

Further notes on the fossorial wolf spiders of Middle Asia and the Near East (Aranei: Lycosidae)

Дополнительные сведения о норных пауках-волках Средней Азии и Ближнего Востока (Aranei: Lycosidae)

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KEY WORDS: Araneae, *Geolycosa*, *Karakumosa*, *Lycosa*, *Oculicosa*, (re)descriptions, *Zyuzicosa*.

КЛЮЧЕВЫЕ СЛОВА: Araneae, *Geolycosa*, *Karakumosa*, *Lycosa*, *Oculicosa*, (пере)описания, *Zyuzicosa*.

ABSTRACT. The paper presents new taxonomic-faunistic data on 25 species of the fossorial Lycosidae (Aranei) from Middle Asia and the Near East. The lectotype male is designated for *Tarentula fedotovi* Charitonov, 1946. New combinations have been proposed for four species: *Alopecosa nigriventris* (Schmidt, 1895), comb.n., stat.n. (ex *Lycosa*), *Asiacosa ambigua* Denis, 1947, comb.n. (ex *Arctosa*), *A. asiatica* Sytshevskaja, 1980, comb.n. (ex *Lycosa*), and *A. kulagini* Spassky, 1941, comb.n. (ex *Lycosa*). One genus — *Asiacosa* gen.n. (Central Asia) — and 10 species are described as new to science: viz., *Alopecosa darvaz* sp.n. (♀; Tajikistan), *A. pamirica* sp.n. (♀; Tajikistan), *A. safidorak* sp.n. (♀; Tajikistan), *A. zonsteini* sp.n. (♂♀; Uzbekistan), *Asiacosa babatagh* sp.n. (♀; Uzbekistan), *Karakumosa ferganensis* sp.n. (♀; Uzbekistan), *K. ovtchinnikovi* sp.n. (♂♀; Uzbekistan), *K. severtsovi* sp.n. (♀; Tajikistan), *Lycosa uzbekistanica* sp.n. (♀; Uzbekistan), *Zyuzicosa kvak* sp.n. (♂♀; Tajikistan). The name *Karakumosa golesstanica* Shafaie, Nadolny et Mirshamsi, 2022, syn.n. is synonymized with *K. turanica* Logunov et Ponomarev, 2020. The unknown male is described for *Lycosa aragogi* Nadolny et Zamani, 2017 from Iran.

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РЕЗЮМЕ. В статье представлены новые таксономически-фаунистические данные о 25 видах роющих Lycosidae (Aranei) из Средней Азии и Ближнего Востока. Выделен лектотип для *Tarentula fedotovi* Charitonov, 1946. Новые комбинации предложены для четырех видов: *Alopecosa nigriventris* (Schmidt, 1895), comb.n., stat.n. (ex *Lycosa*), *Asiacosa ambigua* Denis, 1947, comb.n. (ex *Arctosa*), *A. asiatica* Sytshevskaja, 1980, comb.n. (ex *Lycosa*), и *A. kulagini*

Spassky, 1941, comb.n. (ex *Lycosa*). Один род — *Asiacosa* gen.n. (Центральная Азия) — и 10 видов описаны, как новые для науки: viz., *Alopecosa darvaz* sp.n. (♀; Таджикистан), *A. pamirica* sp.n. (♀; Таджикистан), *A. safidorak* sp.n. (♀; Таджикистан), *A. zonsteini* sp.n. (♂♀; Узбекистан), *Asiacosa babatagh* sp.n. (♀; Узбекистан), *Karakumosa ferganensis* sp.n. (♀; Узбекистан), *K. ovtchinnikovi* sp.n. (♂♀; Узбекистан), *K. severtsovi* sp.n. (♀; Таджикистан), *Lycosa uzbekistanica* sp.n. (♀; Узбекистан), *Zyuzicosa kvak* sp.n. (♂♀; Таджикистан). Название *Karakumosa golesstanica* Shafaie, Nadolny et Mirshamsi, 2022, syn.n. синонимизировано с *K. turanica* Logunov et Ponomarev, 2020. Описан неизвестный самец для *Lycosa aragogi* Nadolny et Zamani, 2017 из Ирана.

Introduction

The fossorial Lycosidae of Middle Asia and the Near East have been the subject of recent taxonomic studies by a number of authors (e.g., Logunov [2010, 2012, 2013, 2020]; Logunov & Gromov [2011]; Nadolny & Zamani [2017, 2020]; Fomichev [2020, 2023]; Logunov & Fomichev [2021]; Armiaich Steinpress *et al.* [2022]; Shafaie *et al.* [2022a,b]; Zamani *et al.* [2022]; etc.). According to Logunov & Ponomarev [2020: Table], a total of 30 species of burrowing lycosids have been recorded/described from Middle Asia, with some of the old records still requiring verification by reference to the pertinent material. For instance, Schmidt [1895: all sub. *Lycosa* spp.] recorded 10 fossorial lycosid species from Middle Asia, of which most are still of questionable taxonomic status. Some of Schmidt's records have already been clarified. For instance, the record of *Lycosa latifasciata* (Kroneberg, 1875) from Tajikistan (Yashil'kul') was re-classified by Charitonov [1946: 22] as a new species *Tarentula*

Table. Clarified identifications of the fossorial lycosids reported by Schmidt [1895].
Таблица. Уточненные определения роющих ликозид, приведенных Шмидтом [Schmidt, 1895].

P. Schmidt's IDs	Specimens	Locality	Current IDs	Comments
<i>Lycosa alticeps</i>	1 ♂	Baku, Azerbaijan	<i>Karakumosa shmatkoi</i>	See in Logunov & Ponomarev [2020].
<i>Lycosa alticeps</i>	1 ♀, 2 juv ♀♀	Turkomania, Turkmenistan(?)	<i>Karakumosa</i> sp.	The adult ♀ is lacking the epigyne. Although its ID is impossible, the ♀ is much larger than true <i>K. alticeps</i> . These specimens were collected together with <i>Oculicosa supermirabilis</i> (1 ♂; Figs 160, 162), which was also identified by Schmidt as <i>L. alticeps</i> (see below).
<i>Lycosa alticeps</i>	1 ♂	Turkomania, Turkmenistan(?)	<i>Oculicosa supermirabilis</i>	Figs 160, 162; this ♂ was collected together with <i>Karakumosa</i> sp. (1 ♀, 2 juv ♀♀), which were also identified by Schmidt as <i>L. alticeps</i> (see above).
<i>Lycosa alticeps</i>	2 ♀♀, 1 juv ♀	Fergana, Uzbekistan	<i>Karakumosa ferganensis</i> sp.n.	Figs 104–108; for a diagnosis and description see in the text.
<i>Lycosa alticeps</i>	3 juv ♀♀	Uch-Adzhi, Turkmenistan	<i>Karakumosa</i> sp.	Juvenile ♀♀, a positive ID is impossible.
<i>Lycosa cambridgei</i>	1 ♀	Libyan desert, Egypt	<i>Lycosa piochardi</i>	Figs 156, 157; see also in Armiaich Steinpress <i>et al.</i> [2022].
<i>Lycosa glasunovi</i>	1 subadult ♀	Quarshi, Uzbekistan	<i>Zyuzicosa</i> sp.	A positive ID is impossible, could belong to either <i>Z. uzbekistanica</i> or to <i>Z. nenjukovi</i> ; for further details see in the text.
<i>Lycosa glasunovi</i>	2 subadult ♀♀	Zeravshan, Uzbekistan	<i>Lycosa</i> sp.	It is likely that both subadult ♀♀ belong to <i>Lycosa praegrandis</i> .
<i>Lycosa medica</i>	1 ♂	Quarshi, Uzbekistan	<i>Zyuzicosa nenjukovi</i>	Figs 178–181; see also in Logunov [2012], for further details see in the text.
<i>Tarentula bergsoei</i>	2 subadult ♀♀	Kuldzha, Turkmenistan	<i>Lycosa</i> sp.	Subadult ♀♀, a positive ID is impossible.
<i>Tarentula bergsoei</i>	1 subadult ♀	Aşgabat, Turkmenistan	<i>Lycosa</i> sp.	Subadult ♀, a positive ID is impossible.

Abbreviations used: ID — identification; juv — juvenile.
Сокращения: ID — определение; juv — ювенильный.

fedotovi Charitonov, 1946 (now in *Alopecosa* Simon, 1885; see also Charitonov [1969]).

Recently, the author of the present paper was able to re-examine old collections of the burrowing lycosids deposited in the Zoological Institute of the Russian Academy of Sciences (St Petersburg, Russia) and the Zoological Museum of the Moscow University (Russia), including 11 samples of those studied by Schmidt [1895] (see Table for details). Some of his identifications were based on juvenile specimens that could not be identified to species. Therefore, in order to comment on and clarify Schmidt's earlier identifications based on immatures, several accounts given below have only generic names.

The paraphyletic genus *Hogna* Simon, 1885, with 235 named species in the world fauna [WSC, 2023] and reliable data on only two species in Middle Asia and the Near East [Mikhailov, 2013; Logunov, 2022], is not included in the present paper and will be considered elsewhere.

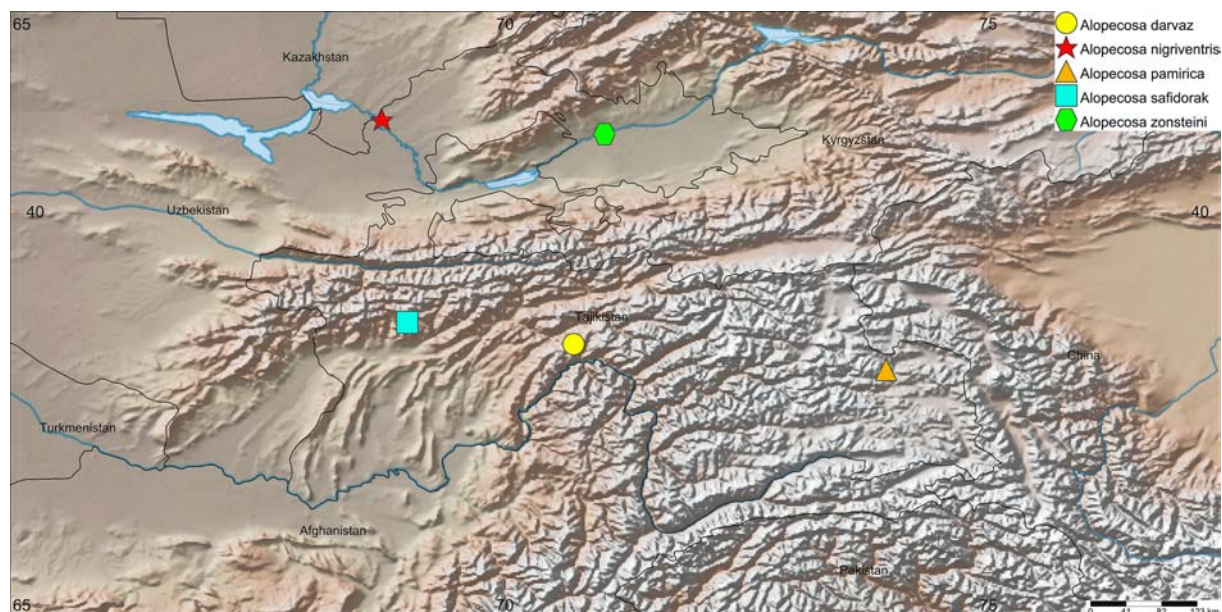
The aims of this paper are (1) to (re)describe and/or illustrate 10 new and six poorly known burrowing lycosid species from Middle Asia and the Near East; (2) to re-examine some of the lycosid species recorded by Schmidt [1895]; (3) to present new faunistic records for nine species.

Material and methods

A total of 149 specimens have been studied. These specimens have been borrowed from or shared between the following museums: MHNG — Muséum d'histoire naturelle, Genève, Switzerland (curator: L. Monod); MIIZ — Museum and Institute of Zoology of the Polish Academy of Sciences, Warsaw, Poland (curator: W. Wawer); MMUE — Manchester Museum, University of Manchester, Manchester, UK (honorary curator: D.V. Logunov); PSU — Zoological Department of the Perm State University, Russia (curator: S.L. Eshyudin); SMNH — Steinhardt Museum of Natural History, Tel Aviv, Israel (curator: S.L. Zonstein); ZISP — Zoological Institute of the Russian Academy of Sciences, Saint Petersburg, Russia (curator: D.V. Logunov); ZMMU — Zoological Museum of the Moscow State University, Moscow, Russia (curator: K.G. Mikhailov).

The terminology and format of description follow Logunov [2010]. Abbreviations used in the text and figures: AME — anterior median eye, ALE — anterior lateral eye, a.s.l. — above sea level, D — described, Distr. — District, E — embolus, FC — functional conductor, Fm — femur, MA — median apophysis, Mt — metatarsus, Pl — palea, PME — posterior median eye, PLE — posterior lateral eye, Pt — patella, Se — synembolus, Tb — tibia, Tr — tarsus, Vil. — village. The sequence of leg segments in measurement data is as follows: Fm + Pt + Tb + Mt + Tr (total). All measurements are in mm.

The majority of digital photographs were made at the Manchester Museum, using an Olympus SZX16 stereo mi-



Map 1. Type localities of the *Alopecosa* species (re)described in the present work.

Карта 1. Типовые локалитеты видов *Alopecosa* (пере)описанных в настоящей работе.

croscope with a DP27 Digital Colour Camera, and Helicon Focus 7.7.2 as the processing software. Some digital photographs (Figs 122–124, 138–140, 170–173, 176, 177, 180, 181) were made at the World Museum of Liverpool (UK) using a Canon 6D Mark II Camera with a Canon MP-E 65mm lens with Helicon Remote ver. 3.9.7W to control the StackShot 3X Macro Rail and camera settings. Helicon Focus 6.8.0 was used as processing software. Distributional map was produced by using the online mapping software SimpleMappr [Shorthouse, 2010].

Species survey

Alopecosa Simon, 1885

Type species: *Lycosa fabrilis* Clerck, 1757; by original designation [Simon, 1885].

COMMENTS. *Alopecosa* is a large genus of wolf spiders accounting for 163 named species [WSC, 2023], the vast majority of which are recorded/described from the Palearctic region; only eight species are known from North America [Dondale & Redner, 1990]. The revised European fauna of *Alopecosa* was considered by Lugetti & Tongiorgi [1969] in five species groups: *fabrilis*, *pulverulenta*, *cursor*, *sulzeri* and *striatipes*. However, this grouping hardly covers the entire diversity of the genus, which, according to Marusik & Kovbluk [2011], needs to be further subdivided into a number of smaller genera.

The Middle Asian fauna of *Alopecosa*, including Kazakhstan, currently numbers 37 species [Mikhailov, 2013]. Data on six species, four of which are new to science, are presented below.

Alopecosa darvaz sp.n.

Figs 1–7, Map 1.

TYPE. HOLOTYPE ♀ (ZISP, ARA_ARA_0000378), Tajikistan, Darvaz (=Darvoz) Mt. Range, Khobu-Rubot (=Khaburabot) pass (c. 38°38'N, 70°44'E), 2600 m a.s.l., 27.09.1970, coll.?

