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Pamirosa gen. nov., unexpected record of Artoriinae (Araneae, Lycosidae) from the rooftop of Pamir, Central Asia

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Abstract

A new monotypic genus, *Pamirosa* **gen. nov.** with the type species *P. kudratbekovi* **sp. nov.** (♂♀), is described from Pamir Mountains in eastern Tajikistan. The new genus represents the first record of the mainly Australasian subfamily Artoriinae Framenau, 2007 in Central Asia. It differs from all known genera of Artoriinae, as well as from all other lycosids, by having a unique spiraled embolus and epigyne with screw-shaped membranous copulatory ducts unknown in other wolf spiders. The new species was collected among stone screes at an elevation of 4700 meters. Unlike all other Palaearctic lycosids inhabiting stony screes and possessing four or more pairs of ventral tibial spines on leg I, *Pamirosa* **gen. nov.** has only three pairs. Description, figures, diagnosis of the new species, and a photograph of its habitat are provided. Additionally, the distribution of scree-dwelling Lycosidae in Asia is discussed.

Key Words

Aranei, biodiversity, new genus, new species, Palaearctic, Pardosinae, spiny-legs Lycosidae

Introduction

Lycosidae Sundevall, 1833, commonly known as wolf spiders, is one of the largest spider families, currently encompassing 2476 extant species in 132 genera (WSC 2024). The family has worldwide distribution, ranging from Peary Land (82°30'N, Marusik et al. 2006) to Navarino Island (55°S: Tullgren 1901: 254). The altitudinal distribution of Lycosidae is also wide, from the shores of Dead Sea (–400 m, Armiach Steinpress et al. 2021) to the Himalayan glaciers (6100 m, Buchar 1976). Wolf spiders are common in all zoogeographical realms (WSC 2024). Spiders of this family are well represented in the Palaearctic: one third of all known lycosid genera (45), are known to occur in this region (WSC 2024). To date, 89 species of Lycosidae have been reported from the Mountains of Middle (=Central) Asia (Mikhailov 2021), with nearly a third of them being endemic. Notably, a single genus, *Dzhungarocosa* Fomichev & Marusik, 2017 (Fomichev and Marusik 2017), is known to be endemic to the mountains of Central Asia. Other genera, such as *Oculicosa* Zyuzin, 1993 and *Zyuzicosa* Logunov, 2010, restricted to Central Asia, dwell in low mountains or in plains (Logunov 2010; Fomichev 2020). Despite the substantial biodiversity, the spider fauna of Tajikistan is unevenly studied, with most papers focusing solely on the low southwestern part of this country (Zhang and Marusik 2016; Fomichev and Marusik 2021; Fomichev et al. 2023). The challenging-to-access Pamir Mountains have been largely neglected in these studies. According to Andreeva (1976), only ten species of Lycosidae have been reported or described from the Pamir Mountains. Recently, the first author had the opportunity to participate in an expedition to the Pamir Mountains, where he collected rich material on wolf spiders. A detailed study of this material revealed several undescribed taxa one of which belongs to an undescribed genus of Australasian subfamily Artoriinae Framenau, 2007. The goal of the present paper is to diagnose and to describe this new genus and to report Artoriinae in Central Asia for the first time.

Material and methods

Specimens were photographed by an Olympus DP74 camera attached to an Olympus SZX16 stereomicroscope at the Altai State University (Barnaul, Russia). Photographs were taken in dishes with white cotton at the bottom, filled with ethanol. Digital multifocus images were stacked by using "Zerene Stacker". SEM micrographs were produced using a Hitachi TM-1000 scanning microscope at the Institute of Systematics and Ecology of Animals SB RAS (Novosibirsk, Russia). The epigyne was cleared in KOH/water solution during the day and stained with methylene blue. The endogyne was photographed on a slide, submerged in glycerol, using Olympus XC50 camera attached to an Olympus BH-51 stereomicroscope (Altai State University, Barnaul, Russia). All measurements are in millimeters (mm). Lengths of leg segments were measured on the dorsal side. Data about spination of legs are based on examination of one side of the body. Apical spines on metatarsi were not counted. We followed the terminology of the parts of the copulatory organs and format of description as in Fomichev (2021) and Wang et al. (2021), with modifications and additions. The studied material is deposited in the Institute of Systematics and Ecology of Animals SB RAS (ISEA; curator G.N. Azarkina).

Abbreviations: **ALE** – anterior lateral eye, **AM** – accompanying membrane, **AME** – anterior median eye, **BA** – basoembolic apophysis, **CD** – copulatory duct, **Cn** – conductor, **CO** – copulatory opening, **d** – dorsal, **DE** – distal part of the embolus, **DP** – dorsal process of embolic division, **EP** – epigynal plate, **FD** – fertilization duct, **Fe** – femur, **Fo** – fovea, **Mt** – metatarsus, **p** – prolateral, **Pa** – patella, **PE** – proximal part of embolus, **PLE** – posterior lateral eye, **PME** – posterior median eye, **PO** – prolateral outgrowth, **PP** – prolateral process, **PS** – plumose seta, **r** – retrolateral, **Re** – receptacles, **RG** – rod-shaped gland, **RH** – head of receptacle, **RP** – retrolateral process, **RR** – retrolateral ridge, **SD** – sperm duct, **SS** – stick-like setae, **St** – subtegulum, **TA** – tegular apophysis, **TD** – threadlike denticles, **Te** – tegulum, **Ti** – tibia, **Tr** – terminal apophysis, **Ts** – tarsus, **TS** – stalk of tegular apophysis, **v** – ventral.

Result

Family Lycosidae Sundevall, 1833
Subfamily Artoriinae Framenau, 2007

Pamirosa gen. nov.

https://zoobank.org/5D29F6B9-9434-4663-B88E-6098477C12E1

Type species. *Pamirosa kudratbekovi* sp. nov.

Etymology. The generic name is derived from the type locality of the type species, Pamir Mountains, and end with –osa, typical ending for Lycosidae genera. The gender is feminine.

