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A new species of *Sibianor* Logunov, 2001 (Arachnida: Aranei: Salticidae) from the Caucasus

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Abstract. A new species of spiders *Sibianor caucasicus* sp. n. from the Republic of North Ossetia–Alania, Russia (Sunzhenskiy and Zmeyskiy Mt. ranges; elevations 426–1850 m a.s.l.) is diagnosed, illustrated and described based on males and females. The new species is most similar to *Sibianor tantulus* (Simon, 1868) and *S. aemulus* (Gertsch, 1934), but can be distinguished from both by the notably shorter embolus (barely extending beyond the apical end of the tegulum) in the males, and the presence of a distinctive 90-degree bend of insemination ducts (but no first loop) in the females. The distribution of species of the genus in the Caucasus is discussed.

Key words: Araneae, jumping spiders, diagnosis, taxonomy, distribution, fauna.

Новый вид *Sibianor* Logunov, 2001 (Arachnida: Aranei: Salticidae) с Кавказа

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Резюме. Новый вид пауков *Sibianor caucasicus* sp. n. из Республики Северная Осетия – Алания, Россия (Сунженский и Змейский хребты, 426–1850 м н.у.м.) диагностирован, иллюстрирован и описан по самцам и самкам. Новый вид наиболее похож на *Sibianor tantulus* (Simon, 1868) и *S. aemulus* (Gertsch, 1934), но отличается от них заметно более коротким эмбобиусом (едва выходящим за апикальный конец тегулюма) у самцов и наличием характерного прямого изгиба осеменительных протоков (но без первой петли) у самок. Обсуждается распространение видов рода на Кавказе.

Ключевые слова: Araneae, пауки-скакунчики, диагноз, таксономия, распространение, фауна.

Introduction

Sibianor Logunov, 2001 is a small genus of jumping spiders, currently comprising 16 valid species [World Spider Catalog, 2024] distributed mainly in the Palaearctic and Afrotropical Regions, with one species being also known from the Nearctic. To date, three *Sibianor* species have been recorded/described from the Caucasus [Otto, 2024], including the cis-Caucasia [Ponomarev, 2022]. According to Maddison [2015], *Sibianor* belongs to the subtribe Harmochirina of the tribe Plexippini in the subfamily Salticinae, but see Azevedo et al. [2024].

Yet, *Sibianor* belongs to one of the most difficult Harmochirina genera. Although it has been revised in the scope of the Palaearctic and Afrotropical faunas [Logunov, 2001, 2009], some regional records of *Sibianor* species still need to be validated through the re-examination of relevant materials. This holds true for the records of *S. tantulus* (Simon, 1868) from the cis- and trans-Caucasia [Logunov, 2001; Ponomarev, Komarov, 2013, 2015; Otto, Japoshvili, 2018]. As it turned out, most of these records were based on misidentifications and actually belong to a yet undescribed new species.

The aim of the present paper is twofold: (1) to describe a new *Sibianor* species from the Republic of North Ossetia–Alania, Russia; and (2) to briefly discuss the current state of knowledge of the genus in the Caucasus.

Material and methods

The type specimens of the new *Sibianor* species have been shared between the Zoological Institute of the Russian Academy of Sciences (ZISP, St Petersburg, Russia; curator: D.V. Logunov) and Zoological Museum of the Moscow State University (ZMMU, Moscow, Russia; curator: K.G. Mikhailov). Comparative materials were borrowed from the Manchester Museum, University of Manchester (MMUE, Manchester, UK; curator: Diana Arzuza Buelvas).

Digital photographs were made at the Manchester Museum, using an Olympus SZX16 stereo microscope with a DP27 Digital Colour Camera, and Helicon Focus 7.7.2 as the processing software. Distributional maps were produced by using the online mapping software SimpleMappr [Shorthouse, 2010].

Format of descriptions follows Logunov [2001]. In the following descriptions, leg podomeres are abbreviated as follows: Fm – femur, Pt – patella, Tb – tibia, Mt – metatarsus, Tr – tarsus. Position of leg spines: d – dorsal, pr – prolateral, rt – retrolateral, v – ventral. For the leg spination the system adopted is that used by Ono [1988]. The term ‘spine’ is used to describe pointed, rigid and usually articulating macrosetae on legs, the term ‘vulva’ is used for internal structures of female copulatory organs, and the term ‘receptacle’ is used as a synonym of ‘spermatheca’ [Jocqué, Dippenaar-Schoeman, 2006: 25].

The sequence of leg podomeres in measurement data is as follows: femur + patella + tibia + metatarsus + tarsus (total). All measurements are in mm.