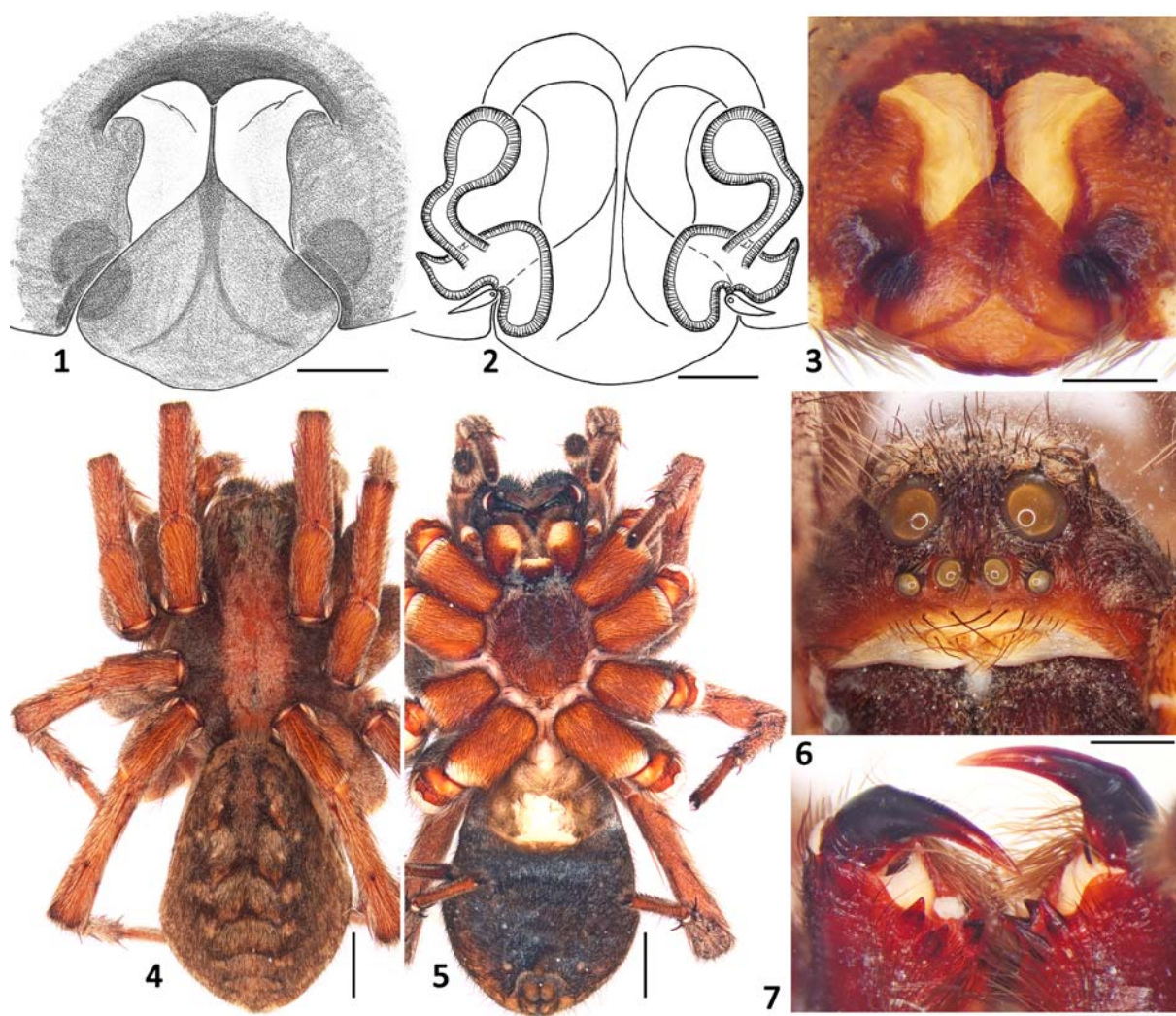
ETYMOLOGY. The specific epithet is a noun in apposition taken from the Darvaz Mt. Range in Tajikistan, where the holotype female was collected.

DIAGNOSIS. In the conformation of the epigyne and vulva *A. darvaz* sp.n. is most similar to those of the Uzbekistani *A. latifasciata* (Kroneberg, 1875) (Figs 12–14) and the west-Kazakhstani *A. sciophila* Ponomarev, 2008, from which it can be easily distinguished by the well-developed, wide epigynal hoods, the diamond-shaped median septum (vs. triangular-oval) and the presence of lateral pointed extensions of the primary receptacles (absent in both related species; cf. Figs 2, 13 and fig. 17 in Ponomarev [2008]).

DISTRIBUTION. Only the type locality (Map 1).

DESCRIPTION. MALE unknown.

FEMALE. *Measurements*. Carapace 7.75 long, 5.60 wide. Eye sizes and interdistances: AME 0.28, ALE 0.25, PME 0.68, PLE 0.55, AME-AME 0.18, AME-ALE 0.13, PME-PME 0.55, PLE-PLE 1.25. Width of anterior eye row 1.43, second row 1.75, third row 1.90. Clypeus height 0.33, chelicera length 3.35. Abdomen 8.20 long, 5.40 wide. Length of leg segments: I 5.90 + 3.10 + 4.20 + 4.10 + 2.60 (19.90); II 5.40 + 2.75 + 3.50 + 3.80 + 2.50 (17.95); III 5.25 + 2.25 + 3.60 + 3.25 + 2.35 (16.70); IV 6.50 + 2.70 + 5.05 + 6.55 + 2.90 (23.70). *Spination of leg I*: Fm d 1-1-2ap; Tb pr 1-1, v 2-2-2ap; Mt pr and rt 1ap, v 2-2-2ap. *Colouration* (Figs 4–5). Carapace yellow-brow, with a wide longitudinal stripe of long white recumbent scales running from eye field to the rear margin; lateral margins covered with long brown recumbent scales. Sternum yellow-brown. Labium and endites brown, with yellow apices. Chelicerae dark brown. Abdomen: dorsum and sides greyish brown, with a dorsal pattern of wide whitish longitudinal interrupted stripe as in Fig. 4; venter dark brown, almost black, with a pair of white spots in front of spinnerets. Book-lung covers yellow-grey, spinneret yellowish brownish. All legs and palps yellow-brown, palpal Tr with a single apical claw. Epigyne and vulva as in Figs 1–3: median septum diamond-shaped, its width/height ratio 1.2; septal pedicel very thin; epigynal atria paired, 2.6



Figs 1–7. Holotype ♀ of *Alopecosa darvaz* sp.n.: 1, 3 — epigyne, ventral view; 2 — vulva, dorsal view; 4 — body, dorsal view; 5 — same, ventral view; 6 — carapace, frontal view; 7 — chelicerae, rear view. Scale bars: 0.25 mm (1–3), 1 mm (6, 7), 2 mm (4, 5).

Рис. 1–7. Голотип ♀ *Alopecosa darvaz* sp.n.: 1, 3 — эпигина, вид снизу; 2 — вульва, вид сверху; 4 — тело, вид сверху; 5 — то же, вид снизу; 6 — головогрудь, вид спереди; 7 — хелицеры, вид сзади. Масштаб: 0,25 мм (1–3), 1 мм (6, 7), 2 мм (4, 5).

times longer than wide; hood cavities paired, well-developed, wide and rather deep; vulva with bean-shaped primary receptacles and round secondary receptacles; fertilisation ducts prominent, directed proximad.

Alopecosa latifasciata (Kroneberg, 1875)

Figs 12–19.

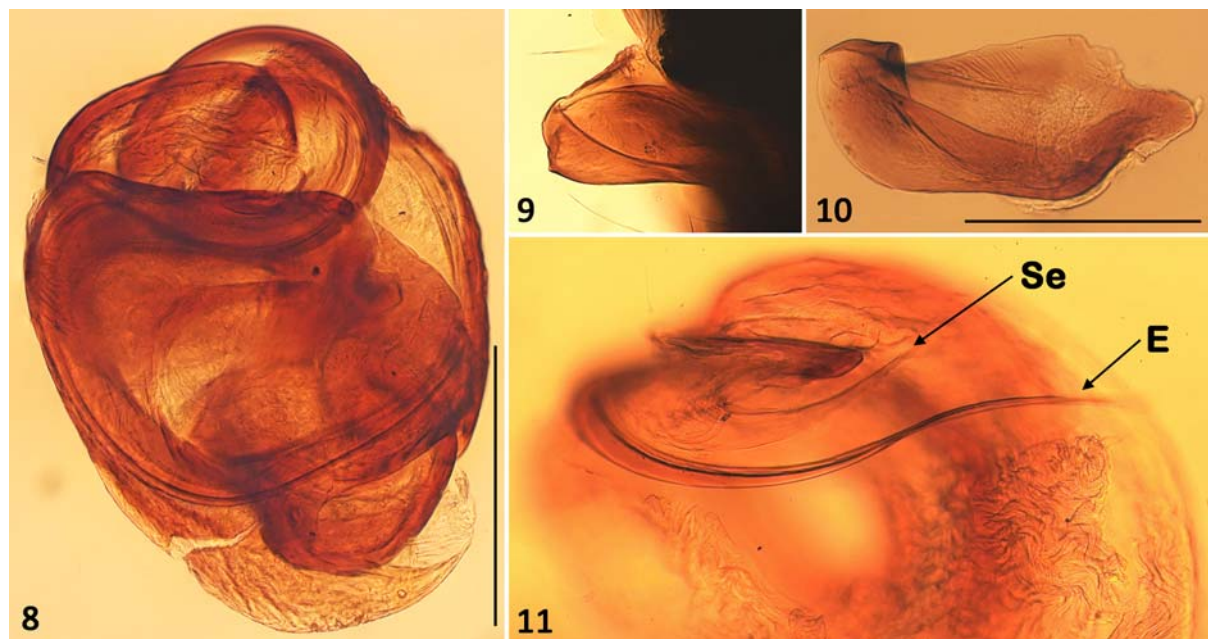
Tarentula latifasciata Kroneberg, 1875: 39, pl. 4, fig. 27a–d (D♂♀); the type series in ZMMU, not examined. According to Esysunin & Ponomarev [2018: 64], 2 ♂♂ and 2 ♀♀ of the original type series of *T. latifasciata* were mismatched, with the females actually belonging to *Bogdocosa kronebergi* (Andreeva, 1976).

MATERIAL. UZBEKISTAN: 2 ♀♀ (SMNH), 1 ♀ (ZISP, ARA_ARA_0000382), Tashkent Region, 19 km SSE of Gazalkent, Syurenata Mts (41°24.1'N, 69°50.4'E; Fig. 19), 1500 m a.s.l., 4.05.2019, S.L. Zonstein.

ETYMOLOGY. From the Latin *latifasciata*, meaning 'broad-banded' (*latus* — broad, wide; *fascia* — band).

DIAGNOSIS. This species differs from all the Central Asian *Alopecosa* species known to me in having numerous clear white speckles on the venter in both sexes (Fig. 16). The female copulatory organs are most similar to those of the west-Kazakhstani *A. sciophila* and *A. darvaz* sp.n., but can be easily distinguished from both by mutual arrangement and proportions of the ducts connecting primary and secondary receptacles (cf. Figs 2, 13 and figs 16, 17 in Ponomarev [2008]).

COMMENTS. The current species identification is to be considered provisional and based on the diagnosis provided by Charitonov [1969: 91], who wrote (my translation) that "*Tarentula latifasciata* described by Kroneberg includes two species. We have separated these species, retaining the name given by Kroneberg for the smaller species (size was given by Kroneberg in the description), which has white speckles on the ventral side of the abdomen". Of the new *Alopecosa* species studied herein or known to the author, it is the only one having white speckles on its venter (Fig. 16). Hence, it



Figs 8–11. Lectotype ♂ of *Tarentula fedotovi* Charitonov, 1946: 8 — bulbus, ventral view; 9 — median apophysis, retrolateral view; 4 — same, ventral view; 5 — embolar division, apical view. Abbreviations: Se — synembolus; E — embolus. Scale bars: 0.5 mm.

Рис. 8–11. Лектотип ♂ *Tarentula fedotovi* Charitonov, 1946: 8 — бульбус, вид снизу; 9 — медиальная апофиза, вид сбоку-сзади; 4 — то же, вид снизу; 5 — эмболярный отдел, вид сверху. Сокращения: Se — синэмболюс; E — эмболюс. Масштаб: 0,5 мм.

has been identified as *A. latifasciata* (*sensu* Charitonov [1969]). A final confirmation of this identification will be possible, when both sexes are collected together and the males are compared to the syntype males of *T. latifasciata*.

It is worth noticing that the epigyne of the studied females is very similar to that described by Charitonov [1946: fig. 17] under the name of *Tarentula fedotovi* Charitonov, 1946. However, it seems that the original series of the syntypes of *T. fedotovi* included two different and even not congeneric species. The original type series consists of two samples collected from two localities in Uzbekistan: SE of Ishkent (3 ♂♂ 1 ♀; c. 38°51'N, 66°58'E) and Yangikishlak (1 ♀; c. 39°53'N, 66°39'E) [Charitonov, 1946: 22]; the holotype was not designated, and hence all these specimens are to be treated as syntypes. In his later paper, Charitonov [1969: 90] mentioned one more female of *T. fedotovi* from “Gyuldara Kolkhoz” (not found site), which turned out to be an immature specimen. Unfortunately, none of the syntypes is available in the PSU collection (S. Esyunin, pers. comm., 10 August 2023), only four low-quality slide preparations: one of an immature female, one ruined (no cover glass) and therefore not usable, and two slides with male palps (the entire palp in lateral view, and dissected palp parts; Figs 8–11).

Although the preserved parts of male palps (Figs 8–11) are not sufficient for reliable species identification, they could help to clarify the generic status of this taxon. For instance, the embolic division of *T. fedotovi* clearly possesses well-developed both synembolus and embolus (Fig. 11: Se, E), whereas the synembolus is absent in the majority of *Alopecosa* species. Yet, both sclerites present in *Hogna* congeners (e.g., figs 16, 17 in Logunov [2020]). At the same time, the female illustrated by Charitonov [1946: fig. 17] is of clear *Alopecosa*-type. Therefore, there is a high probab-

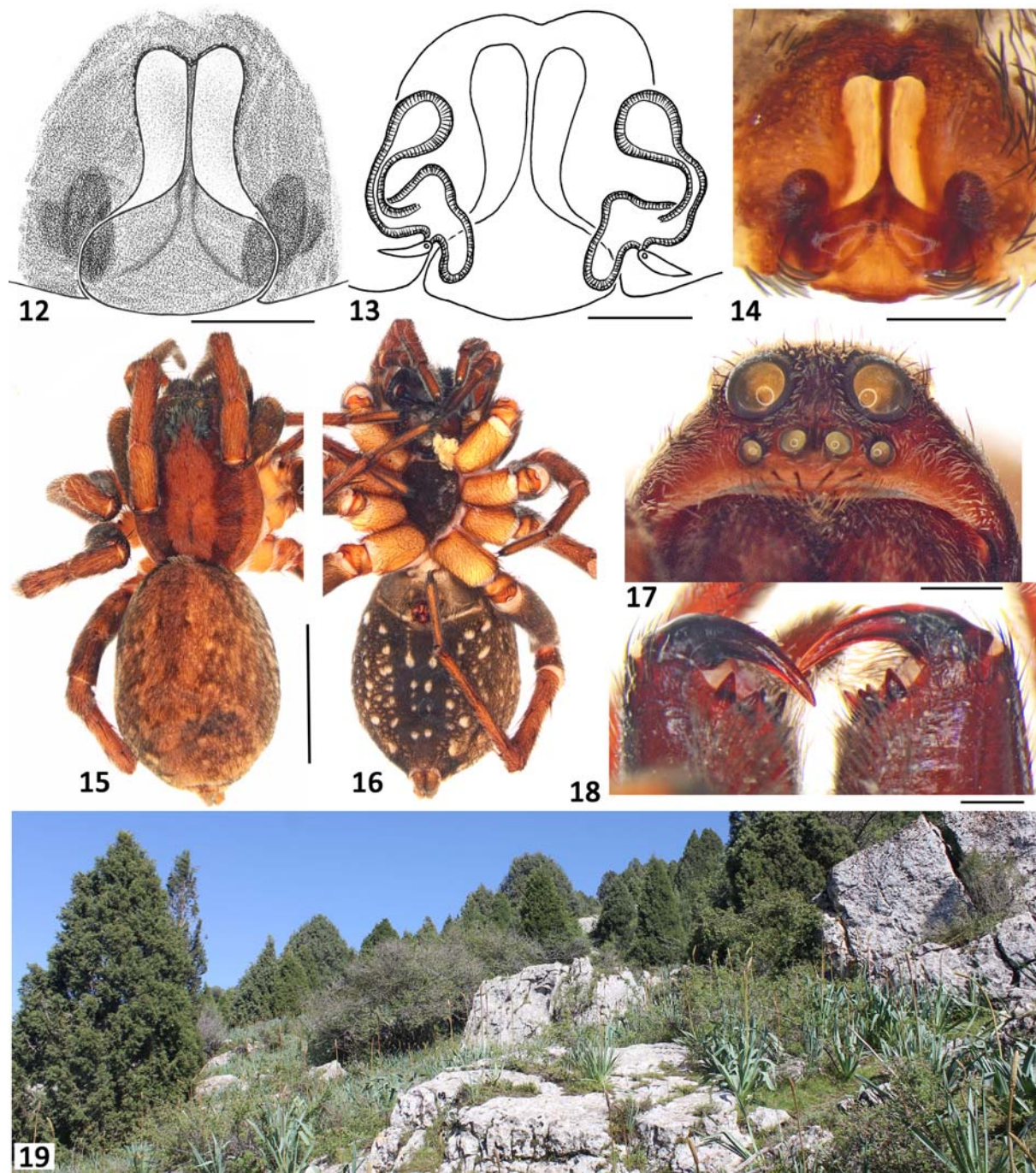
ility of mismatched males and females from the original series of syntypes. In order to fix the name of *T. fedotovi* to a particular species, the male illustrated (Figs 8–11) has been designated as the lectotype.

