Spiders were hand-picked. Specimens were collected from three adjacent localities. Details of the sampled localities are provided below. In the list of recorded spiders given below, each name is followed by a number (in brackets) corresponding to the locality. The specimens were photographed using an Olympus DP74 camera mounted on an Olympus SZX16 stereomicroscope at Altai State University (Barnaul, Russia). Specimens were photographed in a Petri dish. The bottom of the dish was lined with white cotton and filled

with ethanol. Image stacks were montaged using Zerene Stacker software (Zerene Systems, USA). The epigynes were macerated in an aqueous potassium hydroxide solution. All measurements are given in millimeters. The lengths of the leg segments were measured on the dorsal side. Leg measurements are presented as: femur, patella, tibia, metatarsus, tarsus (total length). The format for the redescription follows Fomichev & Logunov [2015]. At our request, Ilya Turbanov performed a COI analysis of *A. pictilis* and related groups. We are using term northeastern Yakutia which refer to Yakutia east of Verkhoyanski Mt Range. The studied material is deposited in the Institute of Systematics and Ecology of Animals SB RAS, Novosibirsk, Russia (ISEA; curator G.N. Azarkina).

Abbreviations: ALE — anterior lateral eye, AME — anterior median eye, d — dorsal, Fe — femur, Mt — metatarsus, p — prolateral, Pa — patella, PLE — posterior lateral eye, PME — posterior median eye, r — retrolateral, Ta — tarsus, Ti — tibia, v — ventral.

List of collecting localities

1. Russia, Yakutia, Eveno-Bytantaysky Dist., Orulgan Mt. Range, Tara-Sala River valley, 85 km WSW from Batagay-Alyta Vill., 67°35'N, 128°28'E, scree, 1000 m a.s.l., 20–21.06.2021, Y.I. Berezhnoy.
2. Same river valley, 75 km WSW from Batagay-Alyta Vill., 67°35'N, 128°44'E, on naled (=aufies, =river icing), 900 m a.s.l., 21.06–3.07.2021, Y.I. Berezhnoy.
3. Same river valley, 65 km WSW from Batagay-Alyta Vill. (67°37'N, 128°56'E), larch forest, 800 m a.s.l., 18–29.06.2021, S. Bochkareva, N. Bochkareva & G. Bochkarev.

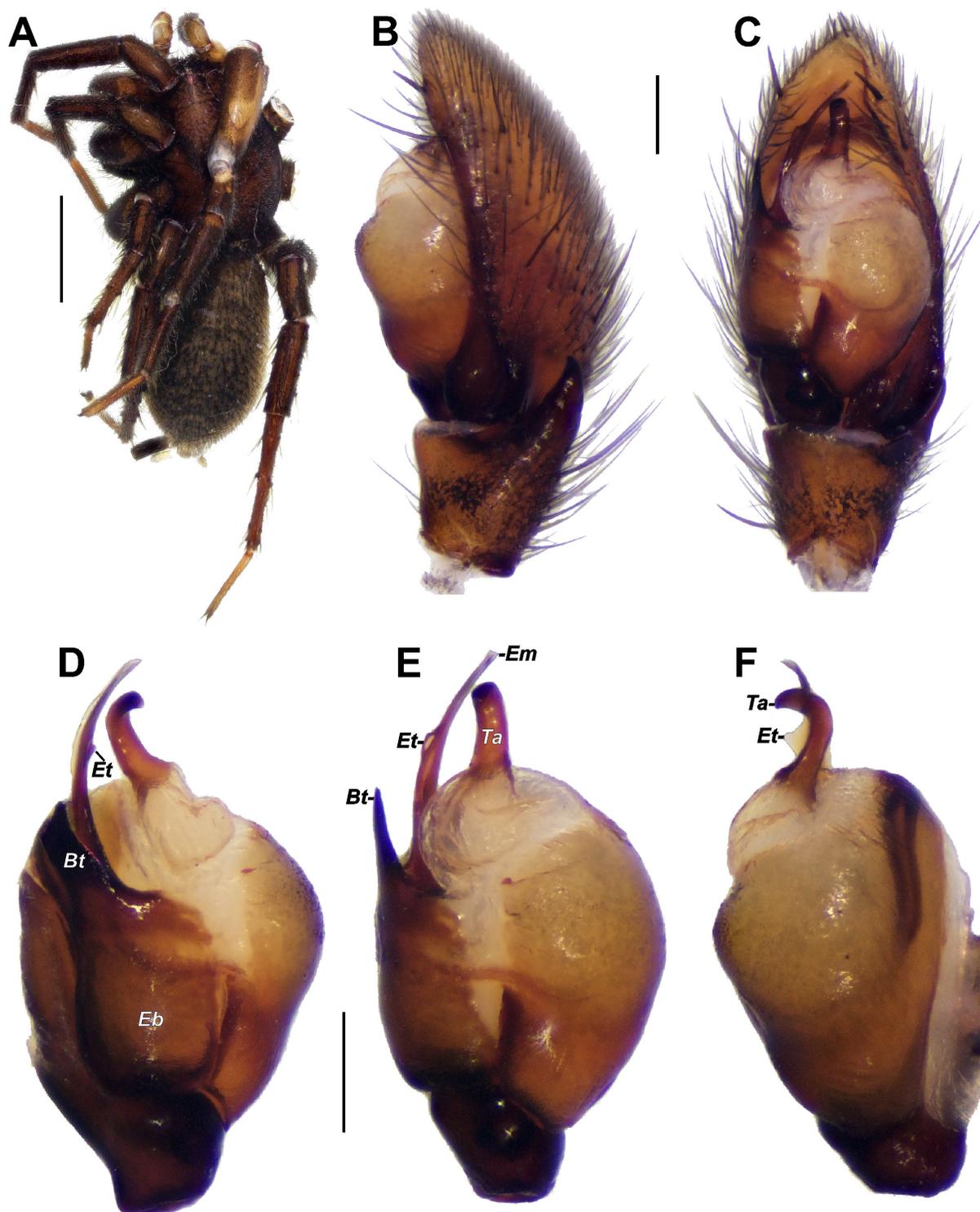


Fig. 2. General appearance (A), palp (B–C) and bulb (D–F) of male of *Gnaphosa borea*. A — dorsal; B, F — retrolateral; C, E — ventral; D — prolateral. Scale bars: A — 2 mm; B–F — 0.2 mm. Abbreviations: *Bt* — tooth of embolic base, *Eb* — embolic base, *Et* — embolic tooth, *Ta* — tegular apophysis.

Рис. 2. Внешний вид (A), палпы (B–C) и бульбус (D–F) самца *Gnaphosa borea*. A — дорсально; B, F — ретролатерально; C, E — вентрально; D — пролатерально. Масштаб: A — 2 мм; B–F — 0,2 мм. Сокращения: *Bt* — зубец основания эмболоса, *Eb* — основание эмболоса, *Et* — зубец эмболоса, *Ta* — тегулярный отросток.