Diagnosis. The new genus differs from all known genera of Artoriinae by the helicoid tip of embolus in male (vs. straight or smoothly curved) and by screw-shaped membranous copulatory ducts in female. The presence of membranous copulatory ducts is a unique character for *Pamirosa* gen. nov. which is unknown in all other genera of Lycosidae.

Relationships. The new genus belongs to Artoriinae to judge from the following features: 1) small subtegulum located at retrolateral half of the bulb, 2) very complex tegular apophysis, 3) transversal course of the sperm duct, 4) absence of palea, 5) presence of tegular outgrowth prolaterally from the tegular apophysis, 6) presence of basoembolic apophysis, 7) lacking cymbial claws (modified macrosetae), 8) posteriorly opened epigynal fovea lacking any septum.

Description. See species description.

Composition. Only the type species.

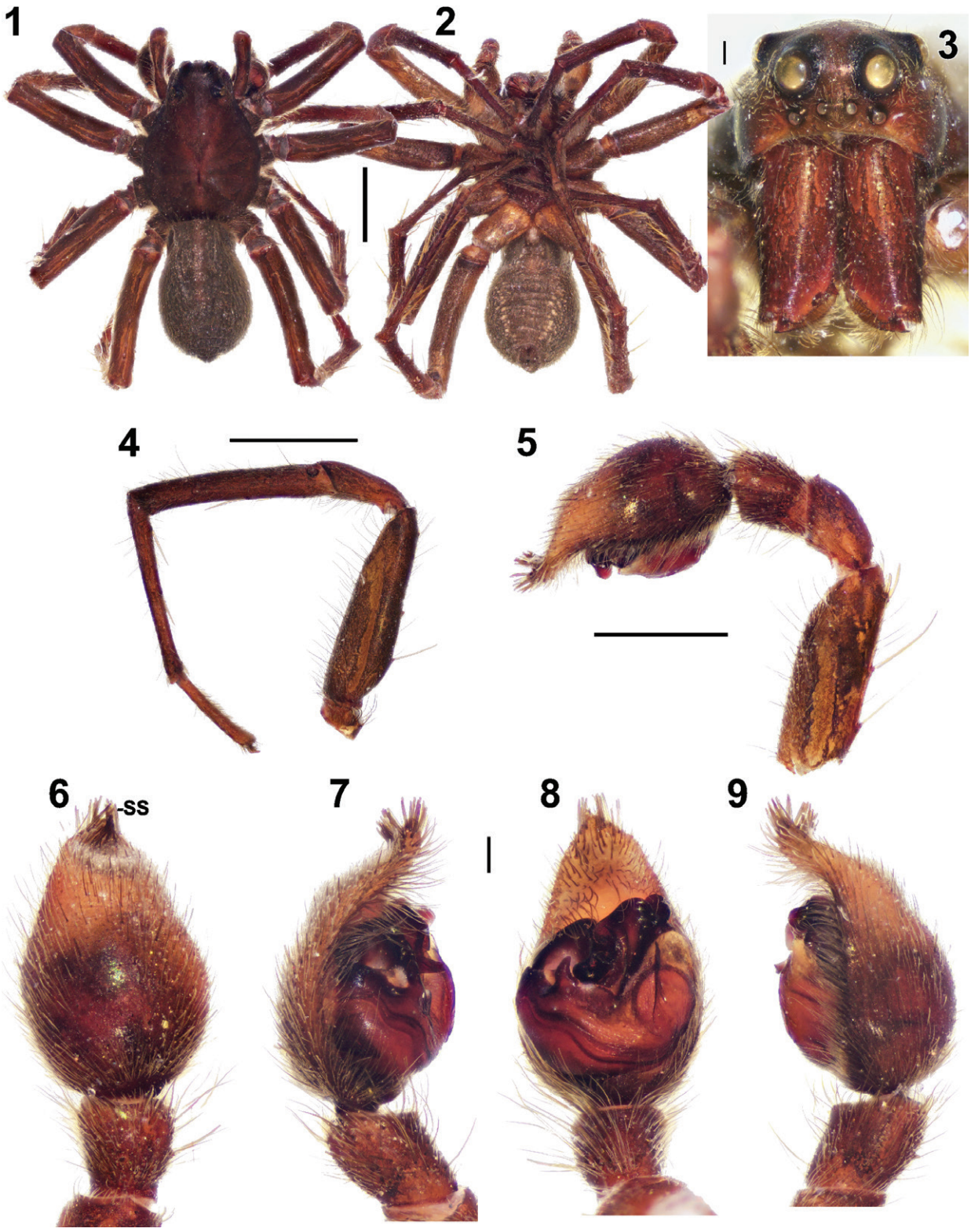
Comments. Artoriinae are known to occur in the Indo-Malayan, Australasian, Pacific and Neotropical regions (Framenau 2007; Piacentini and Grismado 2009). The majority of taxa of Artoriinae are located in Australia and New Zealand (Framenau 2007). Among these are the following genera: *Anoteropsis* L. Koch, 1878; *Artoria* Thorell, 1877; *Artoriopsis* Framenau, 2007; *Diahogna* Roewer, 1960; *Kangarosa* Framenau, 2010; *Kochosa* Framenau et al., 2023; *Notocosa* Vink, 2002 and *Tetralycosa* Roewer, 1960 (WSC 2024). *Navira* and *Lobizon* are restricted to the south of the Neotropical Realm (Piacentini and Grismado 2009). One genus of Artoriinae, *Syroloma* Simon, 1900, is known to be endemic to the Hawaiian Islands (WSC 2024). Species from the poorly known genus *Lycosella* Thorell, 1890 were described by Simon (WSC 2024) and Thorell (WSC 2024) from Hawaiian Islands and from Sumatra Island. There are no published images and redescriptions of *Lycosella* species. Two species of *Artoria* described from southern Africa (Roewer 1960) are most likely misplaced. Several species from this genus are known from the Malay Archipelago, Malay Peninsula and southeast China (Framenau 2005; Wang et al. 2019; 2021). Finally, the genus *Sinartoria* Wang, Framenau & Zhang, 2021, comprising two species, was recently described from the Daming Mountain in the tropical part of China (Wang et al. 2021). Thus, *Pamirosa* gen. nov. extends the known range of Artoriinae about 6° to the North and 28° to the West and is the first record of the subfamily in Central Asia (Fig. 51). More reports of Artoriinae in Tibet, the Himalaya and the Karakoram can be expected.