DISTRIBUTION. South-East Uzbekistan. The original type locality was given by Kroneberg [1875: 40] as ‘Marian’, apparently from Uzbekistan, but I have failed to trace this locality on modern maps. This species was also recorded from Tajikistan by Andreeva [1976], but due to the confused taxonomy and uncertainty in the identification of this species all records by Andreeva require confirmation upon reference to pertinent material, which was unavailable for the present study.

Yet, Charitonov [1946, 1969] argued that the male of *A. latifasciata* recorded by Schmidt [1895] from Yashil’kul’ (Tajikistan) should be referred to *T. fedotovi*. It is not known whether Charitonov was actually able to re-examine Schmidt’s specimen. The matter requires a special attention when/if the specimens studied by Schmidt have been found in the collection of the Zoological Institute in St. Petersburg (Russia).

DESCRIPTION. MALE. For a brief description see Kroneberg [1875].

FEMALE (specimen from SMNH). *Measurements.* Carapace 5.90 long, 4.25 wide. Eye sizes and interdistances: AME 0.26, ALE 0.23, PME 0.55, PLE 0.48, AME-AME 0.13, AME-ALE 0.10, PME-PME 0.40, PLE-PLE 1.03. Width of anterior eye row 1.03, second row 1.43, third row 1.65. Clypeus height 0.13, chelicera length 2.55. Abdomen 8.60 long, 6.00 wide. Length of leg segments: I 4.50 + 2.30 + 3.15 + 2.80 + 2.00 (14.75); II 4.00 + 2.05 + 2.85 + 2.85 + 1.65 (13.40); III 3.65 + 1.65 + 2.55 + 3.20 + 1.75 (12.80); IV 4.80 + 2.25 + 3.65 + 4.75 + 2.30 (17.75). *Spination of leg I:* Fm d 1-1-3ap; Tb pr 1-1, v 2-2-2ap; Mt pr 0-1-

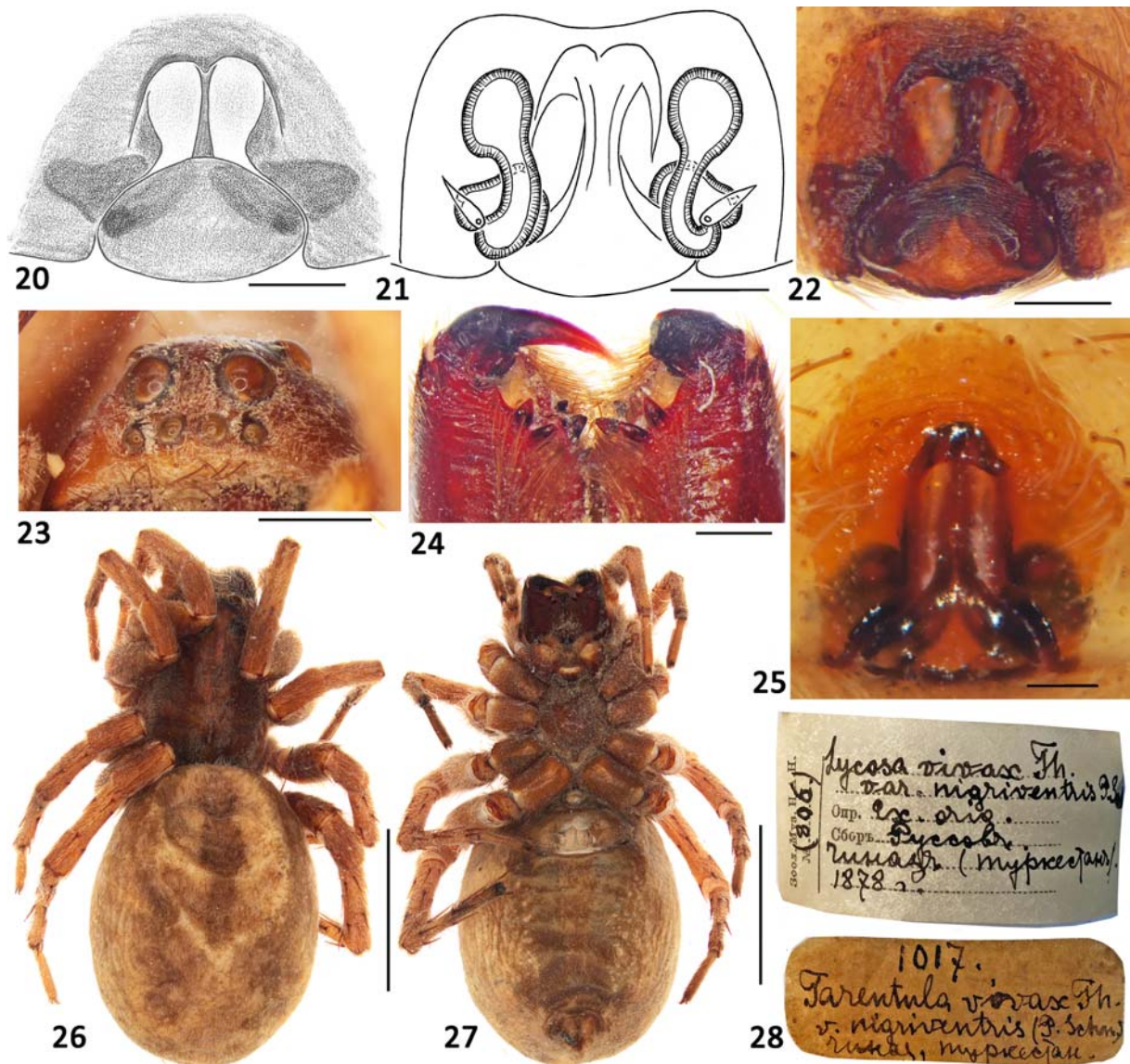


Figs 12–19. Female of *Alopecosa latifasciata* (Kroneberg, 1875) and its habitat, Syurenata Mts, Uzbekistan: 12, 14 — epigyne, ventral view; 13 — vulva, dorsal view; 15 — body, dorsal view; 16 — same, ventral view; 17 — carapace, frontal view; 18 — chelicerae, rear view; 19 — habitat photo, © A. Zamesov. Scale bars: 0.25 mm (12–14), 0.5 mm (17, 18), 5 mm (15, 16).

Figs 12–19. Самка *Alopecosa latifasciata* (Kroneberg, 1875) и её местообитание, горы Сюрената, Узбекистан: 12, 14 — эпигина, вид снизу; 13 — вульва, вид сверху; 15 — тело, вид сверху; 16 — то же, вид снизу; 17 — карапакс, вид спереди; 18 — хелицеры, вид сзади; 19 — фото местообитания, © А. Замесов. Масштаб: 0,25 мм (12–14), 0,5 мм (17, 18), 5 мм (15, 16).

0, v 2-2-3ap. **Colouration** (Figs 15–16). Carapace yellow-orange, with a wide longitudinal median and two wide marginal white stripes of recumbent scales, and with a pair of wide longitudinal brown stripes of recumbent scales. Sternum dark brown, covered with protruded black hairs. Labium and endites dark brown, with yellow apices. Abdomen

yellow-brown, with a pale brown cardiac mark, but without a marked colour pattern; venter dark brown, with longitudinal rows of clearly marked white speckles. Legs: coxae, Tb, Mt and Tr yellow-orange; Fm and Pt brown. Palps brown, with a single apical claw on Tr. Epigyne and vulva as in Figs 12–14: median septum triangular-oval, its width/height ratio



Figs 20–28. Holotype ♀ of *Lycosa vivax* var. *nigriventris* Schmidt, 1895 (20–24, 26–28) and holotype ♀ of *Tarentula vivax* Thorell, 1875 (25): 20, 22, 25 — epigyne, ventral view; 21 — vulva, dorsal view; 23 — cephalothorax, frontal view; 24 — chelicerae, rear view; 26 — body, dorsal view; 27 — same, ventral view; 28 — original labels. Scale bars: 0.25 mm (20–22, 25), 1 mm (23, 24), 5 mm (26, 27).

Рис. 20–28. Голотип ♀ *Lycosa vivax* var. *nigriventris* Schmidt, 1895 (20–24, 26–28) и голотип ♀ *Tarentula vivax* Thorell, 1875 (25): 20, 22, 25 — эпигина, вид снизу; 21 — вульва, вид сверху; 23 — головогрудь, вид спереди; 24 — хелицеры, вид сзади; 26 — тело, вид сверху; 27 — то же, вид снизу; 28 — оригинальные этикетки. Масштаб: 0,25 мм (20–22, 25), 1 мм (23, 24), 5 мм (26, 27).

2.4; septal pedicel very thin; epigynal atria paired, shallow and narrow (4.5 times longer than wide); hood cavities paired, closely set and poorly visible; vulva C-shaped, with round receptacles; fertilisation ducts prominent, directed proximad.

Alopecosa nigriventris (Schmidt, 1895),
comb.n., stat.n.

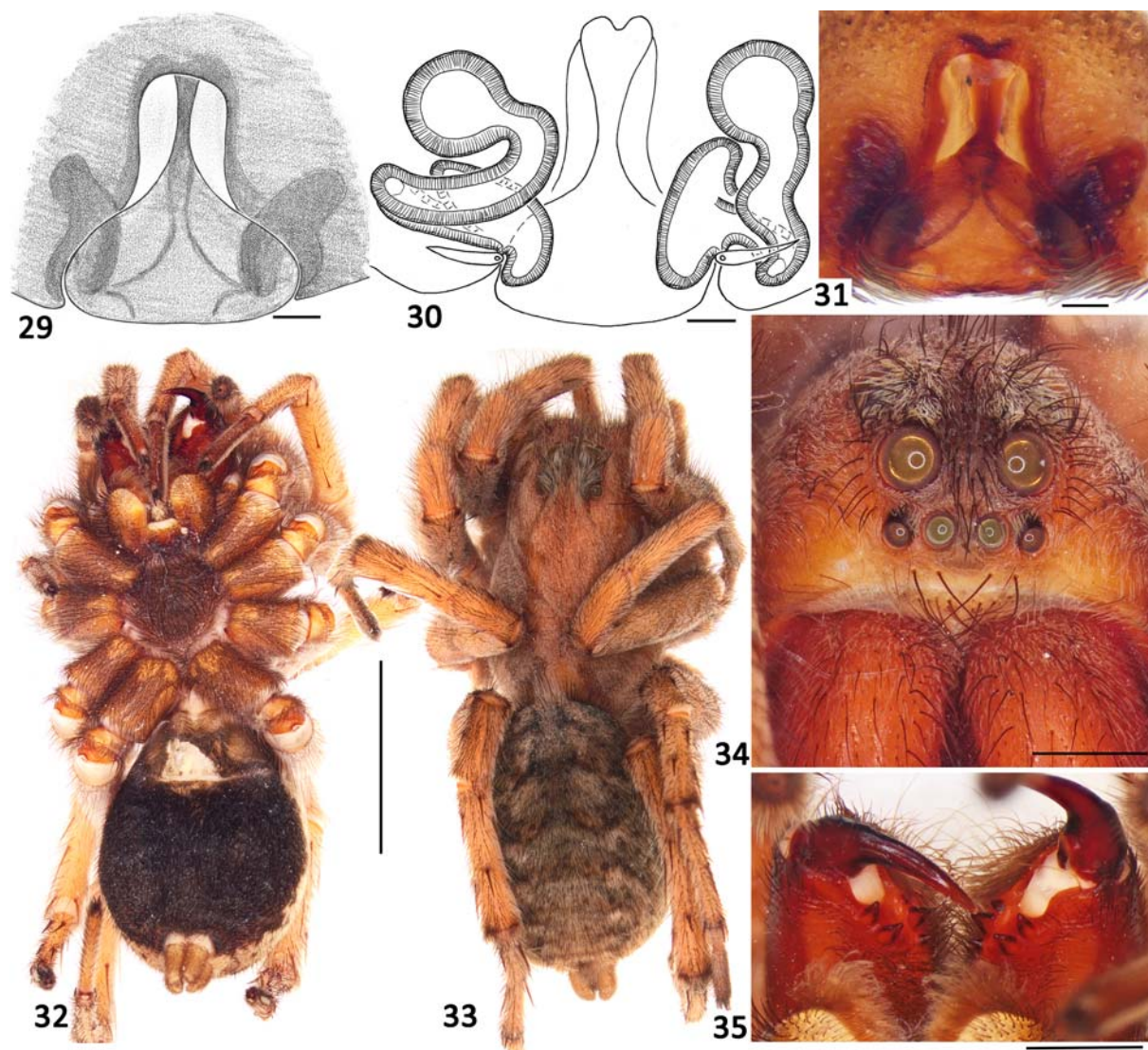
Figs 20–24, 26–28, Map 1.

Lycosa vivax var. *nigriventris* Schmidt, 1895: 458 (D♀); the holotype ♀ is deposited in ZISP, examined.

TYPE. HOLOTYPE ♀ (ZISP, ARA_ARA_0000009; Figs 20–24, 26, 27), Uzbekistan, Tashkent Region, Chinaz [c. 40°57'N, 68°45'E], 1878, Russov [1017(806)].

ETYMOLOGY. From the Latin *nigriventris*, meaning 'black-bellied' (*niger* — black, dark; *venter* — belly). This form was diagnosed by Schmidt [1895: 458] based on the black underside of abdomen, sternum and coxae. Yet, the holotype female is now faded and therefore these body parts currently look brown (Figs 26, 27).

DIAGNOSIS. The epigyne of *A. nigriventris* is similar to that of *A. azheganovae* Esyunin, 1996 from West Siberia, but differs in having the longer septal pedicel and the shallow, poorly-developed epigynal hood (cf. Figs 20, 22 with



Figs 29–35. Holotype ♀ of *Alopecosa pamirica* sp.n.: 29, 31 — epigyne, ventral view; 30 — vulva, dorsal view; 32 — body, ventral view; 33 — same, dorsal view; 34 — carapace, frontal view; 35 — chelicerae, rear view. Scale bars: 0.1 mm (29–31), 1 mm (34, 35), 5 mm (32, 33).

Рис. 29–35. Голотип ♀ *Alopecosa pamirica* sp.n.: 29, 31 — эпигина, вид снизу; 30 — вульва, вид сверху; 32 — тело, вид снизу; 33 — то же, вид сверху; 34 — головогрудь, вид спереди; 35 — хелицеры, вид сзади. Масштаб: 0,1 мм (29–31), 1 мм (34, 35), 5 мм (32, 33).

figs 4, 5, 14 in Azarkina *et al.* [2015]). The vulva of *A. nigriventris* is most similar to those of the central European *A. psammophila* Buchar, 2001 and the east-Kazakhstani *A. kasakhstanica* Savelyeva, 1972, from which it can be separated by the markedly longer and narrower ducts connecting primary and secondary receptacles (cf. Fig. 21 and figs 30, 35 in Azarkina & Trilikauskas [2013]).

COMMENTS. This taxon was described by Schmidt [1895: 458] as a variety of *Tarentula vivax* Thorell, 1875 [Thorell, 1875] and is currently listed as a synonym of the latter species name [WSC, 2023] under the genus *Vesubia* Simon, 1909. However, based on the epigyne of its holotype (Fig. 25), *T. vivax* actually belongs to the *pulverulenta* species group of *Alopecosa* (*sensu* Lagetti & Tongiorgi [1969] and Kronstedt [1990]). Yet, *A. nigriventris* is actually a member of the *sulzeri* species group (*sensu* Lugetti & Ton-

giorgi [1969]) and can be easily distinguished from *T. vivax* by the oval median septum (*vs.* triangular), the wider, shallow epigynal hoods (*vs.* narrower and deeper), and notably wider epigynal atria (Figs 20, 22).

According to the ICZN (Art. 45.6.4.), the name published before 1961, when the author “expressly used one of the terms ‘variety’ or ‘forma’ (including use of the terms ‘var.’, ‘forma’, ‘v.’ and ‘f.’)”, is to be adopted as subspecific, and therefore such name is available. Besides, the current practice in arachnology and the WSC is to accept all old described “var.” as subspecies (Theo Blick, pers. comm., 15 August 2023). Based on the aforementioned differences between the nominative species *T. vivax* and its subspecies *T. vivax nigriventris* (see above; Figs 20–25), it is safe to conclude that both taxa are distinct and valid, and the name *nigriventris* can be safely elevated to full species.

DISTRIBUTION. Only the type locality in Uzbekistan (Map 1), although the species was mistakenly reported by Freiberg [1897] from Moscow Governorate, and this record was repeated by Mikhailov [1983] as well.