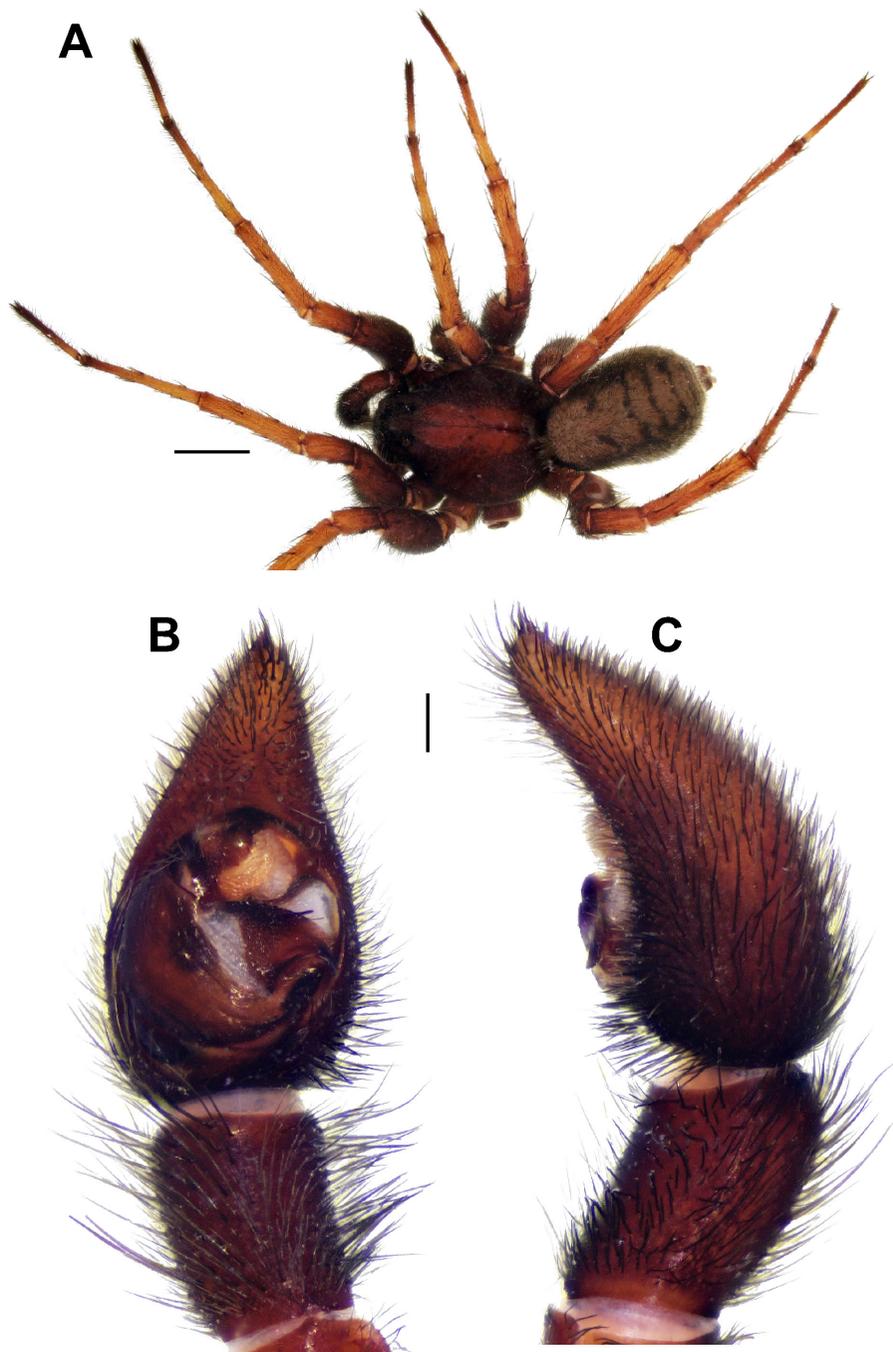


Fig. 3. General appearance (A) and palp (B–C) of male of *Alopecosa borea*. Scale bars: A — 2 mm; B–C — 0.2 mm.
Рис. 3. Внешний вид (A) и пальпа (B–C) самца *Alopecosa borea*. Масштаб: A — 2 мм; B–C — 0,2 мм.

Families, genera and species are listed in alphabetic order. After indication of examined specimens, we provide locality number in square brackets.

Species list

Araneidae (2)

Aculepeira carbonarioides (Keyserling, 1892)

Fig. 1.

MATERIAL: 1 ♀ [1].

COMMENTS. Its junior synonym, *Araneus hyperboreus* Kulczyński, 1908, was described from northeastern Yakutia. This species has a Siberio-Transnearctic distribution. It is the first record of *A. carbonarioides* from grid square 'n'. Throughout its range, it inhabits stony screes. We decided to illustrate this species because photographs of its epigyne are missing.

Araniella displicata (Hentz, 1847)

MATERIAL: 1 ♀ [2].

COMMENTS. This species has a Circumholarctic distribution. It was already reported from grid square 'n'. Its discovery