Pamirosa kudratbekovi sp. nov.

https://zoobank.org/4C8B361F-07FA-4719-994F-680251B7DF42

Figs 1–38, 49–54

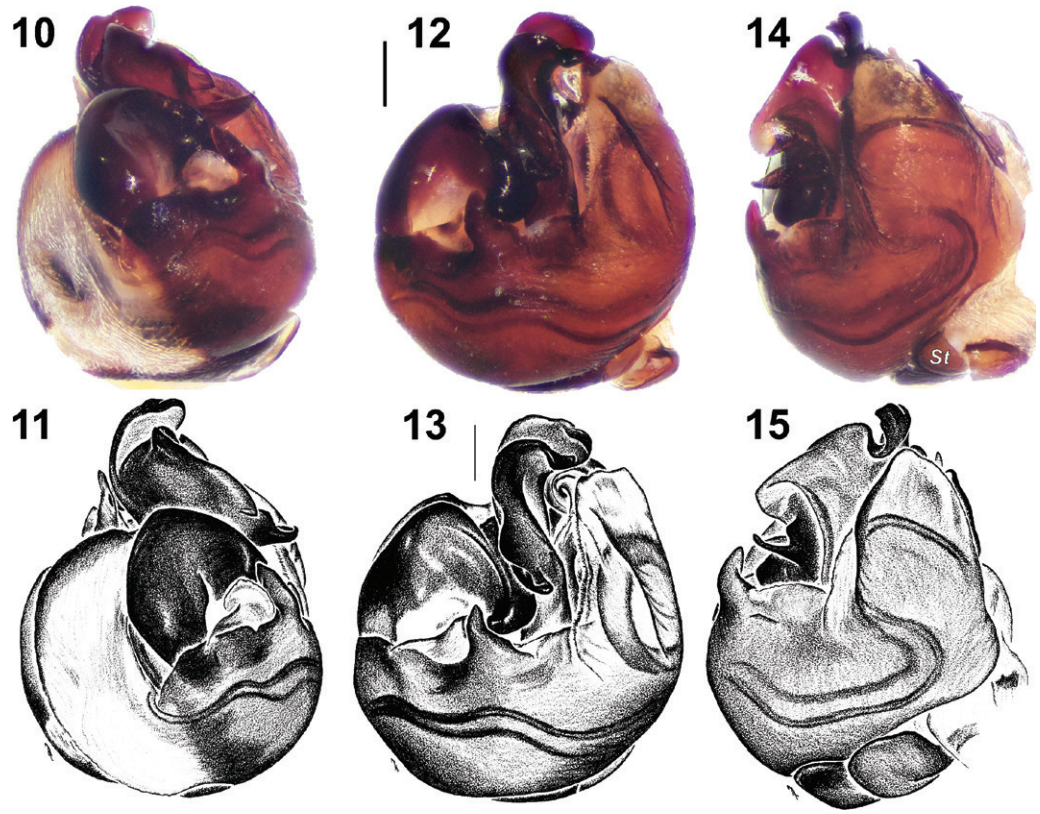
Types. ***Holotype*** ♂ (ISEA, 001.9080) and ***paratype*** 1♀ (ISEA, 001.9081) Tajikistan, Gorno-Badakhshan Region, Muzkol Mt Range, near Ak-Baital Mt Pass (38°32.871'N, 73°33.736'E), scree, 4700 m, 19 Jul. 2023, leg. A. A. Fomichev & Y. V. Dyachkov.



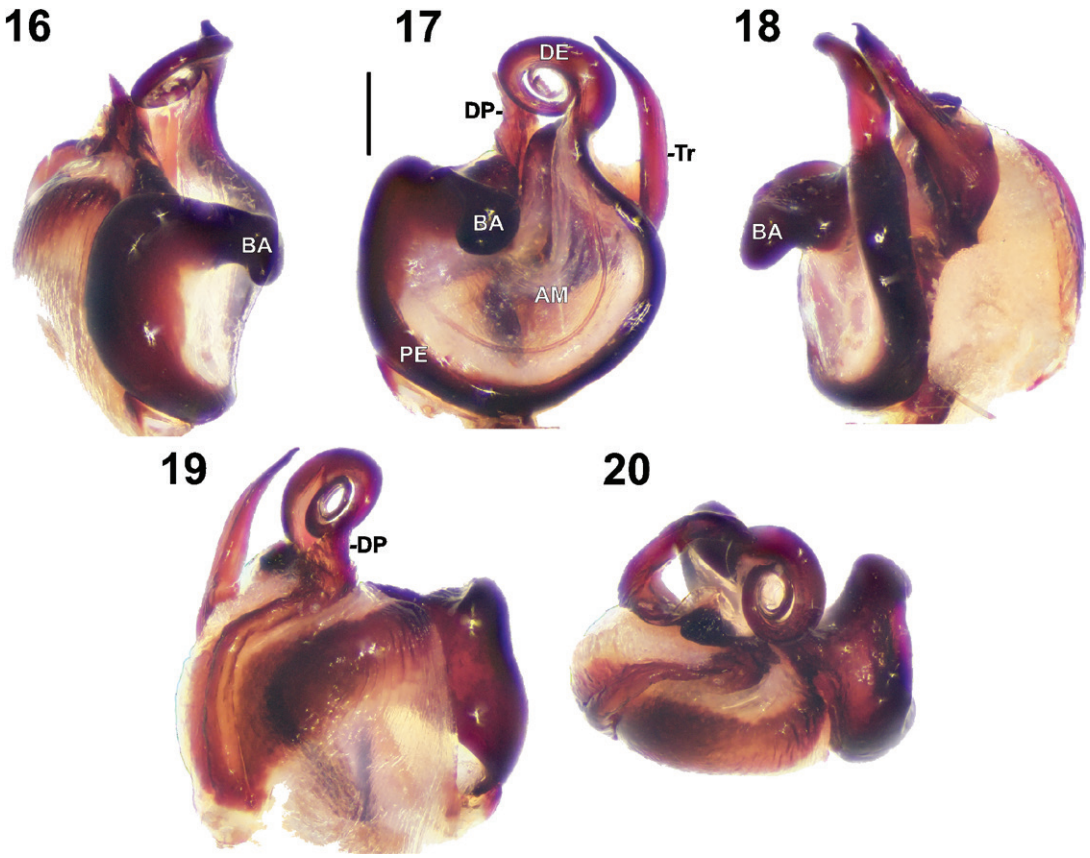
Figures 1–9. Male of *Pamirosa kudratbekovi* sp. nov. **1, 2.** Habitus; **3.** Cephalic part; **4.** Leg I; **5.** Whole palp; **6–9.** Distal part of the palp. **1, 6**. Dorsal; **2, 8**. Ventral; **3**. Anterior; **4–5, 9**. Retrolateral; **7.** Prolateral. Abbreviation: SS – stick-like seta. Scale bars: 2 mm (**1, 2**); 0.2 mm (**3–9**).