DESCRIPTION. MALE unknown. It is highly likely that Schmidt's [1895] record of *Lycosa vivax* based on one male and one female from Nukus (Uzbekistan) actually belongs to *A. nigriventris*. The matter requires a special attention when/if the specimens studied by Schmidt have been found in the collection of the Zoological Institute in St. Petersburg (Russia).

FEMALE Measurements. Carapace 6.00 long, 4.10 wide. Eye sizes and interdistances: AME 0.28, ALE 0.23, PME 0.53, PLE 0.48, AME-AME 0.10, AME-ALE 0.13, PME-PME 0.43, PLE-PLE 0.90. Width of anterior eye row 1.30, second row 1.33, third row 1.45. Clypeus height 0.18, chelicera length 2.75. Abdomen 9.65 long, 7.50 wide. Length of leg segments: I 4.20 + 2.15 + 2.75 + 2.85 + 1.95 (19.90); II 3.70 + 2.00 + 2.65 + 2.70 + 1.85 (12.90); III 3.55 + 1.75 + 2.50 + 3.30 + 1.40 (12.50); IV 4.10 + 2.05 + 3.30 + 4.80 + 2.40 (16.65). *Spination of leg I:* Fm d 1-1-3ap; Tb pr 1-1, v 2-2-2ap; Mt pr 0-1-lap, v 2-2-3ap. *Colouration* (Figs 26–27). The holotype is rather faded. Carapace sandy coloured, with a wide median and two marginal longitudinal white stripes of recumbent scales, and two wide brown longitudinal stripes of recumbent scales. Sternum light brown. Labium and endites sandy coloured, with white apices. Chelicerae brown. Abdomen sandy coloured, with a pale brown cardiac mark; venter brown. Book-lung and spinnerets sandy-coloured. All legs and palps sandy-coloured; palps Tr with a single apical claw. Epigyne and vulva as in Figs 20–22: median oval (width/height ratio 1.4); septal pedicel narrow; epigynal atria paired, shallow, twice as long as wide; hood cavities poorly visible; vulva C-shaped, with insemination ducts inwardly curved, with round receptacles that are two times wider than insemination ducts; fertilisation ducts prominent, directed laterad.

Alopecosa pamirica sp.n.

Figs 29–35, Map 1.

TYPE. Holotype ♀ (ZISP, ARA_ARA_0000377), Tajikistan, East Pamir, Chechekty [pass; c. 38°21'59"N, 73°58'E], 4000–4200 m a.s.l., in burrow, 27.07.1970, coll.?

ETYMOLOGY. The specific epithet is an adjective originating from Pamir (Tajikistan) and denoting the geographical region, where the holotype was collected.

DIAGNOSIS. Of all the Central Asian *Alopecosa* species known to me, apart from *A. safidorak* sp.n. (Figs 36–38), *A. pamirica* sp.n. differs in having the strongest and longest (as long as the median septum) vulva (Figs 29–31). From *A. safidorak* sp.n., it can be easily distinguished by the oval rather than bean-shaped primary receptacles and the markedly longer and convoluted ducts (vs. comparatively short and almost straight; cf. Figs 30 and 37).

DISTRIBUTION. Only the type locality (Map 1).

DESCRIPTION. MALE unknown.

FEMALE Measurements. Carapace 7.00 long, 4.75 wide. Eye sizes and interdistances: AME 0.25, ALE 0.25, PME 0.50, PLE 0.50, AME-AME 0.33, AME-ALE 0.10, PME-PME 0.60, PLE-PLE 1.20. Width of anterior eye row 1.40, second row 1.50, third row 1.80. Clypeus height 0.33, chelicera length 3.25. Abdomen 7.10 long, 5.80 wide. Length of leg segments: I 4.80 + 2.75 + 3.75 + 3.45 + 2.10 (16.85); II 4.60 + 2.20 + 3.15 + 3.50 + 2.00 (15.45); III 4.00 + 2.20 +

2.85 + 3.35 + 2.25 (14.65); IV 5.65 + 2.45 + 4.10 + 5.10 + 2.75 (20.05). *Spination of leg I:* Fm d 1-1-3ap; Tb pr 1-1-1, v 2-2-2ap; Mt v 2-2-3ap. *Colouration* (Figs 32–33). Carapace yellow-orange, densely covered with white and brown long recumbent scales' median white stripe of scales poorly marked; carapace margins darker (brownish). Sternum brown, densely covered with black protruded hairs. Labium and endites yellow-brown, with bright yellow apices. Chelicerae red-brown. Abdomen: dorsum and sides yellowish grey, with a dorsal longitudinal pattern consisting of paired brown stripes and white patches; brownish cardiac mark is visible but poorly marked; venter dark brown, almost black. Book-lung covers yellow, tinged with grey. Spinnerets yellow. All legs and palps yellow; palpal Tr with a single apical claw. Epigyne and vulva as in Figs 29–31: median septum triangular, 1.6 time wider than high; septal pedicel thin; epigynal atria paired, shallow and narrow (3.8 times longer than wide); hood cavities paired, shallow, closely set and poorly marked; vulva convoluted, heavily sclerotised, with prominent round secondary receptacles situated at the level of hood cavities, receptacles twice as wide as insemination ducts; fertilisation ducts prominent, directed proximad.

Alopecosa safidorak sp.n.

Figs 36–42, Map 1.

TYPES. HOLOTYPE ♀ (SMNH; Figs 36–38), Tajikistan, Hissar Mts, Varzob, 2 km E of Safidorak Vil. (38°51.3'N, 69°00.7'E), 2550 m a.s.l., 3.07.2019, S.L. Zonstein & A. Hakimov. — PARATYPES: 5 ♀♀ (SMNH), 2 ♀♀ (ZISP, ARA_ARA_0000383; Figs 39–42), together with the holotype.

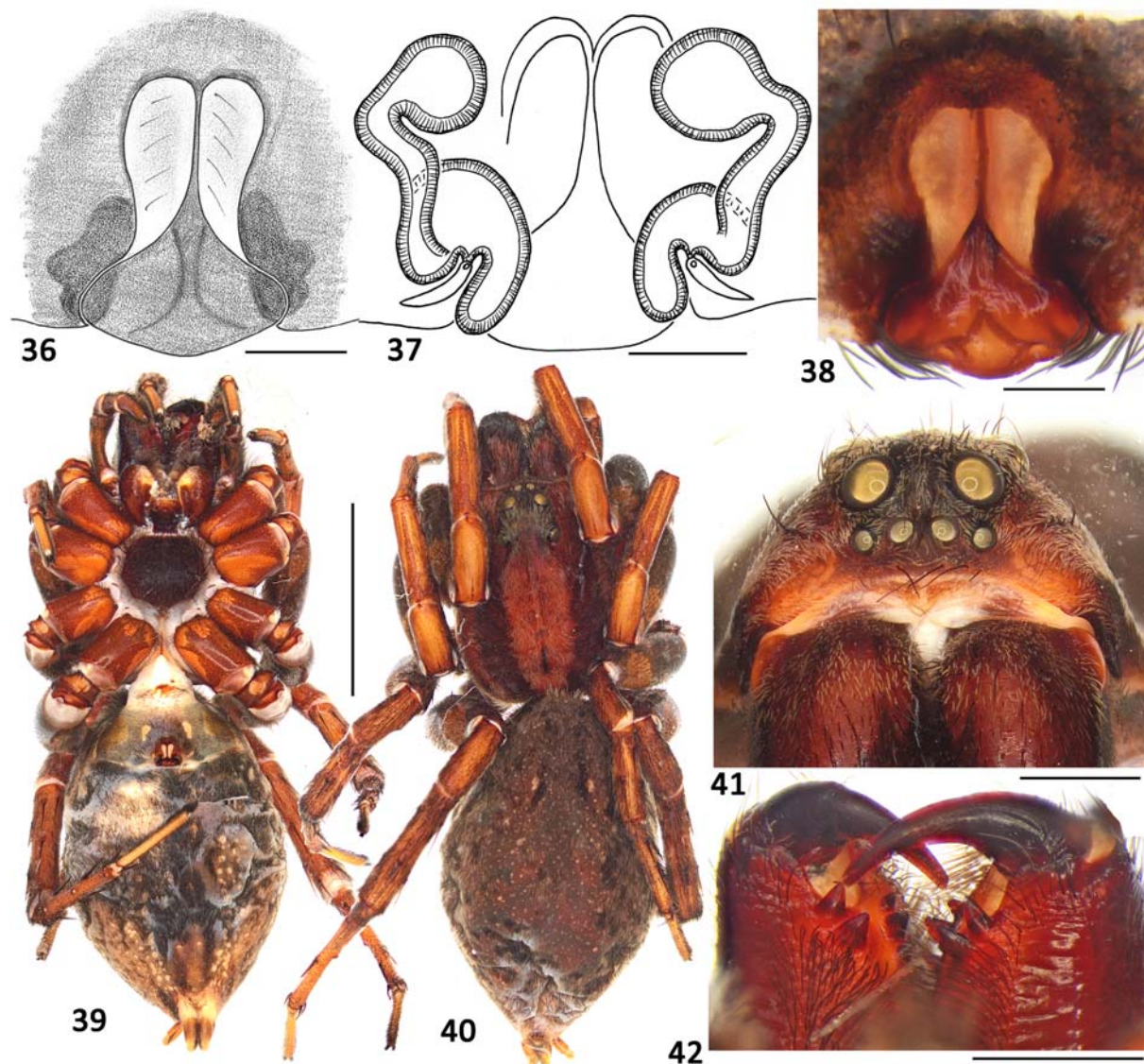
ETYMOLOGY. The specific epithet is a noun in apposition taken from the Safidorak Vil. of Tajikistan from where the holotype female was collected.

DIAGNOSIS. Of all the Central Asian *Alopecosa* species known to me, apart from *A. pamirica* sp.n. (Figs 29–31), *A. safidorak* sp.n. differs in having the strongest and longest (as long as the median septum) vulva (cf. Fig. 37). From *A. pamirica* sp.n., it can be easily distinguished by the bean-shaped rather than oval primary receptacles and the shorter and almost straight ducts connecting primary and secondary receptacles (vs. twice as long and convoluted; cf. Figs 37 and 30).

DISTRIBUTION. Only the type locality (Map 1).

DESCRIPTION. MALE unknown.

FEMALE (holotype) Measurements. Carapace 6.50 long, 4.70 wide. Eye sizes and interdistances: AME 0.25, ALE 0.23, PME 0.45, PLE 0.85, AME-AME 0.15, AME-ALE 0.13, PME-PME 0.48, PLE-PLE 1.05. Width of anterior eye row 1.23, second row 1.40, third row 1.63. Clypeus height 0.23, chelicera length 2.75. Abdomen 9.00 long, 6.25 wide. Length of leg segments: I 4.80 + 2.50 + 3.25 + 3.25 + 2.10 (15.90); II 4.25 + 2.30 + 2.85 + 3.05 + 1.95 (14.40); III 3.85 + 2.10 + 2.75 + 3.30 + 2.05 (14.05); IV 5.65 + 2.40 + 3.90 + 5.30 + 2.45 (19.70). *Spination of leg I:* Fm d 1-1-2ap; Tb pr 0-1, v 2-2-2ap; Mt pr 0-1-1-lap, v 2-2-3ap. *Colouration* (Figs 39–40). Carapace yellow-orange, with a wide longitudinal median and two marginal white stripes of recumbent scales, and with two longitudinal wide brown stripes of recumbent scales. Sternum dark brown, almost black, covered with black protruded hairs. Labium and endites dark brown, with light yellow tips. Chelicerae dark brown. Abdomen: yellow-brown, without a marked dorsal pattern; venter dark brown, almost black, on each side with a couple of longitudinal rows of white speckles. All legs yellow-



Figs 36–42. *Alopecosa safidorak* sp.n., holotype ♀ (36–38) and paratype ♀ from ZISP (39–42): 36, 38 — epigyne, ventral view; 37 — vulva, dorsal view; 39 — body, ventral view; 40 — same, dorsal view; 41 — carapace, frontal view; 42 — chelicerae, rear view. Scale bars: 0.25 mm (36–38), 1 mm (41, 42), 5 mm (39, 40).

Рис. 36–42. *Alopecosa safidorak* sp.n., голотип ♀ (36–38) и паратип ♀ из ZISP (39–42): 36, 38 — эпигина, вид снизу; 37 — вульва, вид сверху; 39 — тело, вид снизу; 40 — то же, вид сверху; 41 — головогрудь, вид спереди; 42 — хелицеры, вид сзади. Масштаб: 0,25 мм (36–38), 1 мм (41, 42), 5 мм (39, 40).

brown, with brown Fm. Palps yellow-brown, with a single apical claw on Tr. Epigyne and vulva as in Figs 36–38: median septum triangular, as wide as high; septal pedicel very thin; epigynal atria paired, shallow and narrow (2.3 times longer than wide); hood cavities paired, closely set and poorly visible; vulva C-shaped, heavily sclerotised, with prominent round receptacles situated at the level of hood cavities, receptacles twice as wide as insemination ducts; fertilisation ducts prominent, directed proximad.

Alopecosa zonsteini sp.n.

Figs 43–58, Map 1.

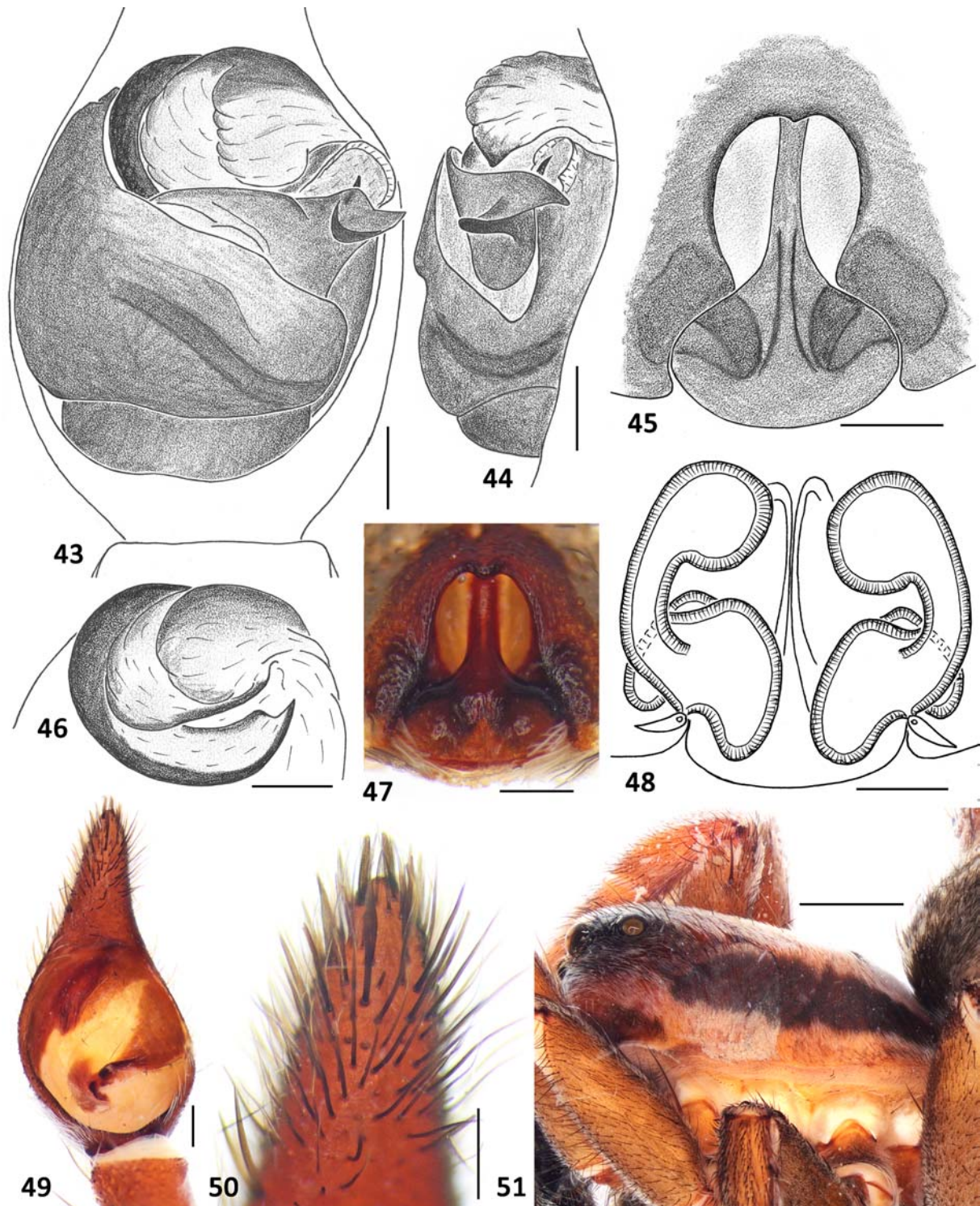
TYPES. HOLOTYPE ♀ (SMNH), Uzbekistan, Namangan Region, 10 km SW of Pap Town, Syr-Daria riverbank (40°48.0'N,

71°03.1'E; Fig. 58), 370 m a.s.l., 12.04.2019, S.L. Zonstein. — PARATYPE: 1 ♂ (SMNH), together with the holotype.