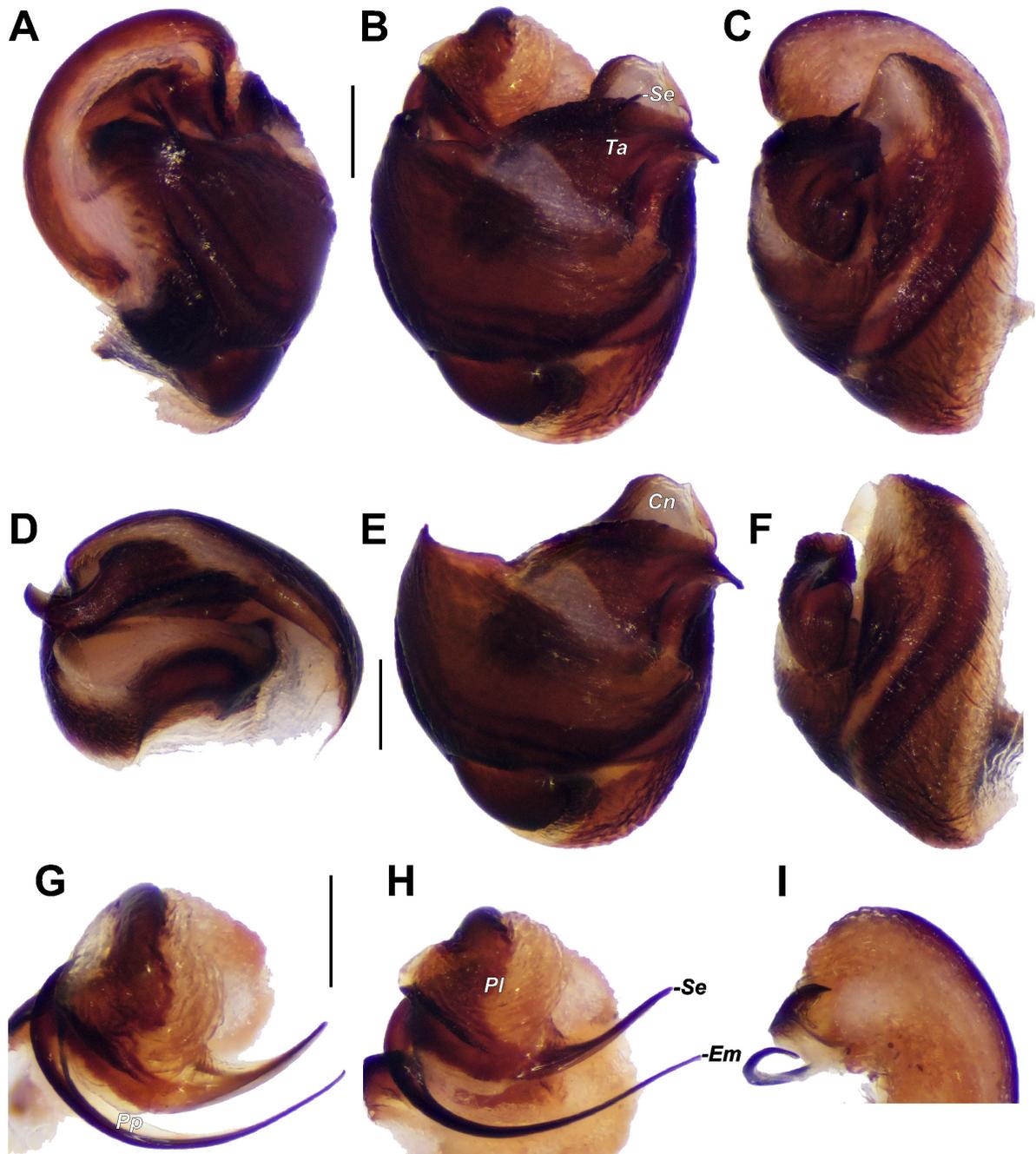


Fig. 4. Bulb (A–C), tegulum (D–F) and embolic division (G–I) of *Alopecosa borea*. A — prolateral; B, E, H — ventral; C, F, I — retrolateral; D, G — anterior. Scale bars: 0.2 mm. Abbreviations: Cn — conductor, Em — embolus, Pl — palea, Pp — pars pendula, Se — synembolus, Ta — tegular apophysis.

Рис. 4. Бульбус (А–С), тегулюм (D–F) и эмболюсный отдел (G–I) *Alopecosa borea*. А — пролатерально; В, Е, Н — вентрально; С, F, I — ретролатерально; D, G — спереди. Масштаб: 0,2 мм. Сокращения: Cn — кондуктор, Em — эмболюс, Pl — паляя, Pp — мембранная часть, Se — синэмболюс, Ta — тегулярный отросток.

on a naled indicates that even the adults are capable of ballooning.

Gnaphosidae (1)

Gnaphosa borea Kulczyński, 1908

Fig. 2.

MATERIAL: 1 ♂ [3].

COMMENTS. This species was originally described from northeastern Yakutia; however, this constitutes its first record from grid square 'n'. It has a Siberio-Transnearthctic distribution. Although the species is rather well-illustrated, all existing depictions are drawings. Here, we provide photographic images of its general appearance, male palp, and dissected bulb.

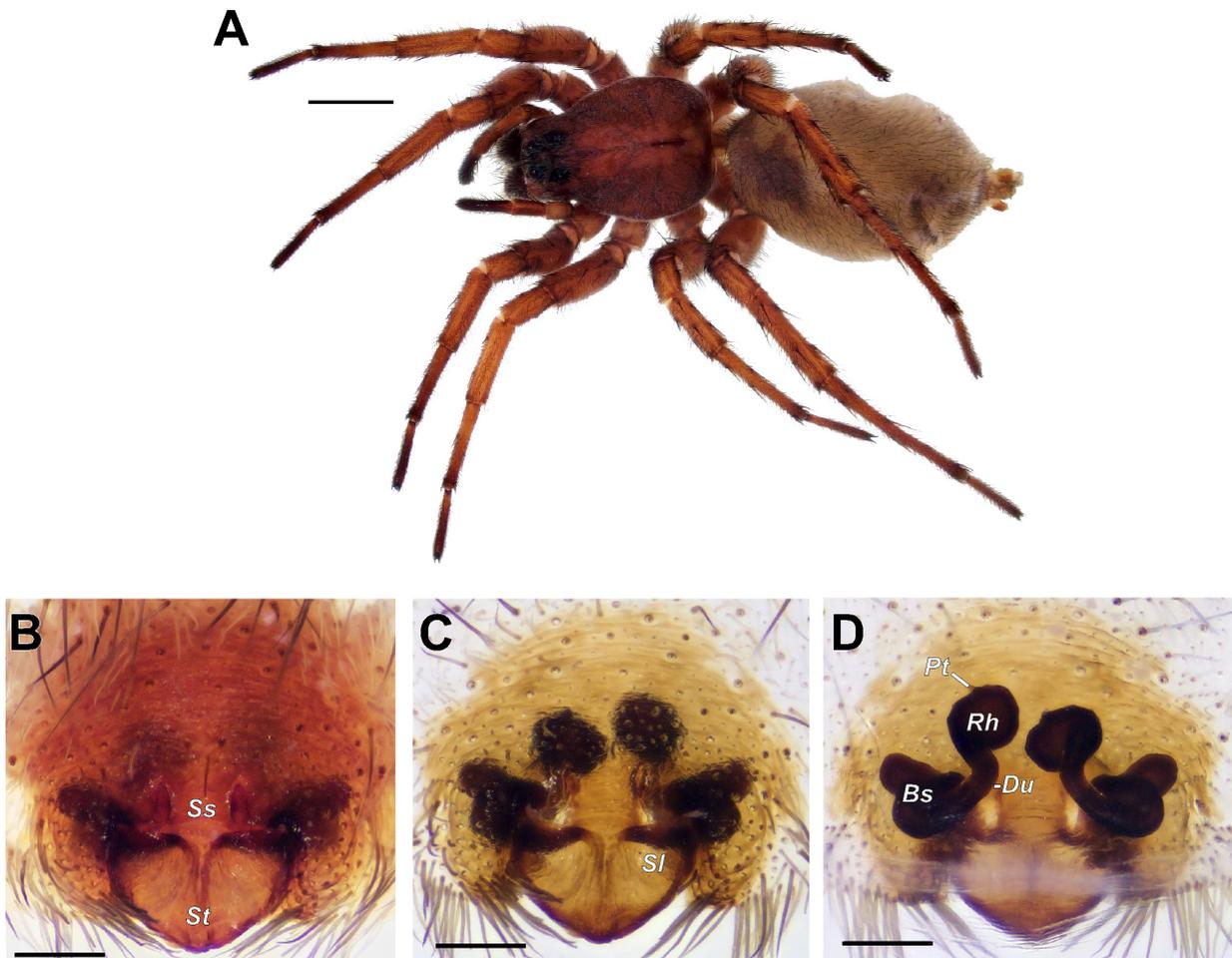


Fig. 5. General appearance (A) and epigyne (B–D) of *Alopecosa borea*. A — dorsal; B — intact, ventral; C — macerated, ventral; D — ditto, dorsal. Scale bars: A — 2 mm; B–D — 0.2 mm. Abbreviations: *Bs* — basal structure of receptacle, *Du* — duct connecting *Bs* and *Rh*, *Pt* — pore tube, *Rh* — receptacle head, *Sl* — septal lobe, *Ss* — septal stem, *St* — septum.