Diagnosis. See generic diagnosis.

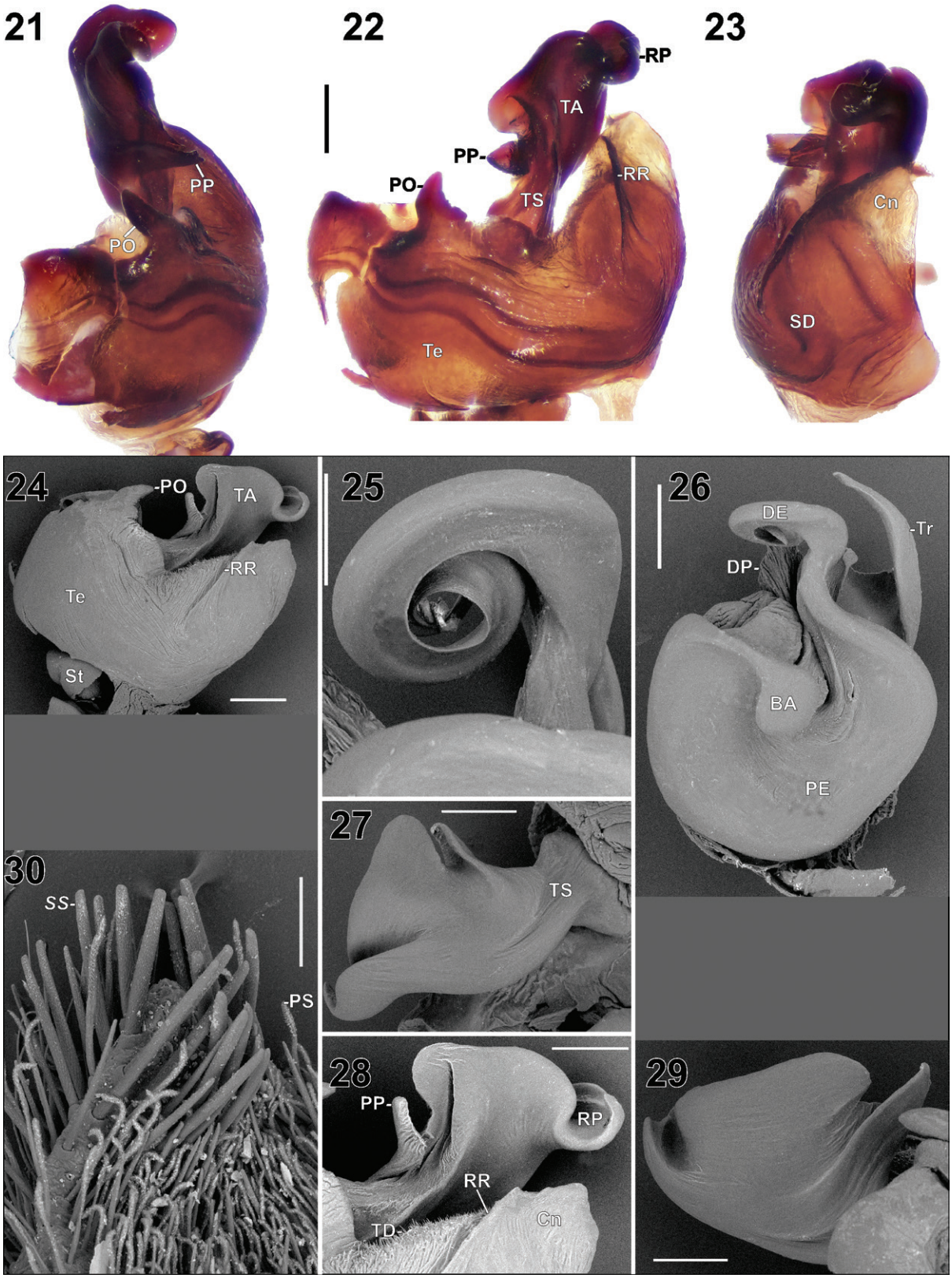
Description. Male. Total length 8.2. Carapace: 4.35 long, 3.25 wide. Abdomen: 3.95 long, 2.6 wide. General appearance as in Figs 1, 2. Coloration. Carapace dark brown with brown, barely visible median band; lateral bands indistinct. Eye field almost black. Clypeus, chelicerae and labium dark brown. Endites and coxae yellow-brown. Sternum brown, darker at margins. Palps dark brown, distal part of cymbium yellow. Legs dark brown, without annulations. Abdomen gray, with dark