ETYMOLOGY. The species is dedicated to my colleague and friend Dr Sergei L. Zonstein (Tel-Aviv, Israel), who collected the type series of this species.

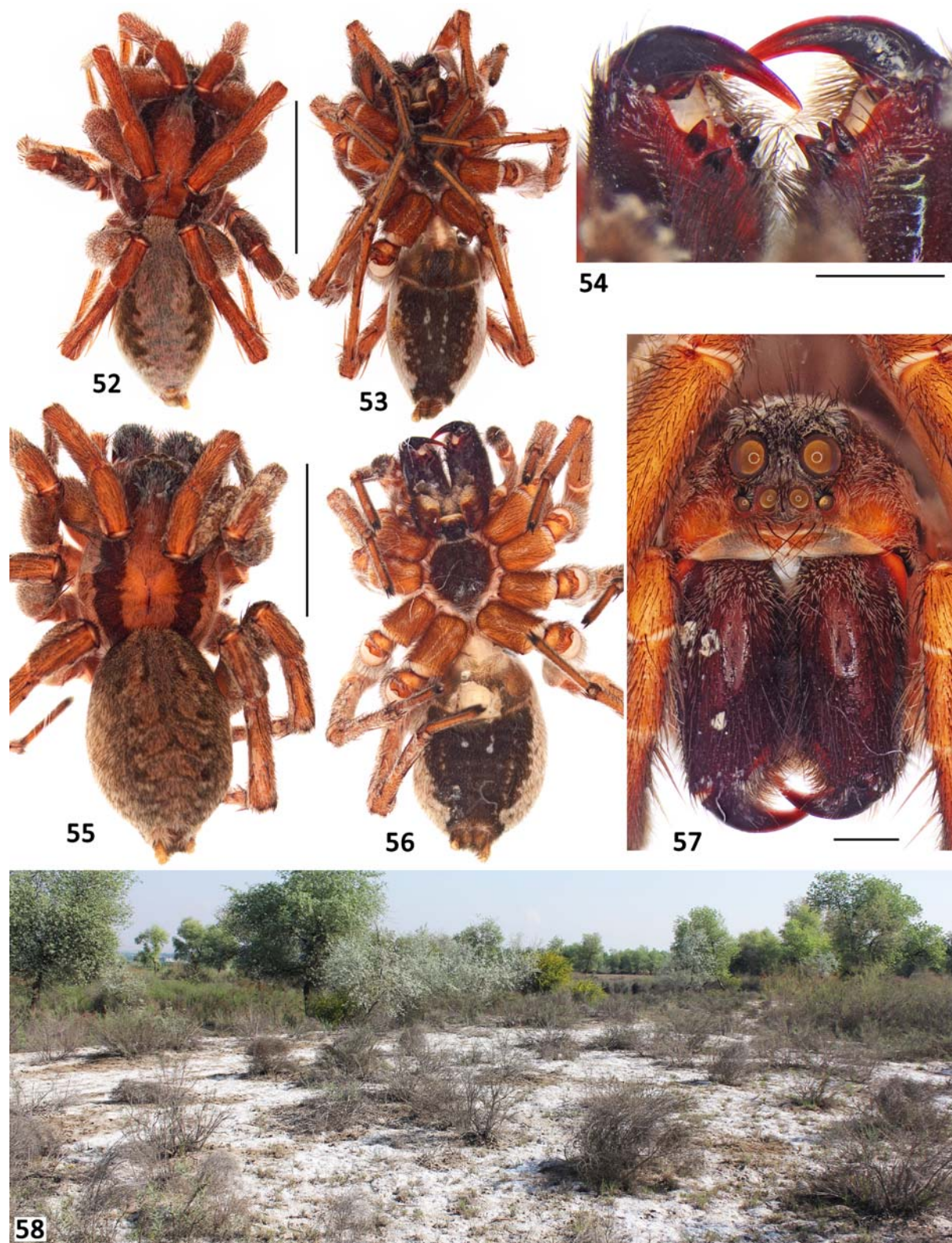
DIAGNOSIS. In having the very wide, membranous embolus, *A. zonsteini* sp.n. is most similar to *A. marikovskiyi* Logunov, 2013 from south-east Kazakhstan, from which it can be easily distinguished by the notched and pointed embolic tip, the triangular median apophysis (not bar-shaped; seen in ventral view), the oval rather than rhomboid median septum and the dumbbell-shaped vulva (cf. Figs 43–48 and figs 1–7 in Logunov [2013]).

DISTRIBUTION. Only the type locality (Map 1; Fig. 58).



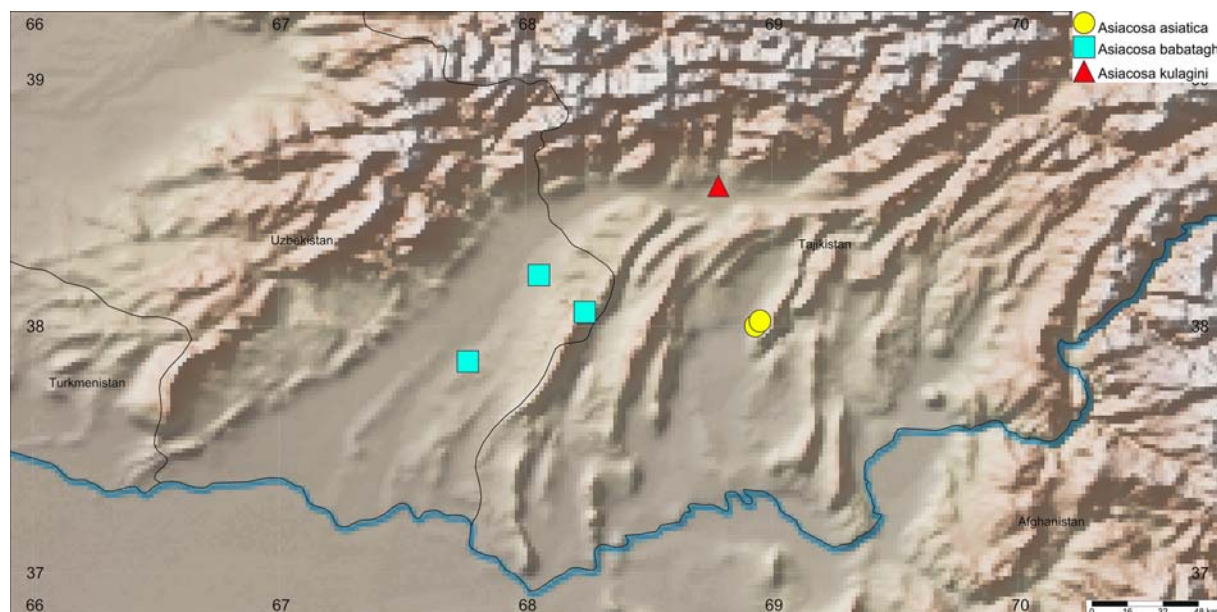
Figs 43–51. *Alopecosa zonsteini* sp.n., paratype ♂ (43, 44, 45, 49, 50) and holotype ♀ (45, 47, 48, 51): 43 — bubus, ventral view; 44 — same, retrolateral view; 45, 47 — epigyne, ventral view; 46 — embolar division, ventral view; 49 — cymbium, ventral view; 50 — cymbial tip, ventral view; 51 — female carapace, lateral view. Scale bars: 0.25 mm (43–50), 2 mm (51).

Рис. 43–51. *Alopecosa zonsteini* sp.n., паратип ♂ (43, 44, 45, 49, 50) и голотип ♀ (45, 47, 48, 51): 43 — бульбус, вид снизу; 44 — то же, вид сзади-сбоку; 45, 47 — эпигина, вид снизу; 46 — эмболярный отдел, вид снизу; 48 — вульва, вид сверху; 49 — цимбиум, вид снизу; 50 — вершина цимбиума, вид снизу; 51 — головогрудь самки, вид сбоку. Масштаб: 0,25 мм (43–50), 2 мм (51).



Figs 52–58. *Alopecosa zonsteini* sp.n., paratype ♂ (52, 53) and holotype ♀ (54–57), and the type locality, Syr-Daria riverbank, 10 km SW of Pap, Uzbekistan (58): 52, 55 — body, dorsal view; 53, 56 — same, ventral view; 54 — chelicerae, ventral view; 57 — carapace, frontal view; 58 — habitat photo, © A. Zamesov. Scale bars: 1 mm (54, 57), 5 mm (52, 53, 55, 56).

Рис. 52–58. *Alopecosa zonsteini* sp.n., паратип ♂ (52, 53) и голотип ♀ (54–57), и типовой локалитет, берег р. Сыр-Дарья, 10 км ЮВ г. Пап, Узбекистан (58): 52, 55 — тело, вид сверху; 53, 56 — то же, вид снизу; 54 — хелицеры, вид снизу; 57 — головогрудь, вид спереди; 58 — фото местообитания, © А. Замесов. Масштаб: 1 мм (54, 57), 5 мм (52, 53, 55, 56).



Map 2. Collecting localities of *Asiacosa* species.

Карта 2. Точки находок видов *Alopecosa*.

DESCRIPTION. MALE (paratype). Carapace 4.75 long, 4.15 wide. Eye sizes and interdistances: AME 0.20, ALE 0.19, PME 0.50, PLE 0.40, AME-AME 0.15, AME-ALE 0.10, PME-PME 0.40, PLE-PLE 0.88. Width of anterior eye row 1.13, second row 1.28, third row 1.33. Clypeus height 0.23, chelicera length 2.25. Abdomen 5.85 long, 3.65 wide. Length of leg segments: I 4.50 + 2.20 + 3.35 + 3.55 + 2.55 (16.15); II 4.35 + 1.95 + 3.05 + 3.25 + 2.40 (15.00); III 3.90 + 1.60 + 2.70 + 3.50 + 2.05 (13.75); IV 4.95 + 1.80 + 3.90 + 5.15 + 2.50 (18.30). *Spination of leg I:* Fm d 2-2-2ap; Pt pr 0-1-0; Tb pr and rt 1-1, v 2-2-2ap; Mt pr 1-1-1ap, rt 1-1-2ap, v 2-2-2ap. *Colouration* (Figs 52, 53). Carapace orange-yellow, with a wide longitudinal median and two wide marginal stripes of recumbent scales, and with a pair of wide longitudinal brown stripes of recumbent scales. Sternum dark brown, covered with protruded black hairs. Labium and endites dark brown, with white apices. Chelicerae dark brown. Abdomen whitish grey, with a pair of longitudinal brown herringbone stripes; venter dark brown, almost black, with four longitudinal rows of white speckles. Book-lung covers and spinnerets yellowish orange. All legs yellow-orange. Palps yellow-orange, with brownish cymbium and bulbs. Palpal structure as in Figs 43, 44, 46, 49, 50: cymbium simple, without projections, its distal part 1.6 times shorter than alveolus height; cymbium with a cluster of four blunt, rigid and straight bristles on its tips; bulbus oval, 1.2 time longer than wide; subtegulum wide, occupying the entire proximal end of bulbus; median apophysis wide, triangular, pointed on its retro-lateral end and with a prominent ventral spoon-shaped tooth; embolus strong, wide and visibly membranous; synembolus absent; conductor low, resembling a round membranous rim.

FEMALE (holotype). *Measurements.* Carapace 6.25 long, 4.50 wide. Eye sizes and interdistances: AME 0.25, ALE 0.25, PME 0.58, PLE 0.43, AME-AME 0.13, AME-ALE 0.10, PME-PME 0.38, PLE-PLE 1.00. Width of anterior eye row 1.28, second row 1.43, third row 1.70. Clypeus height 0.25, chelicera length 3.05. Abdomen 7.00 long, 4.75 wide.

Length of leg segments: I 4.85 + 2.35 + 3.20 + 3.30 + 2.10 (15.80); II 4.30 + 2.25 + 3.00 + 3.05 + 2.10 (14.70); III 4.10 + 2.00 + 2.60 + 3.60 + 2.00 (14.30); IV 5.25 + 2.15 + 3.80 + 5.40 + 2.55 (19.15). *Spination of leg I:* Fm d 1-2-3ap; Tb pr 0-1, v 2-2-2ap; Mt pr 0-1-0, v 2-2-3ap. *Colouration* as in the male (Figs 51–56), but differs in the absence of two brown herringbone stripes on dorsum (instead two dark brown spots at front edge of abdomen). Epigyne and vulva as in Figs 45, 47, 48: median septum oval (width/height ratio 1.5); septal pedicel thin, 5 times narrower than median septum; epigynal atria paired, shallow and narrow (5 times longer than wide); hood cavities paired, shallow, closely set and poorly visible; vulva dumbbell-shaped, sclerotised, with insemination ducts notably bent laterad; receptacles prominent, 2.3 times wider than insemination ducts; fertilisation ducts prominent, directed proximo-laterad.

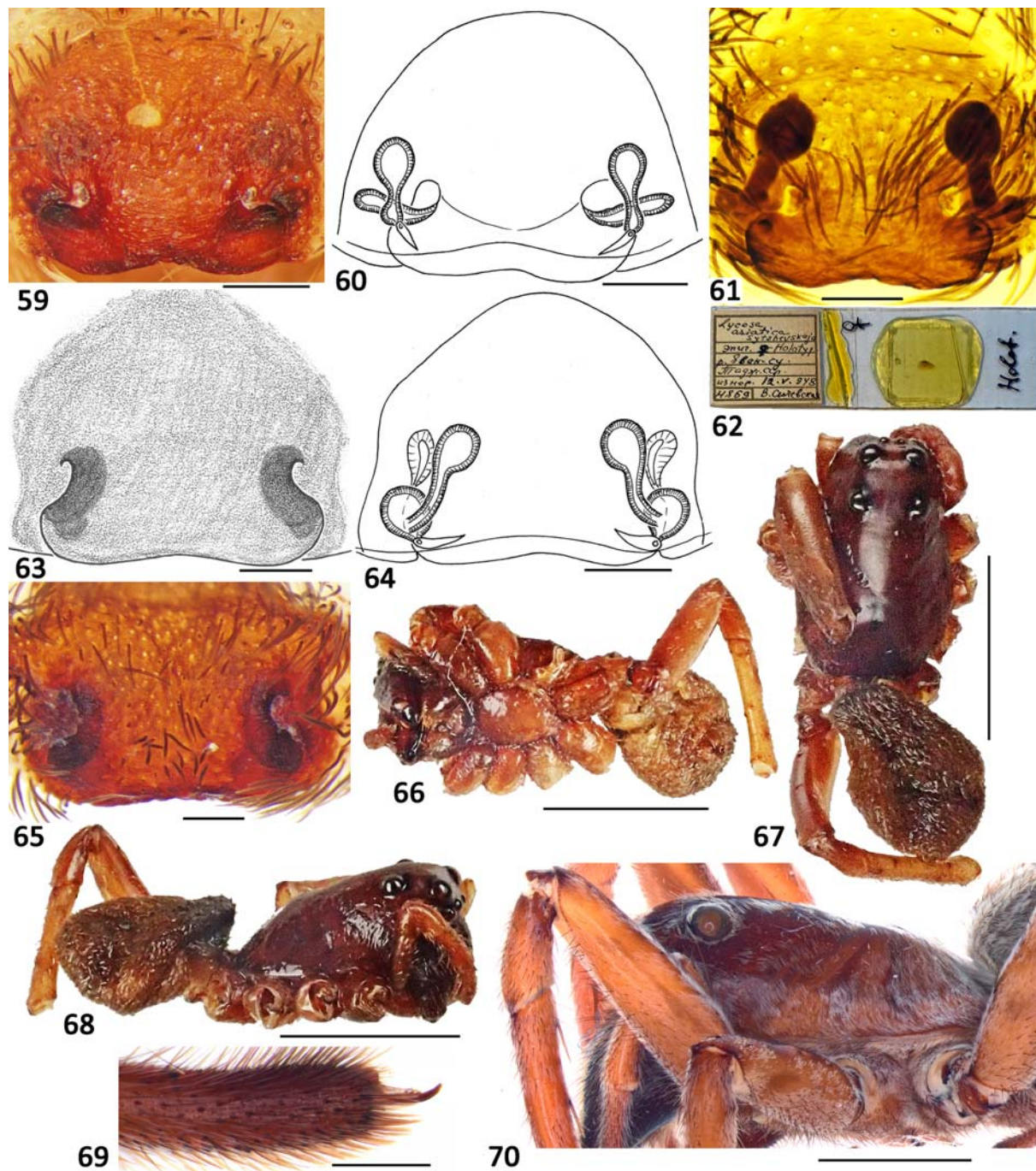
Asiacosa gen.n.