Рис. 5. Внешний вид (A) и эпигина (B–D) *Alopecosa borea*. A — дорсально; B — интактная, вентрально; C — мацерированная, вентрально; D — тоже, дорсально. Масштаб: A — 2 мм; B–D — 0,2 мм. Сокращения: *Bs* — базальная структура рецептулы, *Du* — проток, соединяющий *Bs* и *Rh*, *Pt* — трубчатая пора, *Rh* — головка рецептулы, *Sl* — лопасть септума, *Ss* — стебель септума, *St* — септум.

Ovtsharenko *et al.* [1992: 57] recognized the *G. borea* species group, comprising four species: *G. borea*, *G. chola* Ovtsharenko et Marusik, 1988, *G. microps* Holm, 1939, and *G. orites* Chamberlin, 1922, based on the embolus (*Em*) located in the anterior part of the bulb. They considered the most prolateral sclerite to be the conductor; however, a detailed study reveals that it is an outgrowth of the embolic base and appears homologous to the embolic base spur in *G. wiehlei* Schenkel, 1963, *G. similis* Kulczyński, 1926, *G. muscorum* (L. Koch, 1866) (see Marusik & Omelko [2014]), or the tooth in *G. moesta* Thorell, 1875, *G. potanini* Simon, 1895, etc. (see Ovtsharenko *et al.* [1992]). In addition to the tooth of the embolic base (*Bt*), it possesses an embolic tooth (*Et*), similar to that known in *G. moesta*, *G. chola*, and some other species.

Lycosidae (6)

Alopecosa borea (Kulczyński, 1908) stat.n.

Figs 3A–C, 4A–I, 5A–D, 9A–B.

Tarentula solivaga borea Kulczyński, 1908b: 73, pl. 3, f. 85 (♀).

Alopecosa solivaga borea: Roewer, 1955: 221.

MATERIAL: 3 ♂♂ 1 ♀ [3].

COMMENTS. This species was originally described as a subspecies of *A. solivaga* (Kulczyński, 1908) from northeastern Yakutia and, to date, is known only from the female and has two taxonomic entries. We report it here for the first time from grid square 'n'. Although *A. solivaga borea* has been recorded from numerous localities across Yakutia, the Magadan Area, and Chukotka, it has never been redescribed, and the male remains unillustrated. This taxon belongs to the distinct *pictilis* species group, which comprises at least seven species distributed across the Palaearctic east of the Urals and the Nearctic: *A. hokkaidensis* Tanaka, 1985; *A. kulczynskii* Sternbergs, 1979; *A. koponeni* Blagoev et Dondale, 2014; *A. moriutii* Tanaka, 1985; *A. pictilis* (Emerton, 1885); *A. sibirica* (Kulczyński, 1908); and *A. solivaga* (Kulczyński, 1901). Within this group, the epigynes lack a distinct fovea (atrium) and are covered by a septum. Males have nearly indistinguishable bulbal structures. The *pictilis* species group is in clear need of revision and appears to warrant recognition at the genus level. Although we are not aware of proper morphological differences between the former subspecies *A. solivaga solivaga* and *A. solivaga borea* (the former also lacks adequate illustrations), aside from a slight difference in size (carapace length 4.5 mm vs. 4.7–5.0 mm), they exhibit clear

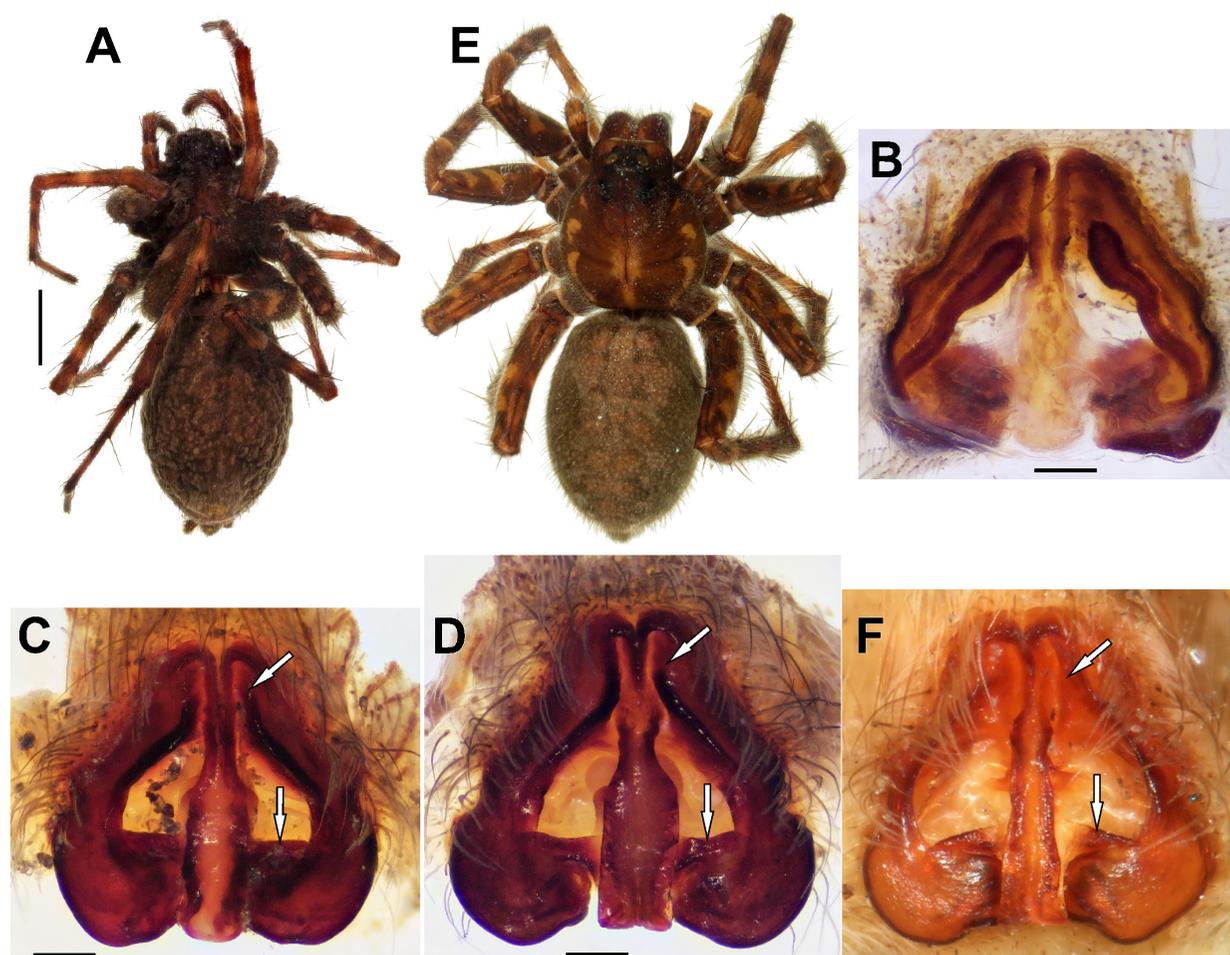


Fig. 6. General appearance (A, E) and epigyne (B–D, F) of females of *Pardosa groenlandica* from Yakutia (A–D) and from Greenland (E, F). A–B, E — dorsal; C–D, F — ventral. Scale bars: A — 2 mm; B–D — 0.2 mm. Arrows indicate differences between Yakutian and Greenlandic specimens.