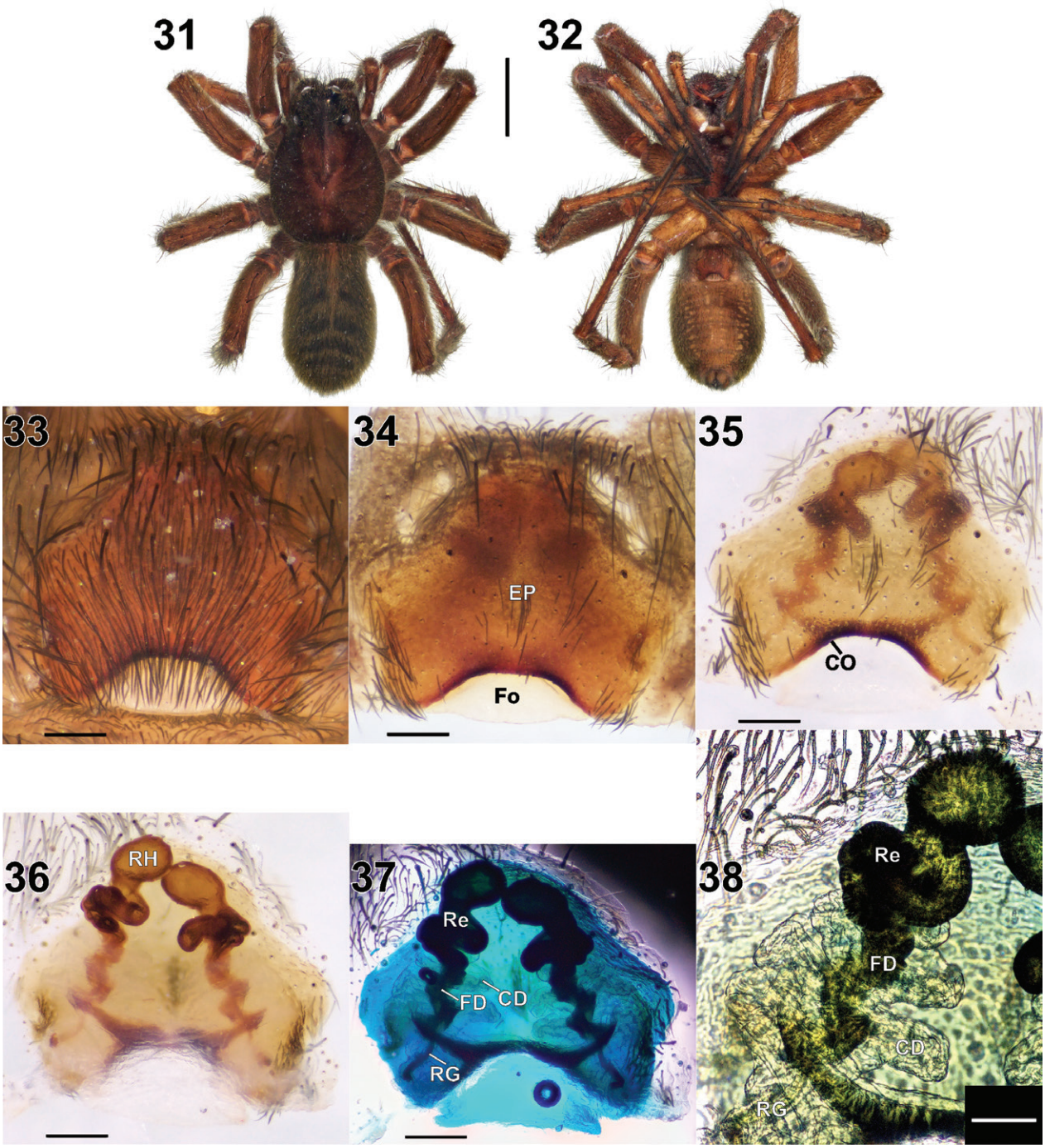
Figures 10–15. Bulb of *Pamirosa kudratbekovi* sp. nov. **10, 11.** Prolateral; **12, 13.** Ventral; **14, 15.** Retrolateral. Abbreviation: *St* – subtegulum. **11, 13, 15**. Courtesy of Galina N. Azarkina. Scale bars: 0.2 mm.



Figures 16–20. Embolic division of *Pamirosa kudratbekovi* sp. nov. **16**. Prolateral; **17**. Ventral; **18**. Retrolateral; **19**. Dorsal; **20**. Anterior. Abbreviations: AM – accompanying membrane, BA – basoembolic apophysis, DE – distal part of embolus, DP – dorsal process of embolic division, PE – proximal part of embolus, Tr – terminal apophysis. Scale bar: 0.2 mm.



Figures 21–30. Male of *Pamirosa kudratbekovi* sp. nov. **21–24.** Tegulum; **25.** Embolus; **26.** Embolic division, **27–29.** Tegular apophysis; **30.** Tip of cymbium. **21, 29**. Prolateral; **22, 24, 26, 28**. Ventral; **23**. Retrolateral; **25**. Pro-ventral; **27, 30.** Dorsal. Abbreviations: BA – basoembolic apophysis, Cn – conductor, DE – distal part of embolus, DP – dorsal process of embolic division, PE – proximal part of embolus, PO – prolateral outgrowth of tegulum, PP – prolateral process of tegular apophysis, PS – plumose seta, RP – retrolateral process of tegular apophysis, RR – retrolateral ridge of tegulum, SD – sperm duct, SS – stick-like seta, St – subtegulum, TA – tegular apophysis, TD – threadlike denticles, Te – tegulum, Tr – terminal apophysis, TS – stalk of tegular apophysis. Scale bars: 0.2 mm (**21–24, 26**); 0.1 mm (**25**); 0.15 mm (**27–29**); 0.1 mm (**30**).



Figures 31–38. Female of *Pamirosa kudratbekovi* sp. nov. **31–32.** Habitus; **33–38.** Epigyne. **31**. Dorsal; **32**. Ventral; **33**. Intact, ventral; **34**. Dissected, ventral; **35**. Macerated, ventral; **36**. Macerated, dorsal; **37, 38**. Macerated and painted, dorsal. Abbreviations: CD – copulatory duct, CO – copulatory opening, EP – epigynal plate, FD – fertilization duct, Fo – fovea, Re – receptacle, RG – rod-shaped gland, RH – head of receptacle. Scale bars: 2 mm (**31, 32**); 0.2 mm (**33–37**); 0.1 mm (**38**).

brick red-colored cardiac mark. Spinnerets gray. Eye sizes and interdistances: AME 0.1, ALE 0.11, PME 0.41, PLE 0.3, AME–AME 0.16, AME–ALE 0.16, PME–PME 0.43, PLE – PLE 1.26. Width of anterior eye row 0.86, 2nd row 1.13, 3rd row 1.57. Clypeus height at AME 0.16. Chelicerae with 3 promarginal and 3 retromarginal teeth. For legs measurements see Table 1. For legs spination see Table 2.