Type species: *Lycosa asiatica* Sytshevskaja, 1980.

ETYMOLOGY. The new generic name is composed of two parts: 'Asia', referring to the region of occurrence of the type species, combined with the ending of the generic name *Lycosa* (meaning 'tear like a wolf'; see Cameron [2005: 303]), to which many large burrowing Holarctic wolf spiders are currently assigned. The generic name is feminine in gender.

DIAGNOSIS. *Asiacosa* gen.n. differs from all the fossorial lycosid genera known to me in having the unique conformation of copulatory organs: viz., the tutaculum (and the entire embolic division) is displaced clockwise and situated at 2 o'clock in the males (Figs 83, 85), and the epigyne resembles a tranverse chitinous bar, without septal pedicel and epigynal hoods in the females (Figs 59–65).

Besides, among Middle Asian fossorial lycosids, the congeners of *Asiacosa* gen.n. differ in having an unique behavioural feature: i.e., they construct silk turrets above their burrows, which was demonstrated for the type species



Figs 59–70. *Asiacosia asiatica* (Sytshevskaja, 1980) (61, 62, 66–68 — holotype ♀, 59, 60 — paratype ♀, 69, 70 — female from Khatlon Area of Tajikistan, ARA_ARA_0000371), and paratype ♀ of *Asiacosia babatagh* sp.n. (63–65): 59, 61, 63, 65 — epigyne, ventral view; 60, 64 — vulva, dorsal view; 62 — slide preparation of the holotype epigyne; 66 — body, ventral view; 67 — same, dorsal view; 68 — same, lateral view; 69 — female palp; 70 — female carapace, lateral view. Scale bars: 0.25 mm (59–65), 0.5 mm (69), 2.5 mm (70), 5 mm (66–68).

Рис. 59–70. *Asiacosia asiatica* (Сытшевская, 1980) (61, 62, 66–68 — голотип ♀, 59, 60 — паратип ♀, 69, 70 — самка из Хатлонской обл. Таджикистана, АРА_АРА_0000371), и паратип ♀ of *Asiacosia babatagh* sp.n. (63–65): 59, 61, 63, 65 — эпигина, вид снизу; 60, 64 — вульва, вид сверху; 62 — препарат эпигины голотипа; 66 — тело, вид снизу; 67 — то же, вид сверху; 68 — то же, вид сбоку; 69 — пальпа самки; 70 — карапакс самки, сбоку. Масштаб: 0,25 мм (59–65), 0,5 мм (69), 2,5 мм (70), 5 мм (66–68).

[Sytshevskaja, 1980: sub *Lycosa* a.] and *A. babatagh* sp.n. (Fig. 81).

DESCRIPTION. Medium to large fossorial wolf spiders, with body lengths about 12.50 (n=1) in males, and

9.50–15.30 (n=4) in females. *Carapace*: In both sexes relatively low, with a gradual descent from cephalic region towards abdomen (Figs 68, 70), which is less pronounced in males (Fig. 94), clothed with white and/or brownish recum-



Figs 71–78. *Asiacosia asiatica* (Sytshevskaja, 1980) (71–73, 77 — female from Khatlon Area of Tajikistan, ARA_ARA_0000371), and holotype ♀ of *Asiacosia babatagh* sp.n. (74–76, 78): 71, 74 — body, dorsal view; 72, 75 — same, ventral view; 73, 76 — carapace, frontal view; 77, 78 — chelicerae, rear view. Scale bars: 1 mm (73, 76–78), 5 mm (71, 72, 74, 75).

Рис. 71–78. *Asiacosia asiatica* (Sytshevskaja, 1980) (71–73, 77 — самка из Хатлонской обл. Таджикистана, ARA_ARA_0000371), и голотип ♀ *Asiacosia babatagh* sp.n. (74–76, 78): 71, 74 — тело, вид сверху; 72, 75 — то же, вид снизу; 73, 76 — карапакс, вид спереди; 77, 78 — хелицеры, вид сзади. Масштаб: 1 мм (73, 76–78), 5 мм (71, 72, 74, 75).

bent setae, forming wide longitudinal and marginal bands. **Chelicerae:** Large, vertical (Figs 73, 76); cheliceral groove with three promarginal and three retromarginal teeth in both sexes (Figs 77, 78, 93). **Eyes:** AER straight or slightly procurved and distinctly (1.3–1.4 times) shorter than SER (Figs 73, 76, 90); PME/AME ratio 2.3–2.7. **Clypeus:** Narrow, its height 1.8–2.3 times shorter than AME diameter.

Labium: Visibly wider than long (length/width ratio 0.5–0.6). **Sternum:** Ovoid (length/width ratio 1.3–1.7), sparsely covered with black protruded hairs in both sexes (Figs 72, 75). **Abdomen:** Venter in both sexes without black pattern, but with a characteristic, contrastingly brown pre-epigastric area in both sexes (Figs 75, 96). **Legs:** leg formula IV,I,II,III or IV,I,II=III, but the male leg formula needs further clarifi-

cation. *Female pedipalp*: With a single tarsal claw (Fig. 69). *Female copulatory organs*: epigyne as transverse chitinous bar (anchor-shaped), without septal pedicel and epigynal hoods; vulva with short straight or slightly bent ducts connecting primary and secondary receptacles; secondary receptacles usually round; fertilization ducts prominent (Figs 59–65). *Male pedipalp*: cymbium symmetrical, twice as long as wide, with oval alveolus (length/width ratio 1.4; Fig. 88); distal part of cymbium is about equal to alveolus length (Fig. 88); cymbium with a cluster of 5–6 blunt, rigid and straight bristles on its tips (Fig. 86), as typical of lycosid burrowers [Zyuzin, 1990, 1993]. *Male copulatory organs*: as described below for *A. kulagini*.

COMPOSITION. At present, four species are included: *ambigua* Denis, 1947 (♀) (*Arctosa*), comb.n.: Egypt (Siwa Oasis). This species possesses the main diagnostic character of *Asiacosa*: viz., the epigyne resembling a transverse chitinous bar, with no septal pedicel (see Denis [1947: plate 1, fig. 8]); also some shared descriptive characters, such as: AER shorter than SER; and a very narrow clypeus [Denis, 1947: 34].

asiatica Sytshevskaja, 1980 (♀) (*Lycosa*), comb.n.: Tajikistan (Figs 59–62, 66–73, 77; Map 2).

babatagh sp.n. (♀): SE Uzbekistan (Figs 63–65, 74–76, 78–81; Map 2).

kulagini Spassky, 1941 (♂) (*Lycosa*), comb.n.: Tajikistan (Figs 82–96; Map 2).

DISTRIBUTION. From the Near East to Middle Asia.

Asiacosa asiatica (Sytshevskaja, 1980), **comb.n.**
Figs 59–62, 66–73, 77, Map 2.

Lycosa asiatica Sytshevskaja, 1980: 229, figs 1–2 (D♀).

TYPES. HOLOTYPE ♀ (ZISP, ARA_ARA_0000001; Figs 61, 66–68), Tajikistan, Yavan-su River (no exact locality), 29.03.1948, from burrow with cocoon, V.I. Sytshevskaja (the epigyne is on a separate slide preparation ARA_ARA_0000001; Fig. 62). — **PARATYPES:** 3 ♀♀ (ZISP, ARA_ARA_0000002a,b; specimens are badly damaged; their bodies are wrinkled up and all legs are detached), valley of Yavan-su River], from burrows, 12.05.1948, V.I. Sytshevskaja (two epigynes are on separate slides preparations ARA_ARA_0000002a,b).

According to the original description [Sytshevskaja, 1980: 230], the holotype female was collected on 29.03.1948, and the three female paratypes on 25.04.1948. However, the locality labels enclosed in the ZISP sample tubes contain different dates: in both cases 12.05.1948. Besides, the original paper contains a reference to Chimsai tract (участок; c. 38°00'N, 68°56'E, the coordinates according to Zonstein [2018]), as the precise type locality; this information is also missing from the enclosed locality labels. It seems that both labels are not original and were written and added later.

OTHER MATERIAL. TAJIKISTAN: 1 ♀ (ZISP, ARA_ARA_0000371; Figs 69–73, 77), Khatlon Area, Vakhsh Karatau Mt Range, Khodzhamaston Mt. (38°01.192'N, 68°57.144'E), 1040 m a.s.l., 24.04.2015, Yu.M. Marusik.

DIAGNOSIS. Of the known Middle Asian species, the female of *A. asiatica* is most similar to that of *A. babatagh* sp.n., from which it can be easily distinguished by the narrower epigynal plate and a different mutual arrangement of the insemination ducts and receptacles (Figs 59–69). The male is yet unknown, but it is possible that *A. asiatica* could represent the female of *A. kulagini* (see below); to date, no samples in which both sexes would be collected together have been available to the author.

COMMENTS. Sytshevskaja [1980: 230] compared this species to *Arctosa ambigua* Denis, 1947 from Egypt. In-

deed, both species have the epigyne wider than long, looking like a transverse, heavily chitinous bar, without septal pedicel (cf. Figs. 59, 61 and pl. 1, fig. 8 in Denis [1947]). However, neither of these species belongs to the genus *Arctosa* C.L. Koch, 1847, as was assumed by Denis [1947], because they are lacking such diagnostic characters of *Arctosa* as the epigynal hoods, triangular pilose median septum and annulated legs (see Guy [1966], Dondale & Redner [1983], Nentwig *et al.* [2023]).

NATURAL HISTORY. According to Sytshevskaja [1980: figs 3–5], this species digs burrows (some 1.5 cm in diameter and up to 12 cm deep) with silk turrets that are covered with trapdoors; for further details see in Sytshevskaja [1980].

DISTRIBUTION. Two close localities in Tajikistan (Map 2).

DESCRIPTION. MALE unknown, but it is likely that *A. kulagini* known from the male could represent an opposite sex to this species; see below for further details. The matter requires a special attention in the future when box sexes of both species have been collected together.

FEMALE (specimen: ARA_ARA_0000371). *Measurements.* Carapace 6.15 long, 4.10 wide. Eye sizes and interdistances: AME 0.30, ALE 0.28, PME 0.68, PLE 0.65, AME-AME 0.18, AME-ALE 0.08, PME-PME 0.53, PLE-PLE 1.15. Width of anterior eye row 1.40, second row 1.90, third row 2.00. Clypeus height 0.13, chelicera length 2.65. Abdomen 6.75 long, 4.25 wide. Length of leg segments: I 4.50 + 2.40 + 3.40 + 2.85 + 2.10 (15.25); II 4.00 + 2.20 + 3.10 + 2.80 + 2.00 (14.10); III 3.75 + 2.10 + 2.70 + 3.50 + 2.05 (14.10); IV 4.90 + 2.00 + 3.70 + 5.15 + 2.60 (18.35). *Spination of leg I:* Fm d 1-1-2ap; Tb v 2-2-2ap; Mt v 2-2-2ap. *Colouration* (Figs 70–72). Carapace reddish brown, with a median and two marginal wide white stripes of long recumbent scales; on both sides of the longitudinal median white stripe with wide brown bands of long recumbent scales; cephalic region with a noticeable forked brownish marking. Sternum and coxae yellow-orange. Labium and endites yellow-orange, with bright yellow tips. Chelicerae dark brown. Abdomen: dorsum grey, with a pale (whitish) longitudinal interrupted band and a noticeable white cardinal spot with brown margins; sides and venter yellow-orange. Book-lung covers and spinnerets yellow, tinged with grey. All legs yellow, but dorsal sides of Fm and Pt with numerous grey-brown patches. Palps yellow, with a single claw at the tip of Tr. Epigyne and vulva as in Figs 59–61: epigyne as transverse chitinous bar (anchor-shaped), without septal pedicel and epigynal hoods; vulva with short straight insemination ducts and round receptacles; fertilization ducts prominent, directed proximad.

Asiacosa babatagh sp.n.
Figs 63–65, 74–76, 78–81, Map 2.

TYPES. HOLOTYPE ♀ (ZISP, ARA_ARA_0000372), Uzbekistan, Babatagh Mt. Range, 5 km SW of Ak-Machit Vil. [=Okmachit; c. 38°03'18"N, 68°14'27"E; c. 1075 m a.s.l.], 28.04.1995, S.V. Ovtchinnikov. — **PARATYPES:** 2 ♀♀ (ZISP, ARA_ARA_0000384), together with the holotype; 1 ♀ (SMNH), Uzbekistan, Surkhondaria Region, south foothills of Babatagh Mts (37°51.4'N, 67°46.0'E), 540 m a.s.l., 20.04.2019, S.L. Zonstein; 12 ♀♀ (SMNH), 2 ♀♀ (ZISP, ARA_ARA_0000394), Uzbekistan, Surkhondaria Region, south foothills of Babatagh Mts (38°12.3'N, 68°03.3'E; Figs 79–81), 650–700 m a.s.l., 17.04.2019, S.L. Zonstein.



Figs 79–81. Habitat of *Asiacosia babatagh* sp.n., south foothills of Babatagh Mts, Uzbekistan (79, 80), and entrance to the burrow with a silk turret (81): 79, 81 — © S.L. Zonstein; 80 — © A. Zamesov.

Рис 79–81. Местообитание *Asiacosia babatagh* sp.n., южное подножье хр. Бабатаг, Узбекистан (79, 80), и вход в нору с башенкой из паутины (81): 79, 81 — © С.Л. Зонштейн; 80 — © А. Замесов.

ETYMOLOGY. The specific epithet is a noun in apposition taken from Babatagh Mt. Range in Uzbekistan, where the holotype was collected.

DIAGNOSIS. Of the known Middle Asian species, the female of *A. babatagh* sp.n. is most similar to that *A. asiatica*, from which it can be easily distinguished by the wider epigynal plate and a different conformation of vulval ducts and receptacles (Figs 59–69).

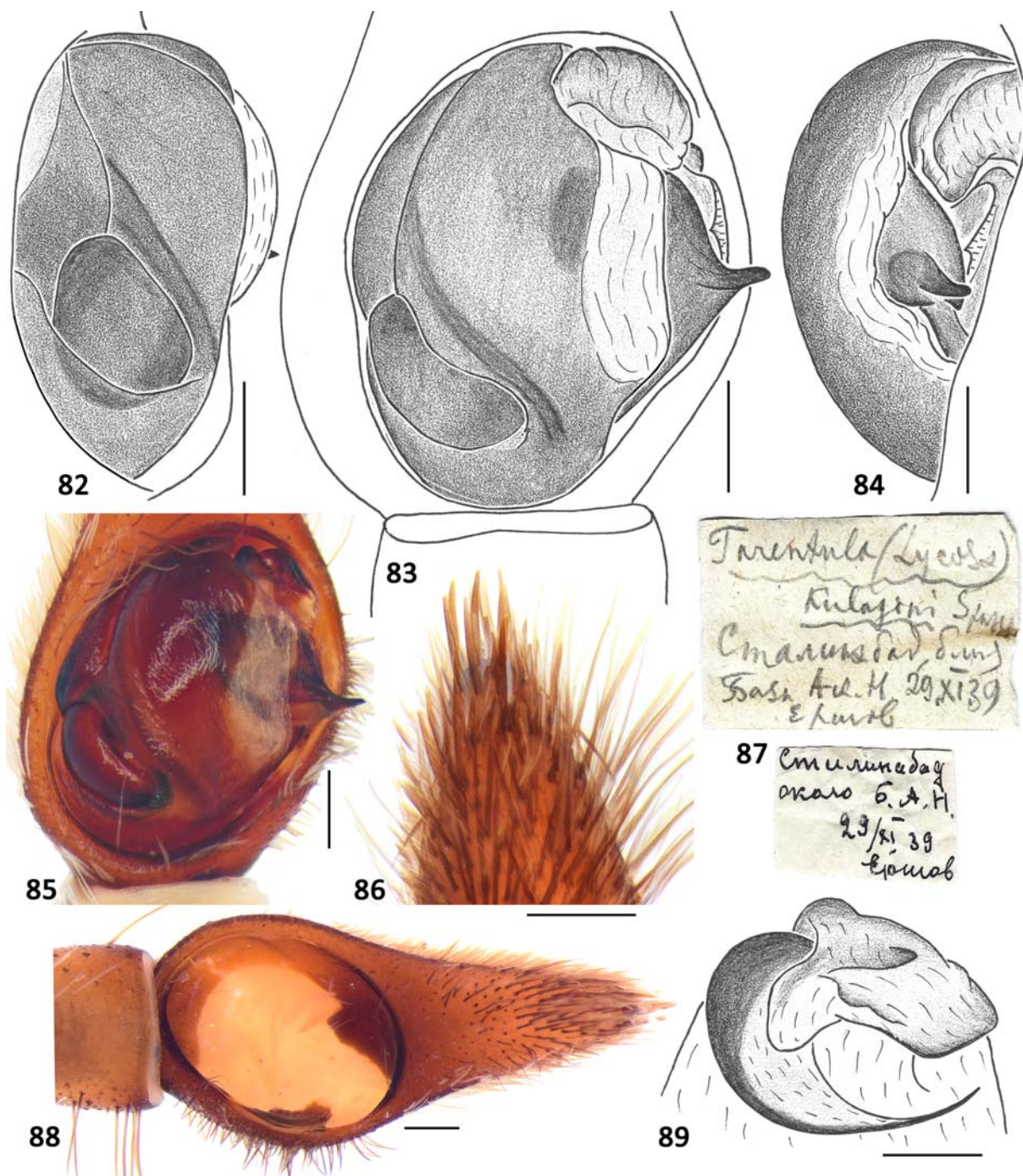
NATURAL HISTORY. This species lives in burrows with silk turrets (Fig. 81); no further information on its biology is available.