Рис. 6. Внешний вид (A, E) и эпигина (B–D, F) самок *Pardosa groenlandica* из Якутии (A–D) и из Гренландии (E, F). A–B, E — дорсально; C–D, F — вентрально. Масштаб: A — 2 мм; B–D — 0,2 мм. Стрелки показывают различия между якутскими и гренландскими экземплярами.

divergence in COI sequences and appear in distinct branches of the phylogenetic tree (Fig. 9A). Therefore, we elevate *A. borea* to species rank. Below, we provide the first description of the male and a redescription of the female.

DESCRIPTION. Male. Total length 9.7. Carapace: 5.0 long, 3.9 wide. Eye sizes and interdistances: AME 0.21, ALE 0.13, PME 0.39, PLE 0.24, AME–AME 0.13, AME–ALE 0.07, PME–PME 0.36, PLE–PLE 0.89. Anterior eye row 0.86 wide, second row 0.99, third row 1.31. Coloration. Carapace dark brown, with light median band. Eye field almost black. Clypeus, chelicerae and labium dark brown. Endites, sternum and coxae brown. Palps dark brown. Legs: Fe of all legs brown, Pa–Ta light brown. Abdomen gray, with light herringbone pattern. Spinnerets dark brown. Leg measurements: I: 3.75, 1.8, 3.15, 3.45, 2.15 (14.3); II: 3.7, 1.75, 2.75, 3.1, 1.95 (13.25); III: 3.5, 1.6, 2.55, 3.35, 1.8 (12.8); IV: 4.35, 1.8, 3.55, 5.0, 2.35 (17.05). For leg spination see Table 1.

Palp as in Figs 3B–C, 4; tibia dark brown, 1.2 times longer than wide (ventral view), with dense brush of setae retrolaterally; cymbium almost 1.5 times longer than wide, dark colored, with dense and thick setae baso-retrolaterally, tip without claw or modified setae; bulb 1.36 times longer than wide; subtegulum located posteriorly in prolateral half; tegulum as wide as long

(if count retrolateral part), retrolateral part of tegulum extended over prolateral, and over tegular apophysis (*Ta*); sperm duct

Table 1. Leg spination of male of *Alopecosa borea*.
Таблица 1. Вооружение ног самца *Alopecosa borea*.

	Fe	Pa	Ti	Mt
Leg I	d1-1-1 p0-0-1 r1-1-1	p1 r1	d0-1-0 p0-1-1 r0-1-1 v2-2-2	p1-1-0 r1-1-0 v2-2-0
Leg II	d1-1-1 p0-1-1 r1-1-1	p1 r1	d0-1-0 p1-0-1 r1-0-1 v2-2-2	p1-1-0 r1-1-0 v2-2-0
Leg III	d1-1-1 p0-1-0 r1-1-1	p1 r1	d1-1-0 p1-0-1 r1-0-1 v2-2-2	p1-1-0 r1-1-0 v2-0-2
Leg IV	d1-1-1 p1-0-1 r0-0-1	p1 r1	d1-0-1 p1-0-1 r1-0-1 v2-2-2	p1-1-0 r1-1-0 v2-2-2

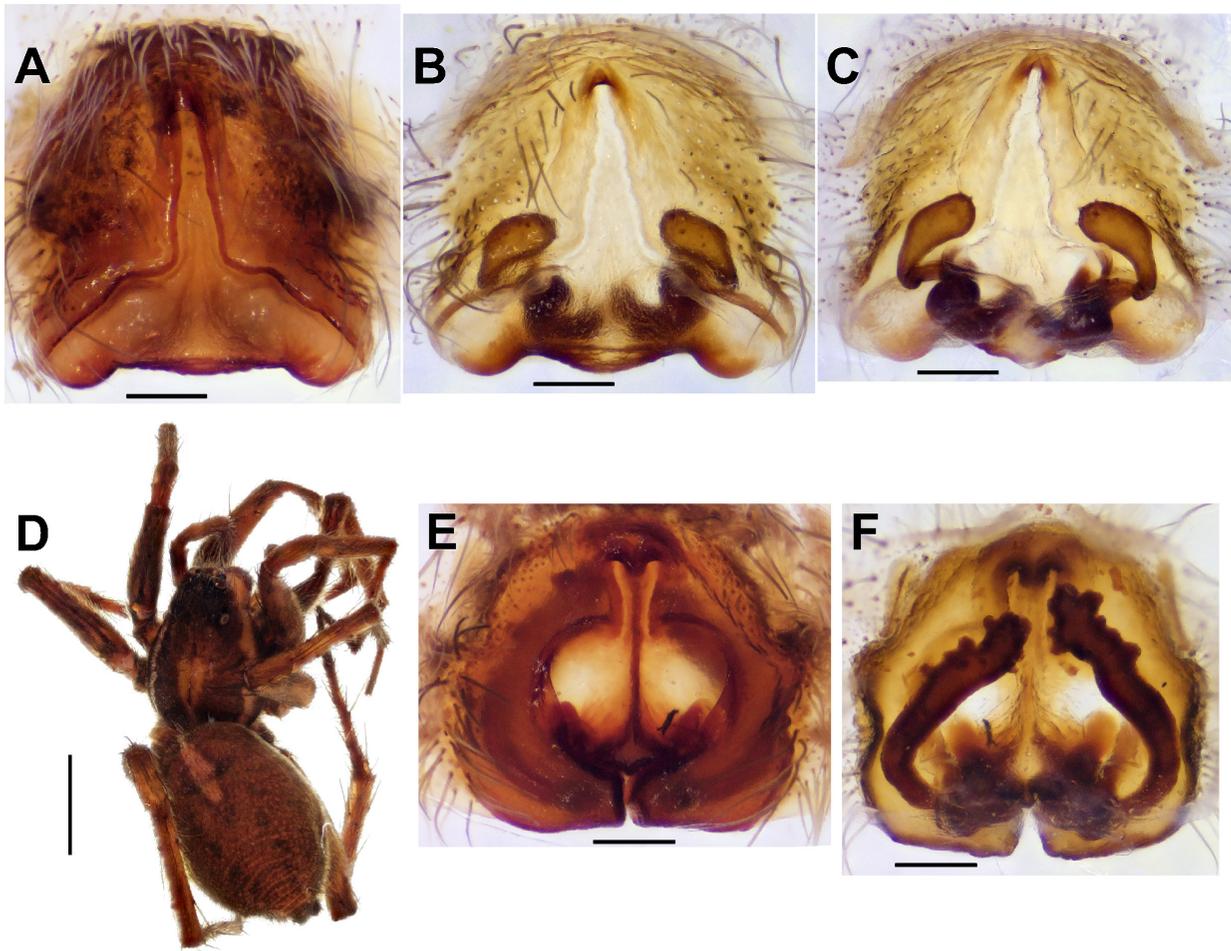


Fig. 7. Epigyne (A–C, E–F) and general appearance (D) of *Pardosa lyrata* (A–C) and *P. sodalis* (D–F). A, E — intact, ventral; B — macerated, ventral; C, F — ditto, dorsal; D — dorsal. Scale bars: A–C, E–F — 0.2 mm; D — 2 mm.