Table 1. Legs' measurements of male of *Pamirosa kudratbekovi* sp. nov.

	Fe	Pa	Ti	Mt	Ts	Total
Leg I	3.3	1.65	3.0	2.95	1.45	12.35
Leg II	3.3	1.6	2.9	3.0	1.5	12.3
Leg III	3.25	1.4	2.6	3.4	1.45	12.1
Leg IV	3.8	1.45	3.4	4.8	1.8	15.25

Table 2. Legs' spination of male of *Pamirosa kudratbekovi* sp. nov.

	Fe	Pa	Ti	Mt
Leg I	d1-1-1 p0-0-1	p1 r1	p1-0-0 r1-0-1 v2-2-1-2	p1-1-0 r1-1-0 v2-1-0
Leg II	d1-1-1 p1-0-1 r1-0-0	p1 r1	p1-0-0 r1-0-1 v2-2-1-2	p1-1-0 r1-1-0 v2-2-0
Leg III	d1-1-1 p1-0-1 r1-0-1	p1 r2	d1-0-1 p1-0-1 r1-0-1 v2-2-2	d0-1-0 p1-1-0 r1-1-0 v2-2-0
Leg IV	d1-1-1 p2-0-1 r0-0-2	p1 r1	d1-1-1 p0-1-1 r0-2-1 v2-2-1-2	d1-1-0 p1-2-0 r1-1-0 v2-2-2

Male palp as shown in Figs 5–30. Femur 2.5 times longer than tibia, with 3 dorsal and 2 prolateral spines. Patella 1.4 times longer than tibia, with one prolateral spine. Tibia 2.9 times shorter than cymbium. Cymbium broad and rounded; length/width ratio 1.6. Tip of cymbium bent dorsally and equipped with stick-like (NS) and plumose setae (PS). Subtegulum (St) very small, oval located on retrolateral side of bulb. Tegulum (Te) circular, length/width ratio 0.74; anterior part with long and narrow retrolateral ridge (RR) on ventral margin of conductor (Cn) and triangular prolateral outgrowth (PO); conductor not tapering. Median sector of anterior edge of tegulum covered with number of short, thread-like denticles (TD). Sperm duct (SD) S-shaped in retrolateral view; tegular apophysis complex. Thin stalk of tegular apophysis (TS) starts from dorsal surface of tegulum. Tegular apophysis massive, hammer-shaped; prolateral process of tegular apophysis (PP) triangular; retrolateral process of tegular apophysis (RP) semicircular, with tip bent ventrally. Palea absent. Embolus large, coiled in 2 planes; proximal part (PE) with accompanying membrane (AM) forming loop ca 270°. Basoembolic apophysis (BA) circular in ventral view, strongly sclerotized, in intact bulb tightly fixed between prolateral outgrowth of tegulum (PO) and prolateral process of tegular apophysis (PP). Terminal apophysis (Tr) elongated, with sharply pointed tip. Embolic division with small, sharply pointed dorsal process (DP), partly hidden by embolus in ventral view. Distal part of embolus (DE) tightly twisted, making two complete loops (720°).

Female. Total length 8.0. Carapace: 4.1 long, 3.0 wide. Abdomen: 4.0 long, 2.45 wide. General appearance as in Figs 28, 29. Coloration as in male, but palps, legs, venter of the abdomen and spinnerets lighter. Dorsal surface of abdomen with blurred herringbone pattern. Eye sizes and interdistances: AME 0.1, ALE 0.13, PME 0.39, PLE 0.27, AME–AME 0.19, AME–ALE 0.16, PME–PME 0.36, PLE–PLE 1.07. Width of anterior eye row 0.87, second row 1.06, third row 1.46. Clypeus height at AME 0.19. Chelicerae as in male. For legs' measurements see Table 3. For legs' spination see Table 4.

Epigyne as shown in Figs 33–38. Epigynal plate trapezoidal, convex, with large trapezoidal fovea located posteriorly, septum absent. Fovea (Fo) ca. 3 times wider than long. Copulatory openings (CO) located at antero-lateral parts of fovea. Copulatory ducts (CD) membranous, corkscrew-shaped, form approximately 3 turns around fertilization ducts (FD). Receptacles (Re) screw-shaped, strongly sclerotized; heads (RH) touching each other. Fertilization ducts (FD) sinusoidal, strongly sclerotized. Rod-shaped glands (RG) located posterior to the copulatory openings.

Table 3. Legs' measurements of female of *Pamirosa kudratbekovi* sp. nov.

	Fe	Pa	Ti	Mt	Ts	Total
I	2.75	1.4	2.25	2.0	1.15	9.55
II	2.75	1.4	2.15	2.05	1.15	9.5
III	2.75	1.35	2.0	2.45	1.25	9.8
IV	3.15	1.45	2.8	3.8	1.6	12.8

Etymology. The specific name is a patronym in honour of Uvaido Kudratbekov (Porshinev, Tajikistan) who helped to organize an expedition to Pamir Mountains in which the types of this new species were collected.

Distribution. Known only from the type locality (Figs 51–54).

Note. Having only one female, we cannot cut the single epigyne to check the origin of membranous ducts in endogyne, which would allow us to perceive if they are copulatory or fertilization ducts. Membranous parts of the endogyne are unknown in other lycosids occurring in the Holarctic.

Habitat. The specimens were collected among stone screes (Fig. 51) on elevations about 4700 m.