Genus *Sibianor* Logunov, 2001

Type species *Heliophanus aurocinctus* Ohlert, 1865, by original designation.

Sibianor caucasicus sp. n. (Figs 1–24, 26)

Material. Holotype, ♀ (ZISP, ARA_ARA_0000820): Russia, Republic of North Ossetia–Alania, Kirovskiy Distr., Sunzhenskiy Mt. Range, left side of Kardzhin Gully, 43°17'29.4"N / 44°18'21.2"E, 510 m a.s.l., herb meadow, 10.09.2013 (Yu.E. Komarov). Paratypes: 1♀ (ZISP, ARA_ARA_0000821), Russia, Republic of North Ossetia–Alania, Digora Distr., Tersko-Sunzhenskaya Upland, Zmeyskiy Mt. Range, c. 800 m SW of Dur-Dur River mouth, 43°15'46.7"N / 44°13'44.1"E, 650 m a.s.l., 30°S slope exposure, overgrazed Andropogon steppe, 24.08.1986 (S.K. Alekseev); 1♂ (ZISP, ARA_ARA_0000817), same republic, Alagir Distr., North Ossetian Reserve, Uiltsa tract, 4.5 km S of Buron Vil., Kassarskoe Canyon, 42°45'27.5"N / 43°59'18.5"E, 1600 m a.s.l., meadow, 1.09.1988 (N.A. Shevchenko); 1♀ (ZMMU, Ta-8494), same republic, Pravoberezhny Distr., nr Brut Vil., an ancient burial mound, 43°17'32.1"N / 44°25'24.8"E, 426 m a.s.l., motley meadow, 13.05.2012 (Yu.E. Komarov); 1♂ (ZISP, ARA_ARA_0000818), same republic, Kirovskiy Distr., 1.5 km N of Kardzhin, right slope of Kardzhin Gully, 43°17'21.1"N / 44°17'45.5"E, meadow with shrubs, 25.08.2013 (Yu.E. Komarov); 1♂ (ZISP, ARA_ARA_0000819), same republic, Alagir Distr., Tsey Gorge, between Verkhniy Tsey and Nizhniy Tsey villages, 42°48'12.9"N / 43°56'29.7"E, 1850 m a.s.l., lower subalpine belt, 31.05.2014 (M.Yu. Bakanov); 1♂ (ZMMU, Ta-8493), same republic, Alagir Distr., ruins of Tbet Vil., southern slope of Nar Canyon, 42°41'05.7"N / 43°59'32.9"E, 1730 m a.s.l., forb meadow, 7.10.2015 (Yu.E. Komarov).

Comparative material. *Sibianor aemulus* (Gertsch, 1934): Russia: 1♀ (MMUE, G7253.391), NE Siberia, Magadan Region, the upper reaches of Kulu River, Kontakt field station, 61°51'N / 147°40'E, summer 1999 (S.P. Bukhkalov); 1♂ (MMUE, G7253.370), NE Siberia, 29 km N of Magadan, Dukcha River valley, 59°43'N / 151°00'E, summers 1999–2000 (S.P. Bukhkalov, Bragina); 1♀ (MMUE, G7254.149), NE Siberia, Magadan Region, c. 3 km S of Magadan, Marchekan Sopka Mt., 59°31'N / 150°49'E, 250–400 m a.s.l., pine-alder-birch association, in litter, 5.08.2002 (D.V. Logunov).

Diagnosis. The new species is most similar to the European-Siberian *S. tantulus* and the Siberio-American *S. aemulus*. In the conformation of male palps, the males of these species are poorly distinguishable (cf. Figs 13, 21 and figs 336, 337 in Logunov [2001] and fig. 4B in Logunov and Marusik [1991]: sub *Bianor aemulus*). There are only two weak differences, as follows: the brown distal halves of TbI in *S. caucasicus* sp. n. (usually absent in *S. aemulus*; cf. Figs 4, 20 with figs 1e–x in Logunov and Marusik [1991]: sub *Bianor aemulus*), and the comparatively shorter embolus in *S. caucasicus* sp. n., barely extending beyond the apical end of the tegulum (arrowed in Figs 13, 21; longer and prominent in both related species, cf. fig. 4 in Logunov and Marusik [1991]: sub *Bianor aemulus* and fig. 336 in Logunov [2001]).