Рис. 7. Эпигина (А–С, Е–F) и внешний вид (D) *Pardosa lyrata* (А–С) и *P. sodalis* (D–F). А, Е — интактная, вентрально; В — мацерированная, вентрально; С, F — тоже, дорсально; D — дорсально. Масштаб: А–С, Е–F — 0,2 мм; D — 2 мм.

roundly bent along posterior margin of tegulum; conductor (*Cn*) wider than long — located on extended part of tegulum; tegular apophysis almost 2 times longer than wide, with roundly bent anterior margin and pointed tip; palea (*Pl*) as long as wide, with long (as long as palea wide) and straight synembolus (*Se*), synembolus with pointed tip; embolus (*Em*) long, roundly bent, with pars pendula (*Pp*) in basal half.

Female. Total length 11.5. Carapace: 4.7 long, 3.5 wide. Eye sizes and interdistances: AME 0.17, ALE 0.14, PME 0.37, PLE 0.31, AME–AME 0.11, AME–ALE 0.09, PME–PME 0.33, PLE–PLE 0.93. Width of anterior eye row 0.84, second row 0.99, third row 1.33. Coloration. Carapace brown, with light median band. Eye field almost black. Clypeus brown. Chelicerae, labium and endites dark brown. Sternum brown. Coxae light brown. Palps: Fe–Ti light brown, Ta dark brown. Legs light brown. Abdomen cream-colored (damaged). Spinnerets brown. Leg measurements: I: 3.1, 1.55, 2.35, 2.25, 1.65 (10.9); II: 2.85, 1.5, 2.15, 2.2, 1.55 (10.25); III: 2.8, 1.4, 2.05, 2.5, 1.55 (10.3); IV: 3.75, 1.65, 2.95, 4.05, 2.05 (14.45). For leg spination see Table 2.

Epigyne as in Fig. 5B–D; plate about as long as wide, almost round; fovea indistinct, occupied with broad septum (*St*), septum with broad stem (*Ss*) as wide as long, base of septum almost triangular, with rounded lateral margins; subdivided by

median furrow into 2 lobes (*Sl*); receptacles complex, with basal oval structures (*Bs*), subglobular heads closely spaced (*Rh*), each head with pore tubes (*Pt*), duct (*Du*) connecting basal part and heads about 6 times longer than wide.

Table 2. Leg spination of female of *Alopecosa borea*.
Таблица 2. Вооружение ног самки *Alopecosa borea*.

	Fe	Pa	Ti	Mt
Leg I	d1-1-1 p0-0-1 r0-1-1	–	p0-1-0 v2-2-2	p0-1-0 v2-2-0
Leg II	d1-1-1 p0-1-1 r1-1-1	p1	p1-0-1 v2-2-2	p0-1-0 v1-2-0
Leg III	d1-1-1 p0-1-1 r0-1-1	p1 r1	d1-1-0 p1-0-1 r1-0-1 v2-2-2	p1-1-0 r0-1-0 v2-2-0
Leg IV	d1-1-1 p1-0-1 r0-0-1	p1 r1	d1-0-1 p1-0-1 r1-0-1 v2-2-2	p1-1-0 r1-1-0 v2-0-2

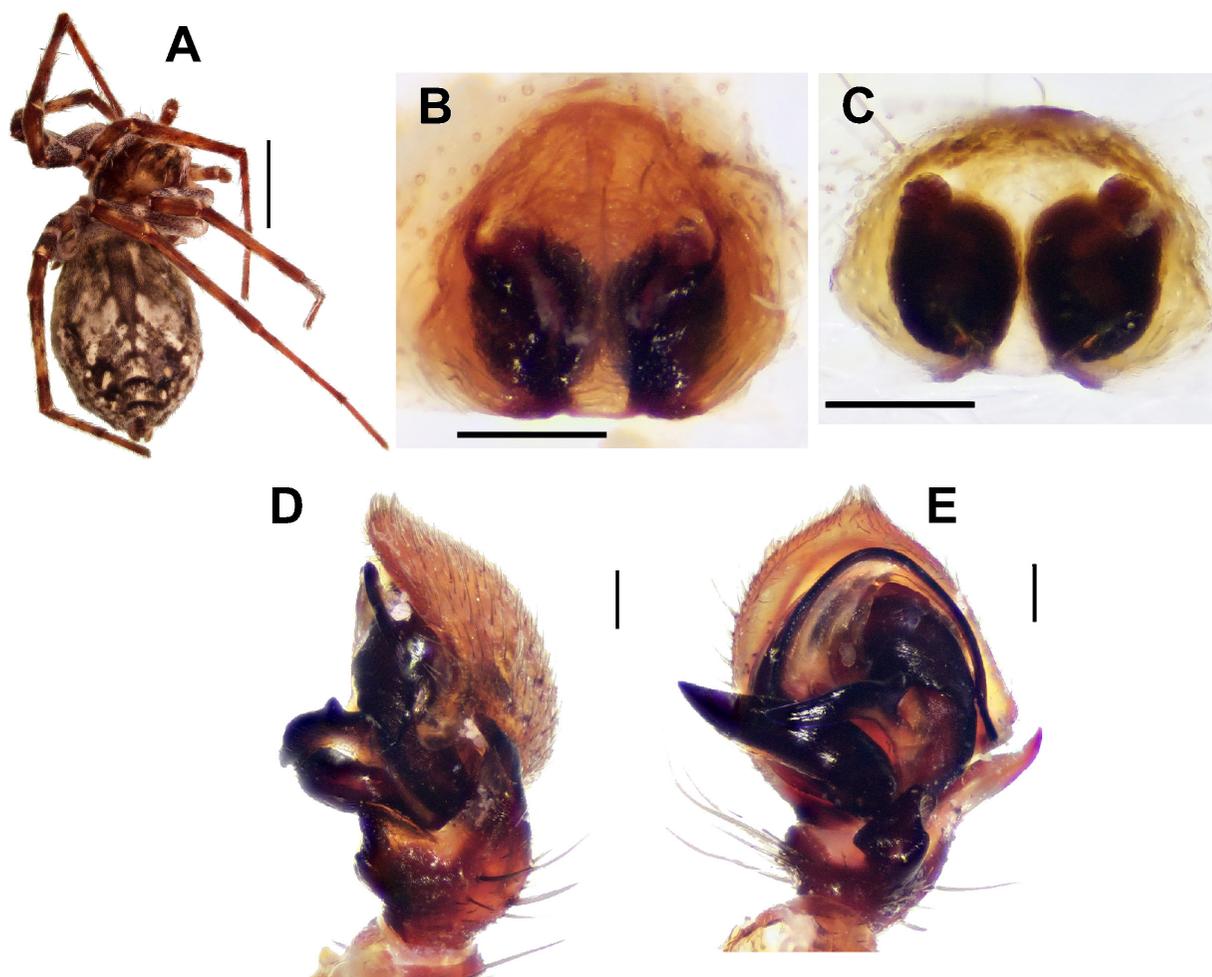


Fig. 8. General appearance of female (A), epigyne (B–C) and male palp (D–E) of *Rhyssodromus alascensis* (A–C) and male of *Xysticus emertoni* (D–E). A — dorsal; B — intact, ventral; C — macerated, dorsal; D — retrolateral; E — ventral. Scale bars: A — 2 mm; B–E — 0.2 mm.