Comments. Among the genera of alpine Lycosidae inhabiting stone screes in the Palearctic are the following: *Acantholycosa* Dahl, 1908; *Dzhungarocosa*; *Evippa* Simon, 1882; *Gulocosa* Marusik et al. 2015; *Mongolicosa* Marusik et al. 2004 and *Sibirocosa* Marusik et al. 2004 (see Table 5). Species from all of these genera share one common character: they have more than three pairs of ventral spines on tibia I. This is true for the widespread *Acantholycosa* complex (group of genera) and in genera not related to *Acantholycosa* Dahl, 1908 (Marusik et al. 2015; Fomichev and Marusik 2017; Fomichev 2022). Unlike all other scree-dwelling wolf-spiders, *P. kudratbekovi* sp. nov. has only three pairs of ventral tibial spines on leg I, as in many non- scree dwelling Pardosinae spiders (cf. Figs 49, 50, 39–48).

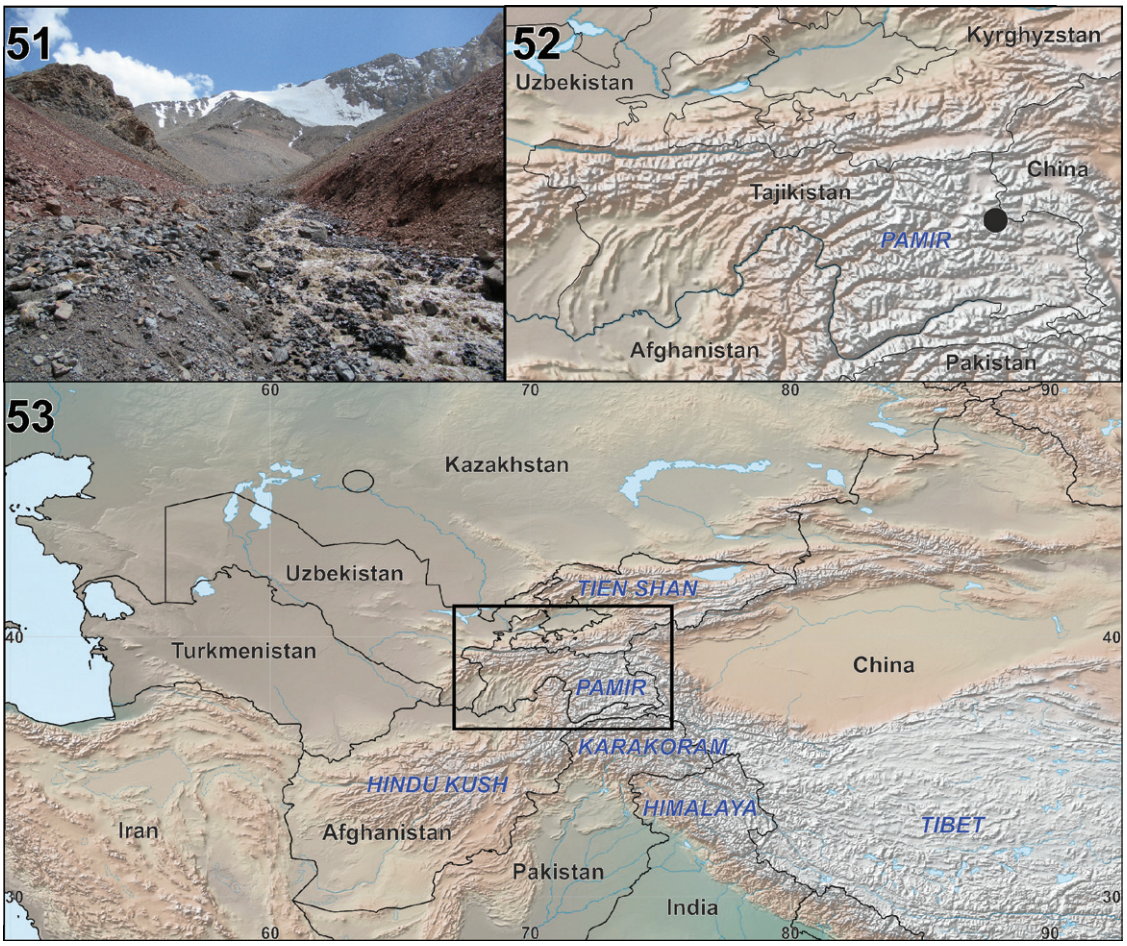
Table 4. Legs' spination of female of *Pamirosa kudratbekovi* sp. nov.

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

Table 5. Distribution of the genera of alpine scree-dwelling Lycosidae in mountain systems of Asia. * – our unpublished data.

	Pardosinae						*Artoriinae*	*Evippinae*
	Acantholycosa-complex							
	Acantholycosa	*Gulocosa*	*Mongolicosa*	*Sibirocosa*	*Dzhungarocosa*	*Pardosa*	*Pamirosa*	*Evippa*
Putorana Plateau	-	-	-	+	-	-	-	-
Mts. of North-Eastern Siberia	+	-	-	+	-	-	-	-
Mts. of South Siberia and Mongolia	+	-	+	+	-	-	-	-
Sikhote-Alin	+	+	-	+	-	+	-	-
Tarbagatai	+	-	-	-	-	-	-	-
Dzhungarian Alatau	-	-	-	-	+	-	-	-
Tian Shan	-	-	+	-	-	+	-	-
Pamir	-	-	-	-	-	+	+	+*
Hindu Kush	-	-	-	-	-	-	-	+
Tibetan Plateau	-	-	-	-	-	+	-	+
Himalayas	-	-	-	-	-	+	-	+
Main references	Zyuzin and Marusik 1988; Marusik et al. 2004; Marusik and Logunov 2011; Marusik and Omelko 2011	Marusik et al. 2015	Marusik et al. 2004	Omelko and Marusik 2013	Fomichev and Marusik 2017	Kononenko 1978; Buchar 1984; Hu 2001; Omelko, 2009; Marusik et al. 2013	Present data	Miller and Buchar 1972; Sankaran and Caleb 2023; present data

Figures 39–50. Retro-ventral view of the tibia I. **39, 40.** *Acantholycosa sayanensis* from South Siberia; **41, 42.** *Dzhungarocosa omelkoi* from Kazakhstan; **43, 44.** *Mongolicosa glupovi* from South Siberia; **45, 46.** *Sibirocosa arsenyevi* from Far East of Russia; **47, 48.** *Evippa* sp. from Pamir Mountains; **49, 50.** *Pamirosa kudratbekovi* sp. nov. **39, 41, 43, 45, 47, 49.** Male; **40, 42, 44, 46, 48, 50**. Female. Arrows indicate ventral spines (some spines are broken). Scale bar: 1 mm.