The females of all three species can be easily distinguished by the conformation of vulva: viz., those of *S. caucasicus* sp. n. have a distinctive 90-degree bend of insemination ducts (but no first loop) which is absent in both related species (arrowed in Figs 22, 23; cf. figs 330–334 in Logunov [2001] and fig. 2r in Logunov and Marusik [1991]: sub *Bianor a.*). Besides, the insemination ducts of *B. aemulus* are twice as short as those in *S. caucasicus* sp. n. and *S. tantulus*; plus, at least north-American females of *B. aemulus* have a distinct

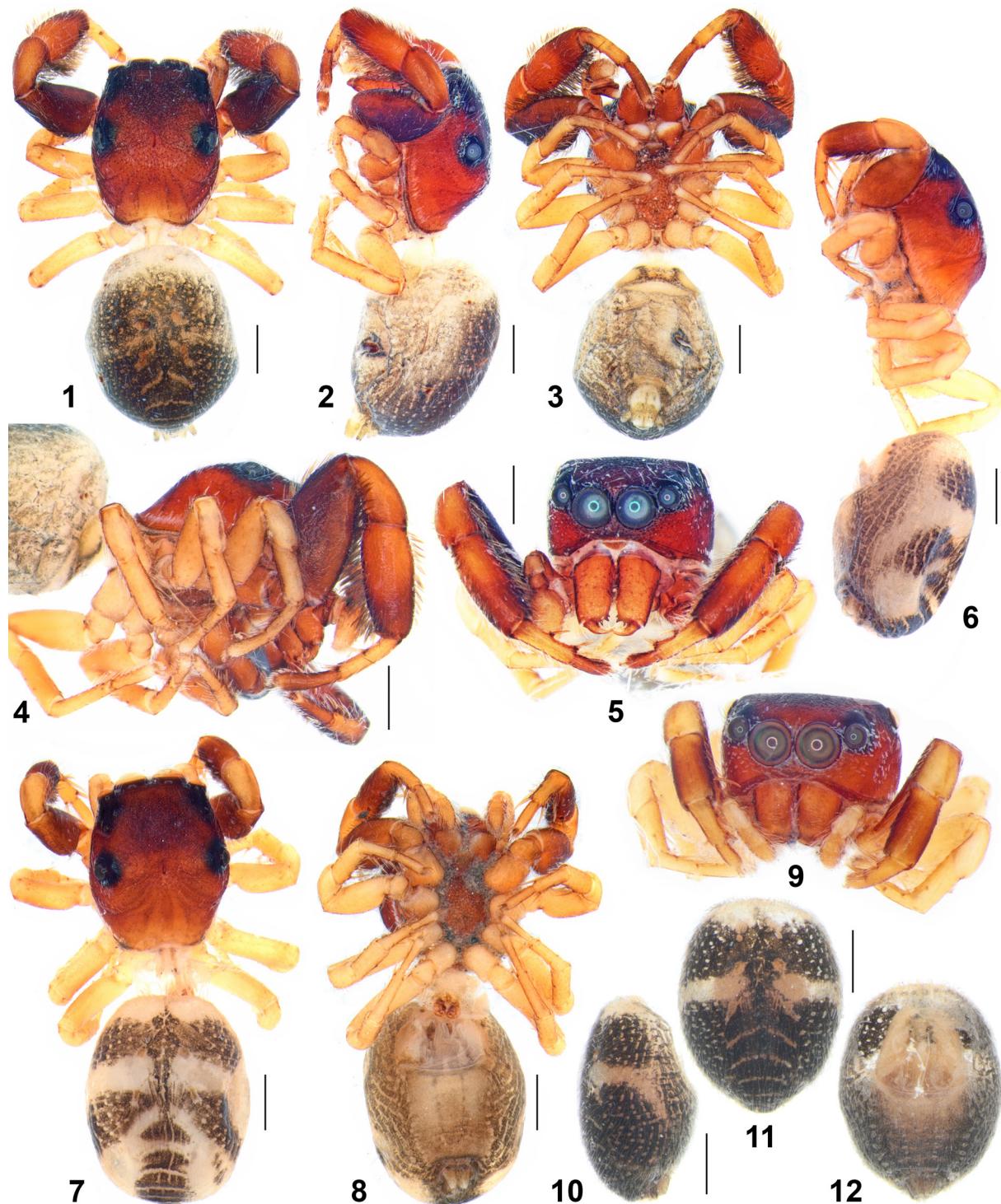
colour pattern of longitudinal brown stripes on PtI and TbI (see Logunov and Marusik [1991]: figs 1e–x, sub *Bianor aemulus*), which are absent from two other species.