Рис. 8. Внешний вид самки (A), эпигина (B–C) и пальпа самца (D–E) *Rhyssodromus alascensis* (A–C) и самца *Xysticus emertoni* (D–E). A — дорсально; B — интактная, вентрально; C — мацерированная, дорсально; D — ретролатерально; E — вентрально. Масштаб: A — 2 мм; B–E — 0,2 мм.

Pardosa algens (Kulczyński, 1908)

MATERIAL: 1 ♀ [1], 2 ♀♀ [3].

COMMENTS. This species was described from northeastern Yakutia. It has a Siberio-Transarctic distribution and has been reported previously from grid square 'n'. It is typically restricted to tundra or mountainous habitats; only in northeastern Siberia (Yakutia and the upper reaches of the Kolyma River) is it known from foothill valleys. In the upper reaches of the Kolyma River, this species is often found on naleds, where it searches for insects that have fallen onto the ice. Females have been observed carrying egg sacs.

Pardosa cf. groenlandica (Thorell, 1872)

Fig. 6.

MATERIAL: 2 ♀♀ [2], 1 ♀ [3].

COMMENTS. Dondale [1999] considered the population from northeastern Siberia to belong to *P. prosaica* Chamberlin et Ivie, 1947. Slowik & Sikes [2013] synonymized these two names; however, they examined only two specimens from Greenland (the lectotype male and a paralectotype female). All other specimens included in their study were from Canada and the USA. Female specimens from northeastern Siberia dif-

fer distinctly from those from Greenland in having a 'closed' anterior part of the fovea versus an open one (cf. Figs 6C–D and 6F). Besides the epigyne, Siberian specimens differ from the Greenlandic ones by the lack of pattern on the carapace (cf. Figs 6A and 6E). In Siberia, this species is known east of the Verkhoyansk Mountain Range to the Chukotka Peninsula. It was reported from grid square 'n' at three localities (as *P. groenlandica*). In northeastern Yakutia, it reaches almost 71°N, which constitutes the northernmost known locality for *P. groenlandica* sensu lato. The species inhabits pebble riverbanks. In the Magadan Area, this species has never been found on naleds.

Pardosa lyrata (Odenwall, 1901)

Fig. 7A–C.

MATERIAL: 1 ♀ [3].

COMMENTS. This species has a Siberian distribution, ranging from the Yenisei River to Chukotka [Kronstedt *et al.*, 2014], but has not been previously reported from northeastern Yakutia (east of the Verkhoyansk Mt. Range). Our specimens constitute the northernmost record of this species; to confirm their identity, we provide a photograph of the epigyne. *Pardosa lyrata* inhabits various habitats, including pebble riverbanks

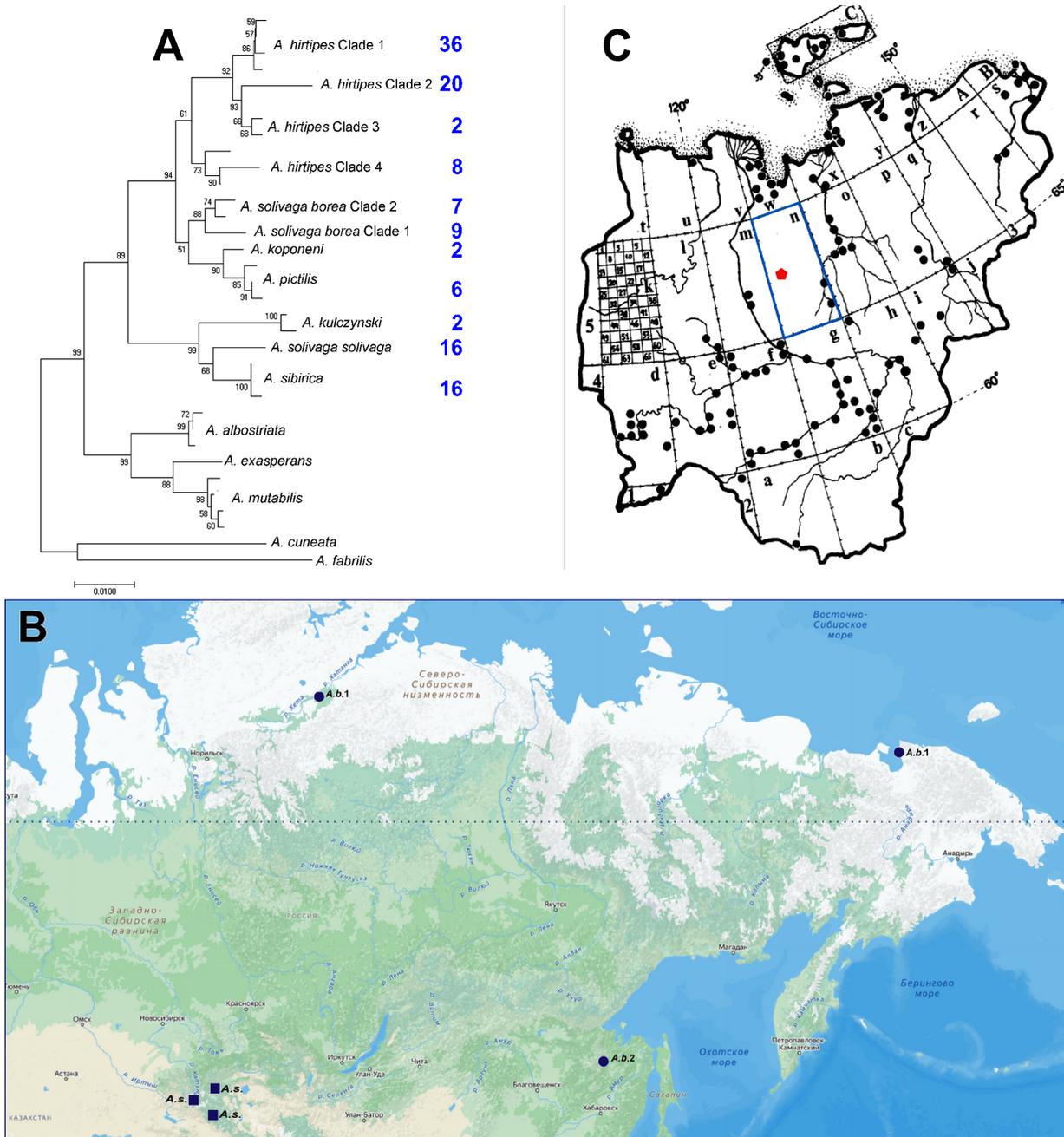


Fig. 9. Maximum likelihood COI tree of the *Alopecosa pictilis* species group from Eurasia based on COI sequences (A, numbers indicate number of specimens involved), localities from which specimens of *Alopecosa solivaga* (A.s.) and *A. borea* (A.b.1 and A.b.2) were analyzed for COI (B) and map of Yakutia (C) showing a grid map; dots indicate cells with at least one recorded species, and the pentagon marks the region studied in this work.