DISTRIBUTION. Three close localities in Uzbekistan (Map 2; Figs 79–81).

DESCRIPTION. MALE unknown.

FEMALE (holotype). Measurements. Carapace 7.50 long, 4.95 wide. Eye sizes and interdistances: AME 0.30, ALE 0.28, PME 0.80, PLE 0.60, AME-AME 0.25, AME-ALE 0.15, PME-PME 0.50, PLE-PLE 1.30. Width of anterior eye row 1.65, second row 2.20, third row 2.40. Clypeus height 0.13, chelicera length 3.20. Abdomen 7.80 long, 4.80 wide.

Length of leg segments: I 5.45 + 2.70 + 4.35 + 3.60 + 2.30 (18.40); II 5.00 + 2.50 + 3.85 + 3.55 + 2.05 (16.95); III 4.65 + 2.40 + 3.15 + 4.15 + 2.10 (16.45); IV 5.90 + 2.60 + 4.65 + 6.10 + 2.05 (21.30). *Spination of leg I*: Fm d 1-2-2ap; Tb v 2-2-2ap; Mt v 2-2ap. *Colouration* (Figs 74, 75). Carapace brown, with dark brown radial stripes, covered with long white recumbent scale, which are especially dense on margins. Sternum yellowish brownish. Labium and endites yellowish brownish, with bright yellow tips. Abdomen whitish grey, without a marked dorsal colour pattern (even cardiac mark is invisible); venter lighter (more whitish), with contrastingly dark brown pre-epigastric area. Book-lung covers and spinnerets yellowish brown. All legs and palps yellow, tinged with brown and covered with white scales. Palpal Tr with apical claw. Epigyne and vulva as in Figs 63–65: epigyne as tranverse chitinous bar, without septal pedicel and epigynal hoods; vulva with short slightly bent ducts and round receptacles; fertilization ducts prominent, directed proximad.



Figs 82–89. Holotype ♂ of *Lycosa kulagini* Spassky, 1941: 82 — bulbus, prolateral view; 83, 85 — same, ventral view; 84 — same, retrolateral view; 86 — cymbial tip, ventral view; 87 — original type labels; 88 — cymbium, ventral view; 89 — embolar division, ventral view. Scale bars: 0.25 mm.

Figs 82–89. Голотип ♂ *Lycosa kulagini* Spassky, 1941: 82 — бульбус, вид сбоку-спереди; 83, 85 — то же, вид снизу; 84 — то же, вид сбоку-сзади; 86 — вершина цимбиума, вид снизу; 87 — оригинальные типовые этикетки; 88 — цимбиум, вид снизу; 89 — эмболярный отдел, вид снизу. Масштаб: 0,25 мм.

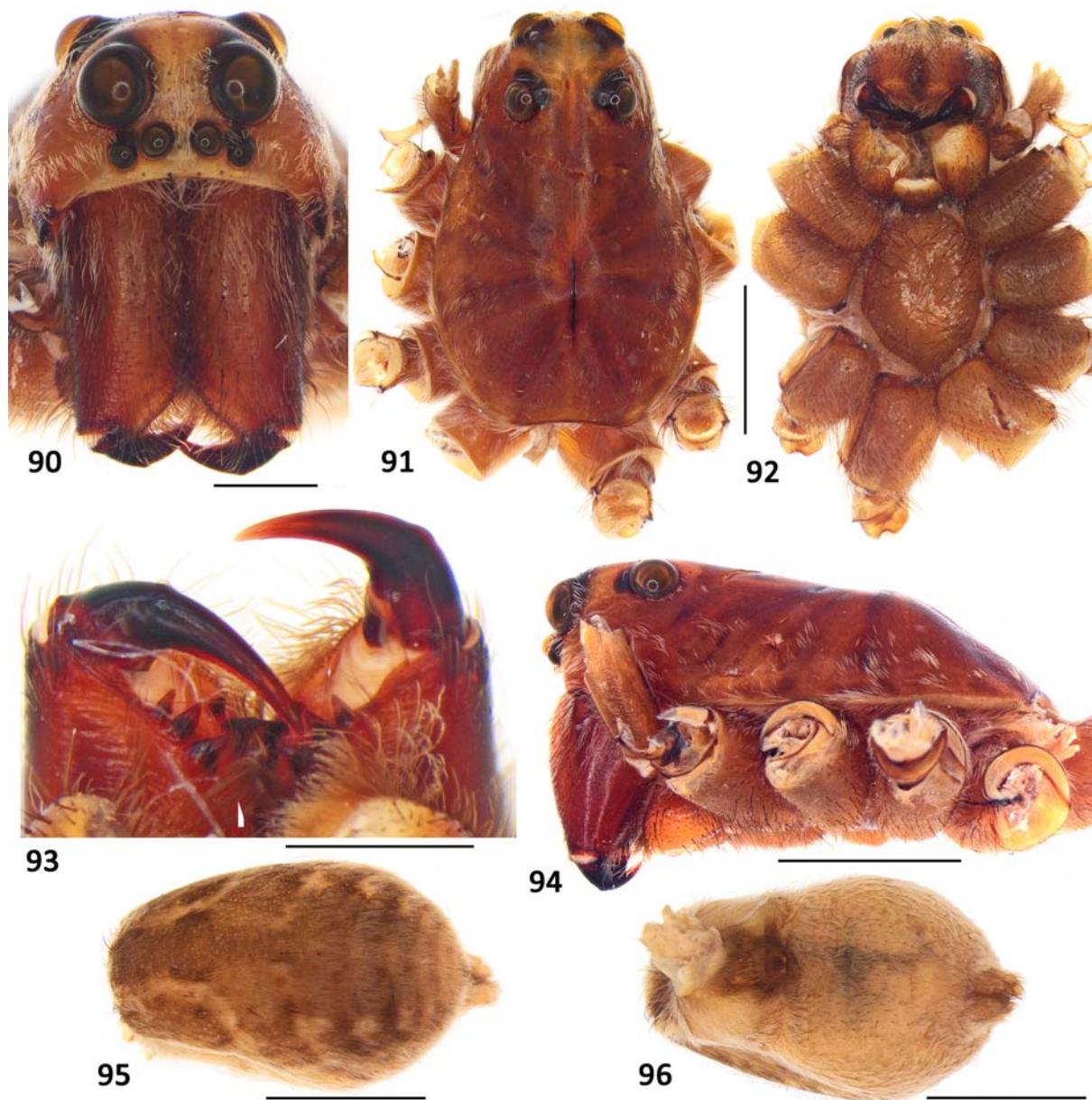
Asiacosa kulagini (Spassky, 1941), **comb.n.**
Figs 82–96, Map 2.

Lycosa kulagini Spassky, 1941: 17, pl. 1, figs 5–6 (D♂); holotype male in ZISP, examined.

Lycosa kulagini: Spassky, Luppova, 1945: 46 (D♂).

TYPE. Holotype ♂ (ZISP, ARA_ARA_0000373), Tajikistan, Stalinabad (now Dushanbe), nr the base of Academy of Sciences (coordinates are given for the present-day National Academy of Sciences of Tajikistan; c. 38°34'N, 68°47'E), 29.11.1939, Ershov.

ETYMOLOGY. The species was dedicated to Academician N.M. Kulagin [Spassky, Luppova, 1945: 46].



Figs 90–96. Holotype ♂ of *Lycosa kulagini* Spassky, 1941: 90 — carapace, frontal view; 91 — same, dorsal view; 92 — same, ventral view; 93 — chelicerae, rear view; 94 — carapace, lateral view; 95 — abdomen, dorsal view; 96 — same, ventral view. Scale bars: 1 mm (90, 93), 2.5 mm (91, 92, 94–96).

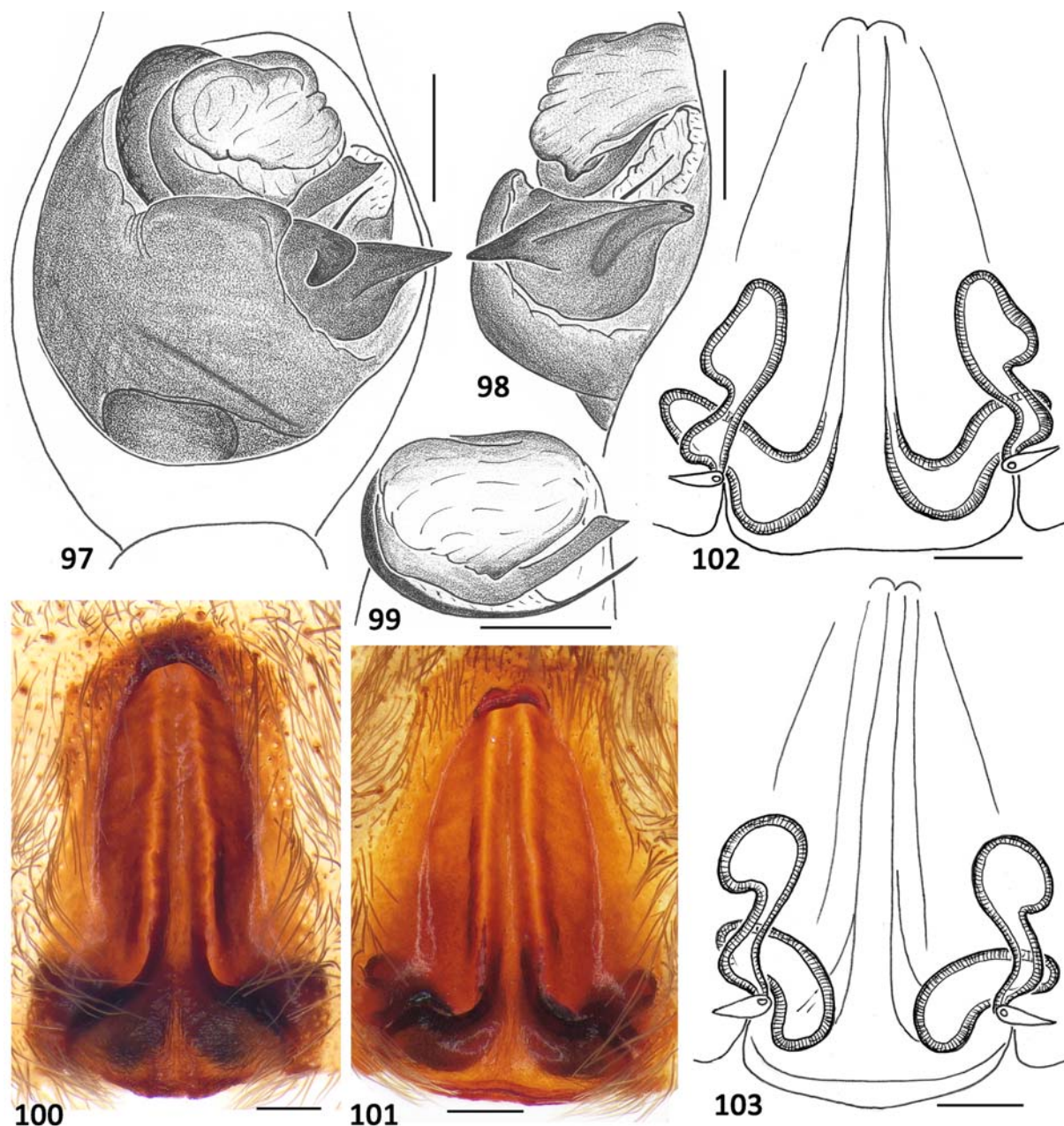
Рис. 90–96. Голотип ♂ *Lycosa kulagini* Spassky, 1941: 90 — головогрудь, вид спереди; 91 — то же, вид сверху; 92 — то же, вид снизу; 93 — хелицеры, вид сзади; 94 — головогрудь, вид сбоку; 95 — брюшко, вид сверху; 96 — то же, вид снизу. Масштаб: 1 мм (90, 93), 2,5 мм (91, 92, 94–96).

DIAGNOSIS. Although the palp conformation of *A. kulagini* is unique by the position of the tutaculum at 2 o'clock, the male is superficially similar to that of the Euro-Central Asian *Alopecosa edax* (Thorell, 1875). Both species can be easily distinguished by the shape of the median apophysis and the position of tutaculum (cf. Figs 83–85 with comparative figures provided by Nentwig *et al.* [2023]). The female of *A. kulagini* is yet unknown.

COMMENTS. The species was formally described twice, by Spassky [1941] and then by Spassky & Luppova [1945].

It is likely that *A. asiatica* known from the females (see above) could represent an opposite sex to this species, because the pre-epigastric area of the holotype male venter is also contrastingly brown (Fig. 96), which is a characteristic feature of the females of both *A. asiatica* and *A. babatagh* sp.n. (Fig. 75). At the same time, the type locality of *A. kulagini* lies rather close to that of *A. asiatica* (Map 2); dorsum colour pattern is also similar in both species (Figs 71, 95). The matter requires a special attention in the future when both sexes of all species have been collected together.

DISTRIBUTION. Only the type locality (Map 2).

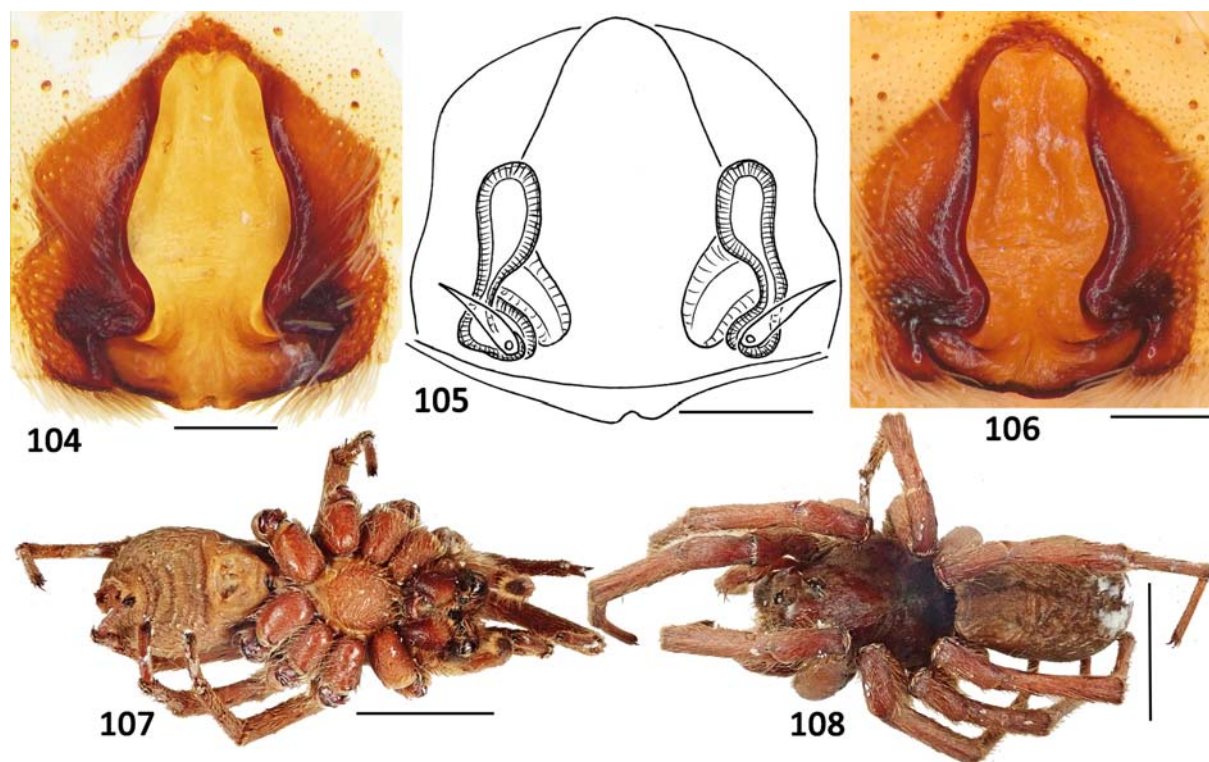


Figs 97–103. *Geolycosa dunini* Zyuzin et Logunov, 2000 (97–99, 101, 102 — specimens from Kutaisi, Georgia, ARA_ARA_0000058; 100, 103 — paratype ♀ from MMUE): 97 — bulbus, ventral view; 98 — same, retrolateral view; 99 — embolar division, ventral view; 100, 101 — epigyne, ventral view; 102, 103 — vulva, dorsal view. Scale bars: 0.25 mm (100–103), 0.5 mm (97–99).