Finally, some (but not all) females of *S. caucasicus* sp. n. show a unique reticulate pattern on the abdomen (Figs 6, 7); to date, a similar body pattern has been known only in the males of *S. annae* Logunov, 2001 from China [Logunov, 2001: fig. 269]. In two of the three studied females of *S. caucasicus* sp. n., the dorsum colouration consists of a transverse yellow/white stripe on a brownish background (Figs 10, 11), which could also be observed in the males of *S. caucasicus* sp. n. (Figs 18, 19) and some other *Sibianor* species (see Metzner [2024] for comparative illustrations).

Description. Female (holotype, Figs 10–12, 17, 24). Carapace 1.7 long, 1.28 wide, 0.68 high at PLE. Ocular area 0.93 long, 1.08 wide anteriorly and 1.28 wide posteriorly. Diameter of AME 0.38. Abdomen 1.9 long, 1.45 wide. Cheliceral length 0.45. Clypeal height 0.05. Length of leg segments: I 0.83 + 0.50 + + 0.53 + 0.48 + 0.38 (2.72); II 0.7 + 0.45 + 0.38 + 0.33 (2.24); III 0.83 + 0.45 + 0.4 + 0.45 + 0.33 (2.46); IV 0.9 + 0.43 + 0.5 + + 0.53 + 0.3 (2.66). Leg formula: I, IV, III, II. Leg spination: I: Tb pr 0-1, v 1-1; Mt v 2-2ap. II: Tb pr 0-1, v 1-1ap; Mt v 2-2ap. III: Tb pr and rt 0-1; Mt pr, rt and v 2ap. IV: Mt pr 2ap, rt 1ap. Colouration (in alcohol; Figs 6–12) as in the male, but lighter and differs as follows: leg I less strong, its Fm yellowish brown, Tb dark brown, Pt, Mt and Tr light yellow; remaining legs light yellow. Palps yellow. Epigyne and vulva as in Figs 17, 22–24; epigyne flat, with a pair of fossae facing antero-medial and separated by deep, central blind-ending pocket; copulatory openings hidden beneath atrical lips; insemination ducts without the first loop, but with a distinctive 90-degree bend (arrowed in Figs 22, 23); fertilization ducts prominent, situated at medio-anterior sides of receptacles and directed forward.

Male (paratype, ZISP, ARA_ARA_0000819). Carapace 1.8 long, 1.35 wide, 0.78 high at PLE. Ocular area 0.98 long, 1.05 wide anteriorly and 1.2 wide posteriorly. Diameter of AME 0.38. Abdomen 1.68 long, 1.28 wide. Cheliceral length 0.53. Clypeal height 0.1. Length of leg segments: I 1.18 + 0.63 + 0.9 + + 0.63 + 0.4 (3.74); II 0.75 + 0.43 + 0.45 + 0.5 + 0.33 (2.46); III 0.9 + 0.43 + 0.45 + 0.5 + 0.33 (2.61); IV 0.93 + 0.45 + 0.55 + + 0.6 + 0.38 (2.91). Leg formula: I, IV, III, II. Leg spination: I: Tb pr 0-1; Mt v 2-2ap. II: Fm d 0-1-2ap; Tb v 1-1; Mt v 2-2ap. III: Fm d 0-1-2ap; Tb pr 0-1, rt 1-1; Mt pr and rt 2ap, v 1-0-2ap. IV: Fm d 0-1-2ap; Tb rt and v 1ap; Mt pr and rt 2ap. Colouration (in alcohol; Figs 1–5, 18–20). Carapace fine-punctuated, orange, with brown eye field and black around eyes. Clypeus russet, hairless. Sternum yellow, with brown mottled pattern. Endites and labium orange, with white apexes. Chelicerae orange. Abdomen brownish grey, dorsum with a transverse white stripe in its anterior third and with white anterior edge. Book-lung covers light yellow. Spinnerets yellow, tinged with brown. Leg I stronger and longer than others; its Fm dark brown, Pt orange, Tb orange with brown distal third, Mt and Tr yellow. Legs II–IV light yellow. Palps orange-yellow. Palpal structure as in Figs 13, 14, 21: tibia short, 3–3.4 times shorter than cymbium; retrolateral tibial apophysis as long as tibia, pointed and directed apicad, about 3.5 times shorter than cymbium; cymbium simple, elongated, 1.4–1.5 times longer than wide, without processes or projections; tegulum oval, with a tegulum knob situated at its proximal end; embolus thin and relatively short, only slightly extending beyond the apical edge of tegulum; sperm duct without a retrolateral loop.