Рис. 9. Дерево максимального правдоподобия для группы видов *Alopecosa pictilis* из Евразии на основе последовательностей COI (A), места сбора *Alopecosa solivaga* (A.s.) и *A. borea* (A.b.1, A.b.2), проанализированных на COI (B) и карта Якутии (C) с сеткой; точки соответствуют квадратам с находками видов, пятиугольник — район исследований.

***Pardosa sodalis* Holm, 1970**

Fig. 7D–F.

MATERIAL: 1 ♀ [1], 1 ♀ [3].

COMMENTS. This species, which has a Siberio-West Nearctic distribution and inhabits boggy areas, has also been recorded from grid square ‘n’. We provide a photograph of the epigyne because it has not been properly illustrated before.

***Pardosa tesquorum* (Odenwall, 1901)**

MATERIAL: 2 ♂♂ 2 ♀♀ [3].

COMMENTS. This species has a Siberio-West Nearctic distribution. It inhabits pebble banks along rivers and creeks, as well as adjacent habitats. It has been recorded previously in grid square ‘n’.

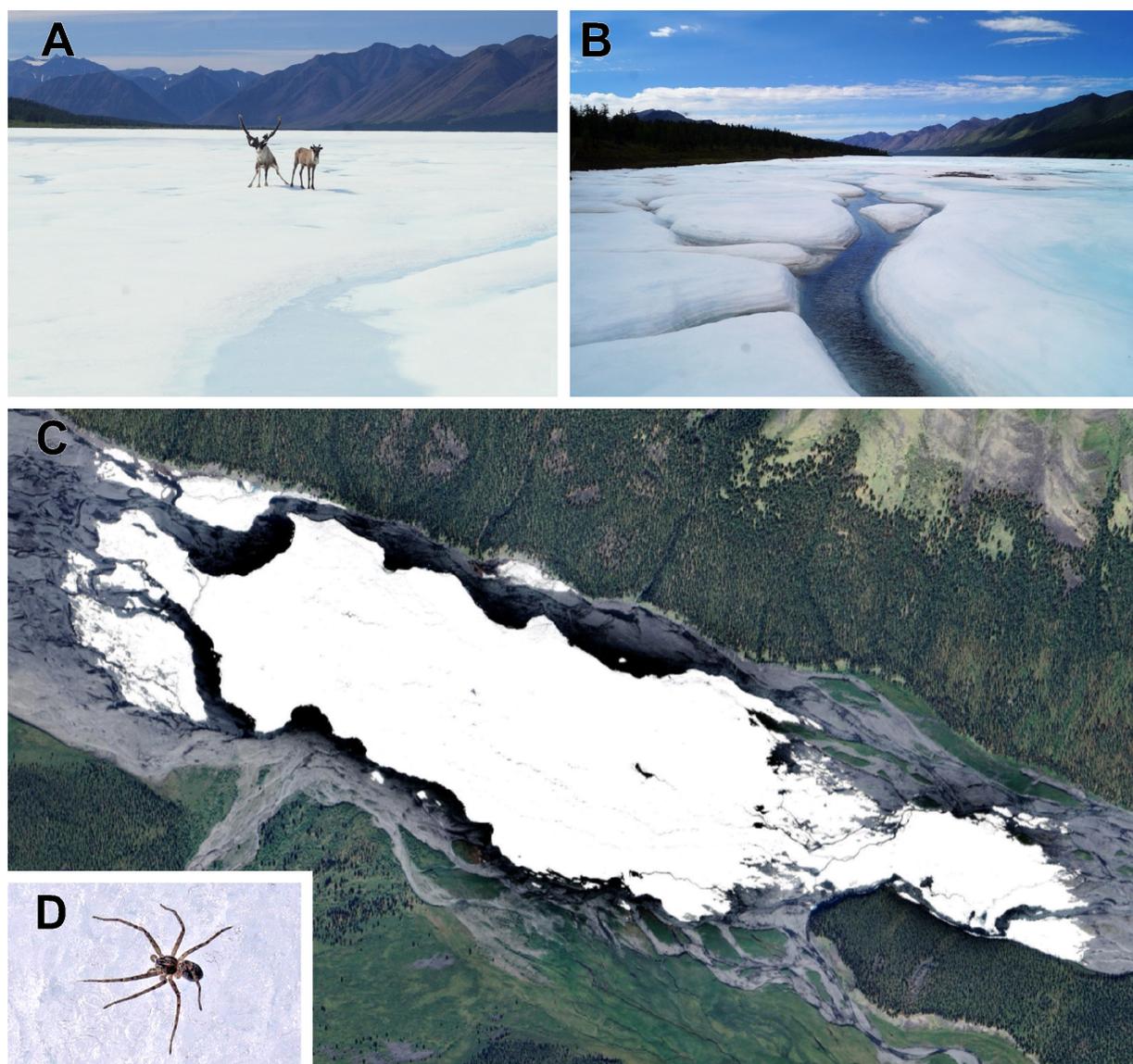


Fig. 10. Naled (river icing) (A–B), satellite image of naled (C) and live female of *Rhysodromus alascensis* on ice (D).
 Рис. 10. Наледь (A–B), спутниковый снимок наледи (C) и живая самка *Rhysodromus alascensis* на льду (D).

Philodromidae (1)

Rhysodromus alascensis (Keyserling, 1884)

Figs 8A–C, 10D.

MATERIAL: 3 ♀♀ [1], 6 ♀♀ [2], 2 ♀♀ [3].

COMMENTS. Its junior synonym, *Philodromus varians* Kulczyński, 1908, was described from northeastern Yakutia. This species has a Siberio-Transarctic distribution and has been reported previously from grid square ‘n’. Most specimens — six adult females — were collected on a naled (Fig. 10D). This suggests that they are likely capable of ballooning.

Thomisidae (1)

Xysticus emertoni Keyserling, 1880

Fig. 8D–E.

MATERIAL: 1 ♂ [1], 1 ♂ [3].

COMMENTS. This species has a Siberio-Transarctic distribution and is the largest of its genus in Siberia. It has been reported previously from grid square ‘n’. We provide photographs of the male palp because they are missing in the literature.

Compliance with ethical standards

CONFLICT OF INTEREST: The authors declare that they have no conflict of interest.

Ethical approval: No ethical issues were raised during our research.

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