Figures 51–53. *Pamirosa kudratbekovi* sp. nov. **51.** Habitat; **52, 53.** Collecting locality. The frame on Fig. 53 refers to the content of Fig. 52. The country names are written in black font. The names of mountain systems are written in dark blue font.

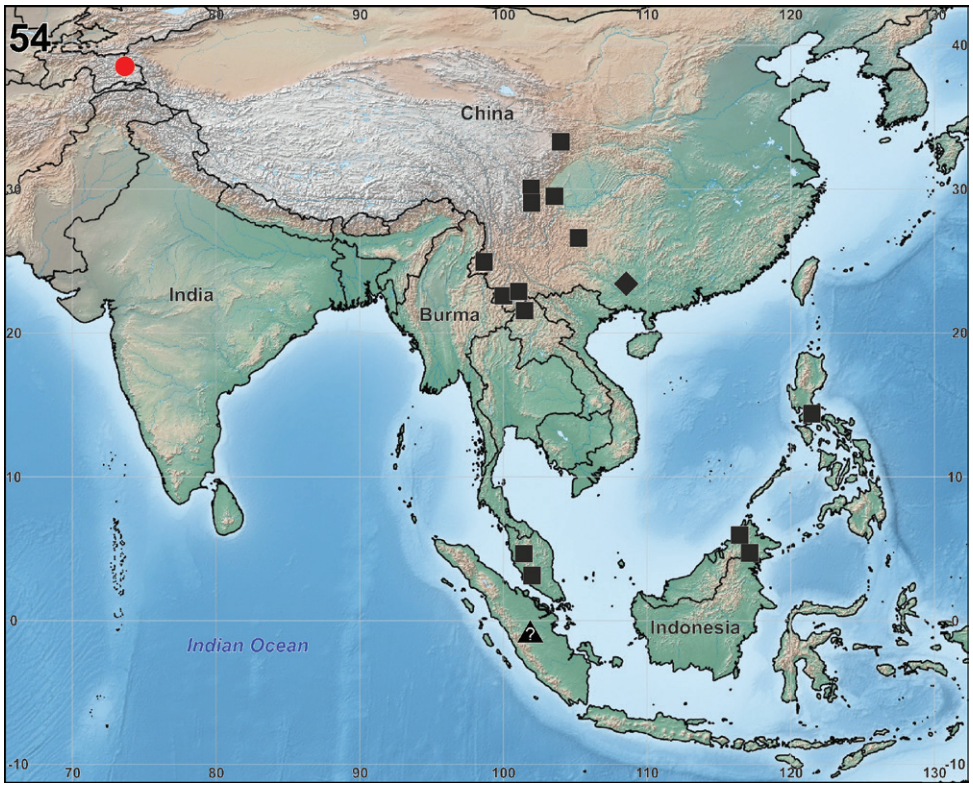


Figure 54. Collecting localities of Artoriinae in Palaearctic and Indo-Malayan Realm. Circle – *Pamirosa kudratbekovi* sp. nov.; square – *Artoria* spp.; diamond – *Sinartoria* spp.; triangle – *Lycosella* spp. ? – record without precise location.

Discussion

Lycosidae is one of the dominant spider families in the highlands of the Palaearctic and in the Arctic (Buchar and Thaler 1998; Marusik and Koponen 2002). Within the highlands, these spiders primarily inhabit stony screes (Marusik et al. 2004). Most wolf spiders inhabiting the highlands of Asia belong to the so-called *Acantholycosa* complex (= group of genera) placed within Pardosinae (cf. Marusik et al. 2015). A great number of species with ranges restricted to a single mountain range or even one mountain are known among alpine Lycosidae (Table 5). Several genera of alpine wolf spiders are known to be endemic to a specific mountain system. Examples of such genera are: *Gulocosa* for Sikhote-Alin Mt. range (south part of the Russian Far East), *Melecosa* Marusik, Omelko & Koponen, 2015 for Tian Shan, *Dzhungarocosa* for Dzhungarian Alatau and *Pamirosa* gen. nov. for Pamir Mountains (Marusik et al. 2004; Fomichev 2021; Marusik et al. 2015; Fomichev and Marusik 2017; present data). The most common genus of alpine Lycosidae is *Acantholycosa* Dahl, 1908. This genus is widespread in many mountain systems from Fennoscandia and North-Eastern Siberia to the Tarbagatai Mt. Range in Kazakhstan (Marusik et al. 2004; Marusik and Logunov 2011). The greatest diversity of scree-dwelling alpine wolf spiders is observed in the mountains of Southwest Siberia and Mongolia (Marusik et al. 2004; Fomichev and Marusik 2018; Fomichev 2021), due to representatives of three genera, *Acantholycosa*, *Mongolicosa* and *Sibirocosa*. Despite the large number of species, there are no endemic genera among scree-dwelling Lycosidae in the mountains of South Siberia (Fomichev 2021). Endemic genera are restricted to lower latitudes. It is worth noting that some of these endemic genera, such as *Dzhungarocosa* and *Pamirosa* gen. nov., do not belong to the *Acantholycosa* complex, which is common in Siberia. Thus, for high-altitude wolf spiders, there is an increase in the level of endemism from north to south, accompanied by a simultaneous decrease in the role of the *Acantholycosa* complex, due to other genera with similar lifestyles that are not part of it. In the future, the discovery of additional new genera of scree-dwelling alpine wolf spiders, not belonging to the *Acantholycosa* complex, is very likely. Perhaps these undescribed genera will turn out to be as peculiar as *Pamirosa* gen. nov. In this regard, the most promising territories are Hindu Kush (Afghanistan, Pakistan), Karakorum (Pakistan, India, China), Himalaya (India, Nepal, Bhutan, China) and Tibet (China). For details on the distribution of the genera of alpine wolf spiders in mountain systems of Asia, see Table 5.

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