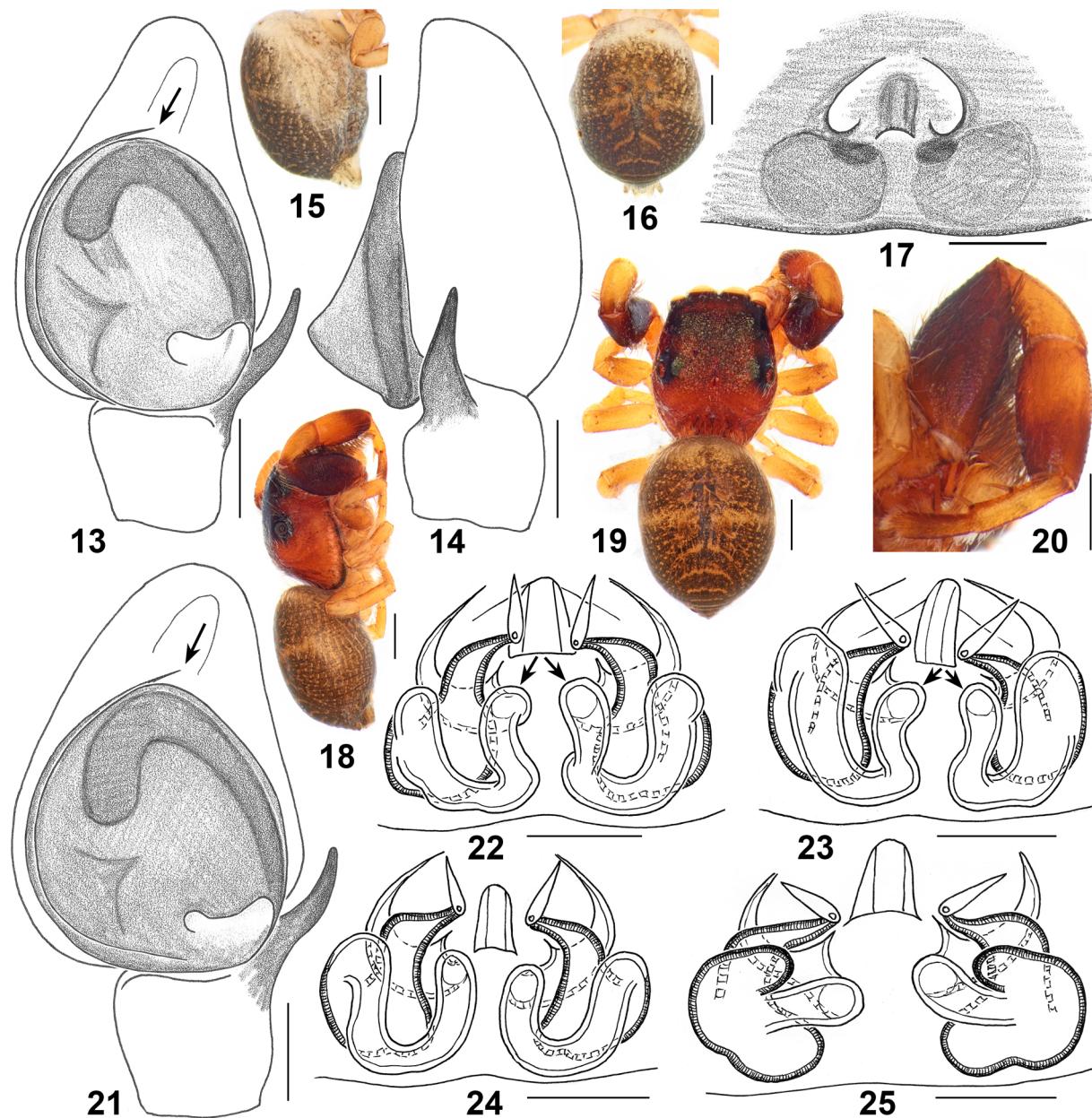
Distribution. Several close localities in the Republic of North Ossetia–Alania (Fig. 26), particularly from Sunzhenskiy and Zmeyskiy Mt. Ranges, at the elevations 426–1850 m a.s.l. However, the species is likely to be more widespread across the Caucasus.

Figs 1–12. *Sibianor caucasicus* sp. n., general appearance.

1–5 – male, paratype (ZMMU, Ta-8493); 6–9 – female, paratype (ZISP, ARA_ARA_0000821); 10–12 – female, holotype (ZISP, ARA_ARA_0000820).
1–3, 6–8 – body: 1, 7 – dorsal view, 2, 6 – lateral view, 3, 8 – ventral view; 4–5, 9 – carapace: 4 – lateral view, 5, 9 – front view; 10–12 – abdomen: 10 – lateral view, 11 – dorsal view, 12 – ventral view. Scale bars 0.5 mm.

Рис. 1–12. *Sibianor caucasicus* sp. n., общий вид.

1–5 – самец, паратип (ZMMU, Ta-8493); 6–9 – самка, паратип (ZISP, ARA_ARA_0000821); 10–12 – самка, голотип (ZISP, ARA_ARA_0000820).
1–3, 6–8 – тело: 1, 7 – вид сверху, 2, 6 – вид сбоку, 3, 8 – вид снизу; 4–5, 9 – головогрудь: 4 – вид сбоку, 5, 9 – вид спереди; 10–12 – брюшко: 10 – вид сбоку, 11 – вид сверху, 12 – вид снизу. Масштабные линейки 0.5 мм.



Figs 13–25. Species of the genus *Sibianor*, copulatory organs and general appearance.

13–24 – *S. caucasicus* sp. n.; 25 – *S. aemulus*. 13–14 – male, paratype (ZISP, ARA_ARA_0000818); 15–16 – male, paratype (ZISP, ARA_ARA_0000817); 17, 24 – female, holotype (ZISP, ARA_ARA_0000820); 18–21 – male, paratype (ZISP, ARA_ARA_0000819); 22 – female, paratype (ZMMU, Ta-8494); 23 – female, paratype (ZISP, ARA_ARA_0000821); 25 – female (MMUE, G7254.149). 13–14, 21 – male palp: 13, 21 – ventral view, 14 – retrolateral view; 15–16 – male abdomen: 15 – lateral view, 16 – dorsal view; 17 – epigyne, ventral view; 18–19 – male body: 18 – lateral view, 19 – dorsal view; 20 – male right leg I, lateral view; 22–25 – vulva, dorsal view. Arrows indicate the position of the embolic tip in males (13, 21) and the diagnostic 90-degree bend of the insemination ducts in females (22, 23). Scale bars: 13–14, 17, 21–25 – 0.1 mm; 15–16, 18–20 – 0.5 mm.

Рис. 13–25. Представители рода *Sibianor*, копулятивные органы и общий вид.

13–24 – *S. caucasicus* sp. n.; 25 – *S. aemulus*. 13–14 – самец, паратип (ZISP, ARA_ARA_0000818); 15–16 – самец, паратип (ZISP, ARA_ARA_0000817); 17, 24 – самка, голотип (ZISP, ARA_ARA_0000820); 18–21 – самец, паратип (ZISP, ARA_ARA_0000819); 22 – самка, паратип (ZMMU, Ta-8494); 23 – самка, паратип (ZISP, ARA_ARA_0000821); 25 – самка (MMUE, G7254.149). 13–14, 21 – пальпа самца: 13, 21 – вид снизу, 14 – вид сбоку-сзади; 15–16 – брюшко самца: 15 – вид сбоку, 16 – вид сверху; 17 – эпигина, вид снизу; 18–19 – тело самца: 18 – вид сбоку, 19 – вид сверху; 20 – правая нога I самца, вид сбоку; 22–25 – вульва, вид сверху. Стрелки указывают на позицию кончика эмболяса у самцов (13, 21) и диагностичный 90-градусный изгиб осеменительных протоков у самок (22, 23). Масштабные линейки: 13–14, 17, 21–25 – 0.1 мм; 15–16, 18–20 – 0.5 мм.

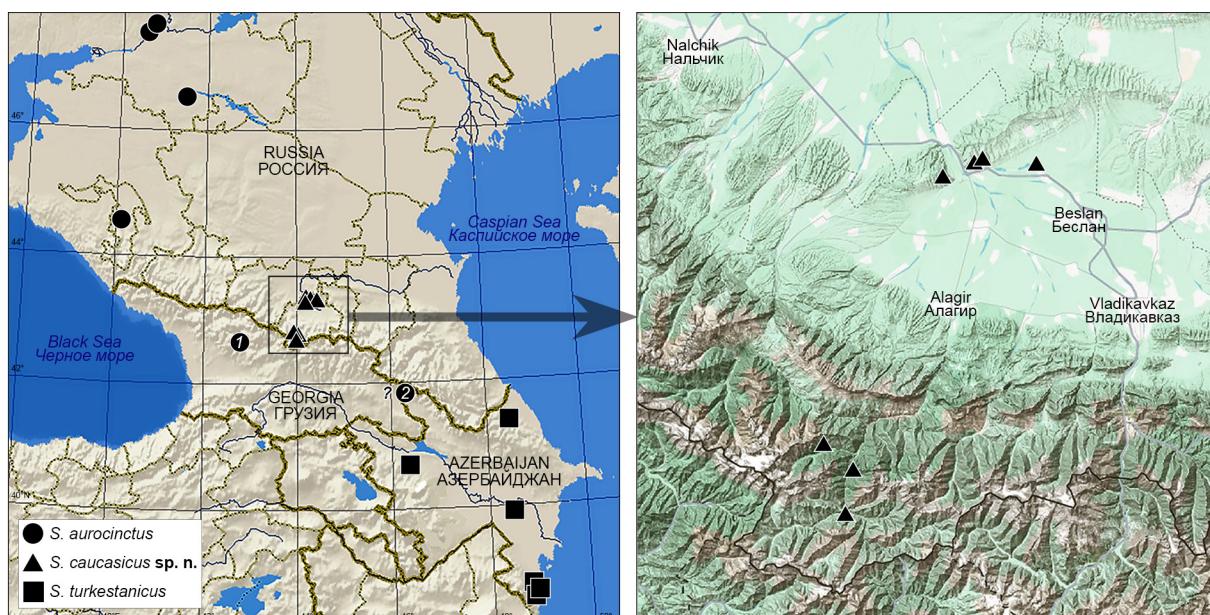


Fig. 26. Collecting localities of three *Sibianor* species. Numbered localities are explained in 'Discussion'.

Рис. 26. Точки сборов трех видов *Sibianor*. Пронумерованные точки обсуждаются в разделе «Discussion».

Habitat. Based on label data, the new species can be found in the overgrazed *Andropogon* steppe, different types of meadows (e.g., herb, shrubby, forb and motley meadows), up to the lower subalpine belt.

Etymology. The species epithet is an adjective indicating the Caucasian distribution of the new species.

Discussion

The genus *Sibianor* seems to be relatively well-studied, comprising 17 valid species described to date ([World Spider Catalog, 2024], present data), of which four have been reported from the Caucasus and cis-Caucasia ([Ponomarev, 2022; Otto, 2024], present data) (Fig. 26): viz., *S. aurocinctus* (Ohlert, 1865), *S. caucasicus* sp. n., *S. tantulus* and *S. turkestanicus* Logunov, 2001. Of these four species, some Caucasian records of *S. aurocinctus* and *S. tantulus* are still in need of verification.

The records of *S. aurocinctus* from the cis-Caucasia [Ponomarev, 2022] cause no doubts, as they lie within the known species range [Logunov, 2001]. Yet, at least some of its records from the Caucasus Major and trans-Caucasia [Mkheidze, 1997; Logunov, 2001; Otto, Japoshvili, 2018] may be questionable. Mkheidze [1997: sub *Bianor aenescens*] reported *S. aurocinctus* from Letshkumi, Georgia (Fig. 26: locality no. 1) from a single female. Based on the illustration provided [Mkheidze, 1997: fig. 130], the female studied has the well-developed first loop of the insemination ducts and hence may belong to *S. aurocinctus* (cf. figs 276–289 in Logunov [2001]). The male from North Ossetia-Alania (Ardon River) reported by Logunov [2001: 267] as *S. aurocinctus*, is to be assigned to *S. caucasicus* sp. n. The record of *S. aurocinctus* from Lagodekhi Reserve (Fig. 26: locality no. 2) was based on a single female with a “conspicuous first loop of insemination ducts” [Otto, Japoshvili, 2018: 382], but, as the authors

themselves correctly emphasized, this female may also belong to *S. turkestanicus*, known from the eastern Caucasus (Fig. 26). Incidentally, some of the early records of *S. aurocinctus* from Azerbaijan (e.g. Logunov [1991]: sub *Bianor inexploratus*) later turned out to actually belong to *S. turkestanicus* [Logunov, 2001]. These two species are better distinguished by the males.

The Caucasian records of *S. tantulus* are more problematic. As is evident from the results of this paper, all earlier records of *S. tantulus* from the Republic of North Ossetia-Alania [Logunov, 2001; Ponomarev, Komarov, 2013] are to be assigned to *S. caucasicus* sp. n. Yet, there are two more doubtful records of *S. tantulus*, each based on a single female. These records have not been included in Fig. 26, as to date I have had no chance to re-examine the pertinent material: viz., from South Ossetia (Atsriskhevi, 42°17'42.0"N / 44°14'45.3"E) [Ponomarev, Komarov, 2015] and eastern Georgia (Lagodekhi Reserve, 41°48'44.1"N / 46°18'35.1"E) [Otto, Japoshvili, 2018]. Judging from the illustrations provided [Otto, Japoshvili, 2018: figs 32, 33], it can be assumed that these authors may have actually dealt with *S. caucasicus* sp. n., but the quality of the illustrations does not allow one to be 100% sure. The matter requires a special attention in the future.

In conclusion, to date, three *Sibianor* species have been reliably recorded from the Caucasus: *S. aurocinctus*, *S. caucasicus* sp. n. and *S. turkestanicus*. The available regional records of *S. tantulus* are probably based on misidentifications and should be assigned to one of these three species.

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References

- Azevedo G.H.F., Hedin M., Maddison W.P. 2024. Phylogeny and biogeography of harmochirine jumping spiders (Araneae: Salticidae). *Molecular Phylogenetics and Evolution*. 197: 108109. DOI: 10.1016/j.ympev.2024.108109
- Jocqué R., Dippenaar-Schoeman A.S. 2006. Spider families of the world. Tervuren: Koninklijk museum voor Midden-Afrika, ARC-PPRI. 336 p.
- Logunov D.V. 1991. The spider family Salticidae (Aranei) from Touva 1. Six new species of the genera *Sitticus*, *Bianor*, and *Dendryphantes*. *Zoologicheskii zhurnal*. 70(6): 50–60 (in Russian).
- Logunov D.V. 2001. A redefinition of the genera *Bianor* Peckham & Peckham, 1885 and *Harmochirus* Simon, 1885, with the establishment of a new genus *Sibianor* gen. n. (Aranei: Salticidae). *Arthropoda Selecta*. 2000. 9(4): 221–286.
- Logunov D.V. 2009. Further notes on the Harmochireae of Africa (Araneae, Salticidae, Pelleninae). *ZooKeys*. 16: 265–290. DOI: 10.3897/zookeys.16.227
- Logunov D.V., Marusik Yu. M. 1991. Redescriptions and morphological differences of *Bianor aurocinctus* (Ohlert) and *B. aemulus* (Gertsch) (Aranei, Salticidae). *Sibirskiy biologicheskiy zhurnal*. 2: 39–47 (in Russian).
- Maddison W.P. 2015. A phylogenetic classification of jumping spiders (Araneae: Salticidae). *Journal of Arachnology*. 43(3): 231–292. DOI: 10.1636/arac-43-03-231-292
- Metzner H. 2024. Jumping spiders (Arachnida: Araneae: Salticidae) of the world. Available at: <https://www.jumping-spiders.com> (accessed 17 July 2024).
- Mkheidze T. 1997. Spiders of Georgia: systematics, ecology, zoogeographic review. Tbilisi: Tbilisi University. 390 p. (in Georgian).
- Ono H. 1988. A revisional study of the spider family Thomisidae (Arachnida, Araneae) of Japan. Tokyo: National Science Museum. 252 p.
- Otto S. 2024. Caucasian Spiders. A faunistic database on the spiders of the Caucasus Ecoregion. Version 02.2022. Available at: <https://caucasus-spiders.info/> (accessed 13 July 2024).
- Otto S., Japoshvili G. 2018. The spiders (Arachnida: Araneae) of the Lagodekhi Reserve, Georgia: faunistic results of a transect study and an updated checklist. *Arachnology*. 17(8): 375–391. DOI: 10.13156/arac.2017.17.8.375
- Ponomarev A.V. 2022. Pauki (Arachnida: Aranei) yugo-vostoka Russkoy ravniny: katalog, osobennosti fauny [Spiders (Arachnida: Araneae) of the Southeast of the Russian Plain: catalogue, the fauna specific features]. Rostov-on-Don: Southern Scientific Centre of the Russian Academy of Sciences Publishers. 640 p. (e-book, CD-ROM). Available at: <https://drive.google.com/file/d/1xwSVplXEnWwwPWCGfLQG1iDZX2pRVFvT/view> (in Russian).
- Ponomarev A.V., Komarov Yu.E. 2013. Preliminary review of materials on the fauna of spiders (Aranei) of the Republic of North Ossetia–Alania. In: Trudy Severo-Osetinskogo gosudarstvennogo prirodno-gazopovednika. Vyp. 2 [Proceedings of the North Ossetian State Natural Reserve, Iss. 2]. Vladikavkaz: Litera: 76–111 (in Russian).
- Ponomarov A.V., Komarov Yu.E. 2015. Spiders (Aranei) of the Republic of South Ossetia. *South of Russia: Ecology, Development*. 10(1): 116–147 (in Russian). DOI: 10.18470/1992-1098-2015-1-116-147
- Shorthouse D.P. 2010. SimpleMappr, an online tool to produce publication-quality point maps. Available at: <http://www.simplemappr.net> (accessed 10 July 2024).
- World Spider Catalog. Version 25. 2024. Available at: <http://wsc.nmbe.ch> (accessed 18 July 2024). DOI: 10.24436/2

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