Рис. 97–103. *Geolycosa dunini* Zyuzin et Logunov, 2000 (97–99, 101, 102 — экземпляры из Кутаиси, Грузия, ARA_ARA_0000058; 100, 103 — паратип ♀ из MMUE): 97 — бульбус, вид снизу; 98 — то же, вид сбоку-сзади; 99 — эмболярный отдел, вид снизу; 100, 101 — эпигина, вид снизу; 102, 103 — вульва, вид сверху. Масштаб: 0,25 мм (100–103), 0,5 мм (97–99).

DESCRIPTION. MALE (holotype; badly damaged and dismembered). Carapace 6.75 long, 4.50 wide. Eye sizes and interdistances: AME 0.33, ALE 0.30, PME 0.75, PLE 0.65, AME-AME 0.20, AME-ALE 0.10, PME-PME 0.65, PLE-PLE 1.50. Width of anterior eye row 1.45, second row 1.93, third row 2.23. Clypeus height 0.18, chelicera length 2.50. Abdomen 5.75 long, 3.75 wide. Length of leg segments: all legs are detached from the body, their correct measurements was impossible. *Colouration* (Figs 90–96). Carapace

brown, with yellowish eye field and dark brown radial stripes. Sternum and coxae yellowish brown. Labium and endites yellowish brown, with bright yellow tips. Abdomen: dorsum yellowish brown, with a longitudinal pattern of subparallel interrupted white stripes and spots as in Fig. 95; sides and venter yellow, with contrastingly brown pre-epigastric area. Book-lung covers and spinneret yellow, tinged with brown. All legs yellowish brownish, but Tb, Mt and Tr of presumably legs I darker, reddish brown. Palpal structure as in Figs 82–



Figs 104–108. *Karakumosa ferganensis* sp.n., holotype ♀ (104, 105, 107, 108) and paratype ♀ (106): 104, 106 — epigyne, ventral view; 105 — vulva, dorsal view; 107 — body, ventral view; 108 — same, dorsal view. Scale bars: 0.5 mm (104–105), 10 mm (107, 108).

Рис. 104–108. *Karakumosa ferganensis* sp.n., голотип ♀ (104, 105, 107, 108) и паратип ♀ (106): 104, 106 — эпигина, вид снизу; 105 — вульва, вид сверху; 107 — тело, вид снизу; 108 — то же, вид сверху. Масштаб: 0,5 мм (104–105), 10 мм (107, 108).

85: bulbus elongated (1.4 time longer than wide); subtegulum elongated and comparatively large, situated in proximal-mesal position; tutaculum at 2 o'clock (at 12 o'clock in the majority of lycosids; e.g., *Alopecosa*-like); tegulum with a characteristic whitish membrane covering the basal part of median apophysis; median apophysis triangular, very wide at base and pointed at tip, directed retro-laterad; synembolus absent; embolus awl-shaped, with well-developed *pars pendula*; membranous conductor wide and low.

FEMALE unknown, but see 'Comments' above.

Geolycosa Montgomery, 1904

Type species: *Geolycosa latifrons* Montgomery, 1904; by original designation [Montgomery, 1904].

COMMENTS. The genus *Geolycosa* has a worldwide distribution and currently includes 72 named species [WSC, 2023]. However, the taxonomy and composition of the genus requires a thorough revision. The type species — *G. latifrons* Montgomery, 1904 — was described and known from North America, so it is likely that many Afrotropical and South American species of *Geolycosa* should actually be transferred to other genera. Dondale & Redner [1990: 27] even expressed the opinion that "the genus *Geolycosa* is believed to be restricted to North America".

The European fauna of *Geolycosa* currently consists of four species [Nentwig *et al.*, 2023], of which three are known from the Caucasus [Kovblyuk *et al.*, 2012; Mikhailov, 2013]. To date, no *Geolycosa* species has been reliably recorded from Middle Asia, but one species is known from north-west Iran [Zamani *et al.*, 2023].

Geolycosa dunini Zyuzin et Logunov, 2000 Figs 97–103.

Geolycosa dunini Zyuzin et Logunov, 2000: 309, figs 7–9 (D♂♀).

PARATYPES. AZERBAIJAN: 2 ♀♀ (MMUE, G7491.10), Pirkuli State Reserve [c. 40°47'N, 48°34'E], 1000 m a.s.l., 9.09.1984, D.V. Logunov.

MATERIAL. GEORGIA: 2 ♂♂ 8 ♀♀, 8 juveniles (ZISP, ARA_ARA_0000058; earlier identified as *Lycosa vultuosa*), nr. Kutaisi [c. 42°16'N, 42°41'E], 09.1938, K. Svanidze; 15 ♀♀ (ZISP, ARA_ARA_0000178), nr. Tiflis [now Tbilisi, c. 41°42'N, 44°45'E], Davydovskaya Mt., 24.04.1910, Sapugin [N253-910].

COMMENTS. This is a relatively common trans-Caucasian species known from Georgia, Armenia and Azerbaijan [Kovblyuk *et al.*, 2012; Otto, 2023]. All new records lie within the known range of the species.

As the vulva of this species has never been illustrated to date, a set of new figures based both on the paratype and newly studied material is presented here (Figs 97–103). The vulva conformation of *G. dunini* is very similar to that of North American species and *G. vultuosa* (C.L. Koch, 1838) (cf. Wallace [1942]; Dondale & Redner [1990]; Nentwig *et al.* [2023]) — all have bean-shaped primary receptacles being connected to ovoid secondary receptacles by short, curved ducts.

Karakumosa Logunov et Ponomarev, 2020

Type species: *Karakumosa repetek* Logunov et Ponomarev, 2020; by original designation [Logunov, Ponomarev, 2020].

COMMENTS. *Karakumosa* is a small Central Asian genus of fossorial lycosids currently accounting for 13 named species [WSC, 2023]. The present paper provides information about six species, of which three are described as new.

Karakumosa ferganensis sp.n.

Figs 104–108, Map 3.

TYPES. HOLOTYPE ♀ (ZISP, ARA_ARA_0000051; Figs 104, 105, 107, 108; earlier identified by P. Schmidt as *Lycosa alticeps*), Uzbekistan, Fergana [c. 40°23'N, 71°47'E], 18.05.1878, Kushakevitch [883 (779)]. — PARATYPES: 1 ♀ & 1 juvenile (ZISP, ARA_ARA_0000385; Fig. 106), together with the holotype.

ETYMOLOGY. The specific epithet is an adjective originating from Fergana (Uzbekistan), where the type series was collected.

DIAGNOSIS. The female of the new species is similar to those of *K. shmatkoi* Logunov et Ponomarev, 2020 from cis-Caspian regions and *K. zyuzini* Logunov et Ponomarev, 2020 from southern Uzbekistan, but clearly differs from both in having the ovoid and subparallel secondary receptacles (tubular and inclined to each other in the related species; cf. Figs 105 with figs 121, 182 in Logunov & Ponomarev [2020]). The male of *K. ferganensis* sp.n. is yet unknown.

COMMENTS. There is a possibility that the female of *K. ferganensis* sp.n. may belong to *K. tashkumyr* Logunov et Ponomarev, 2020, described from males and known from Jalalabad Region in Kyrgyzstan [Logunov, Ponomarev, 2020], as their type localities are geographically close. This matter requires a special attention in the future when both sexes for both species have been collected and studied.

DISTRIBUTION. Only the type locality (Map 3).

DESCRIPTION. MALE unknown.

FEMALE (holotype). *Measurements*. Carapace 12.00 long, 9.60 wide. Eye sizes and interdistances: AME 0.65, ALE 0.45, PME 1.45, PLE 1.25, AME-AME 0.65, AME-ALE 0.20, PME-PME 1.10, PLE-PLE 2.90. Width of anterior eye row 2.70, second row 3.75, third row 4.60. Clypeus height 0.55, chelicera length 6.50. Abdomen 12.50 long, 9.40 wide. Length of leg segments: I 9.50 + 4.70 + 8.10 + 7.70 + 4.40 (34.40); II 8.70 + 4.40 + 7.60 + 7.50 + 4.30 (32.50); III 8.60 + 4.20 + 6.20 + 7.70 + 4.10 (30.80); IV 10.80 + 4.30 + 8.50 + 11.40 + 5.30 (40.30). *Spination of leg I*: Fm d 1-1-3ap, rt 1-1-1; Tb pr 1-1, v 2-2-2ap; Mt v 2-2-3ap. *Colouration* (Figs 107, 108). Carapace yellow-orange, covered with long, white recumbent scales. Sternum yellow, densely covered with white hairs. Labium and endites yellowish brownish, with light yellow tips, densely covered with brown hairs. Chelicerae dark brown. Abdomen: dorsum sandy-coloured, with a poorly marked pattern of two longitudinal rows of white spots; sides and venter yellow; entire abdomen covered with light yellow hairs. Book-lung covers yellow, spinnerets yellow, tinged with brown. All legs and palps yellow-orange, covered with long brownish and white recumbent scales. Epigyne and vulva as in Figs 104–106: epigynal atrium twice as long as wide, with a constriction at its rear half and lateral edges slightly biconvex; posterior transverse plate narrow and almost straight, with a shallow notch in the middle at its rear edge; spermathecae ovoid, subparallel, distinctly swollen anteriorly, twice as short as epigynal atrium; fertilization ducts prominent, directed proximo-mediad.

Karakumosa ovtchinnikovi sp.n.

Figs 109–119, Map 3.

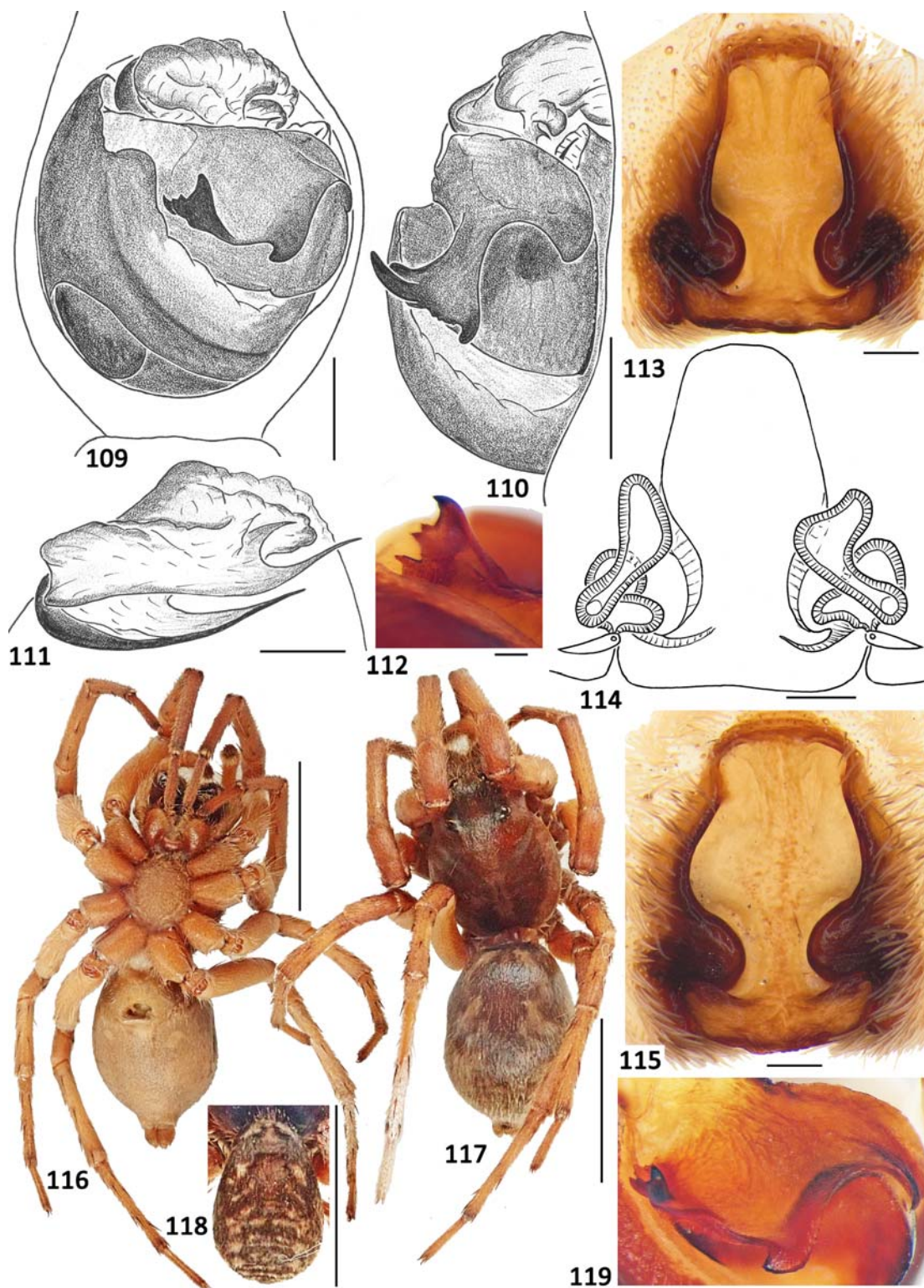
TYPES. HOLOTYPE ♂ (ZISP, ARA_ARA_0000386; Figs 109–112, 118, 119), Uzbekistan, Babatagh Mt. Range, 5 km SW of Ak-Machit Vil. (=Okmachit; c. 38°03'18"N, 68°14'27"E), c. 1075 m a.s.l., 28.04.1995, S.V. Ovtchinnikov. — PARATYPES: 1 ♀ & 1 juvenile (ZISP, ARA_ARA_0000387), same locality, 28.04.1995, S.V. Ovtchinnikov; 1 ♀ (ZISP, ARA_ARA_0000388), same locality, 28.04.1995, S.V. Ovtchinnikov; 2 ♀♀ (MHNG), same locality, 28.04.1995, S.V. Ovtchinnikov; 2 ♀♀ (MMUE, G7693.1; Figs 113–117), same locality, 28.04.1995, S.V. Ovtchinnikov.

ETYMOLOGY. The species is dedicated to its collector, Sergei V. Ovtchinnikov (1958–2007), my former colleague and the arachnologist who contributed significantly to the study of spiders of Middle Asia (see Milko *et al.* [2010] about him).

DIAGNOSIS. The male of the new species is similar to those of *K. alticeps* (Kroneberg, 1875) from southern Kazakhstan and *K. gromovi* Logunov et Ponomarev, 2020 from southern Uzbekistan, from which it can be distinguished by different shapes of the median tooth and proximal extension, and by the obtuse conductor (pointed in both related species; cf. Figs 109, 112, 119 with figs 12–20, 59–68 in Logunov & Ponomarev [2020]). The female of *K. ovtchinnikovi* sp.n. is similar to those of *K. gromovi* and *K. reshetnikov* Logunov et Fomichev, 2021 from Tajikistan, but can be easily distinguished from *K. reshetnikov* by the boot-shaped (not round) secondary receptacles, and from *K. gromovi*, by the narrow, straight, bar-shaped (not triangular) posterior transverse plate (cf. Figs 113, 115 with figs 61, 62, 72, 73 in Logunov & Ponomarev [2020] and figs 5–8 in Logunov & Fomichev [2021]).

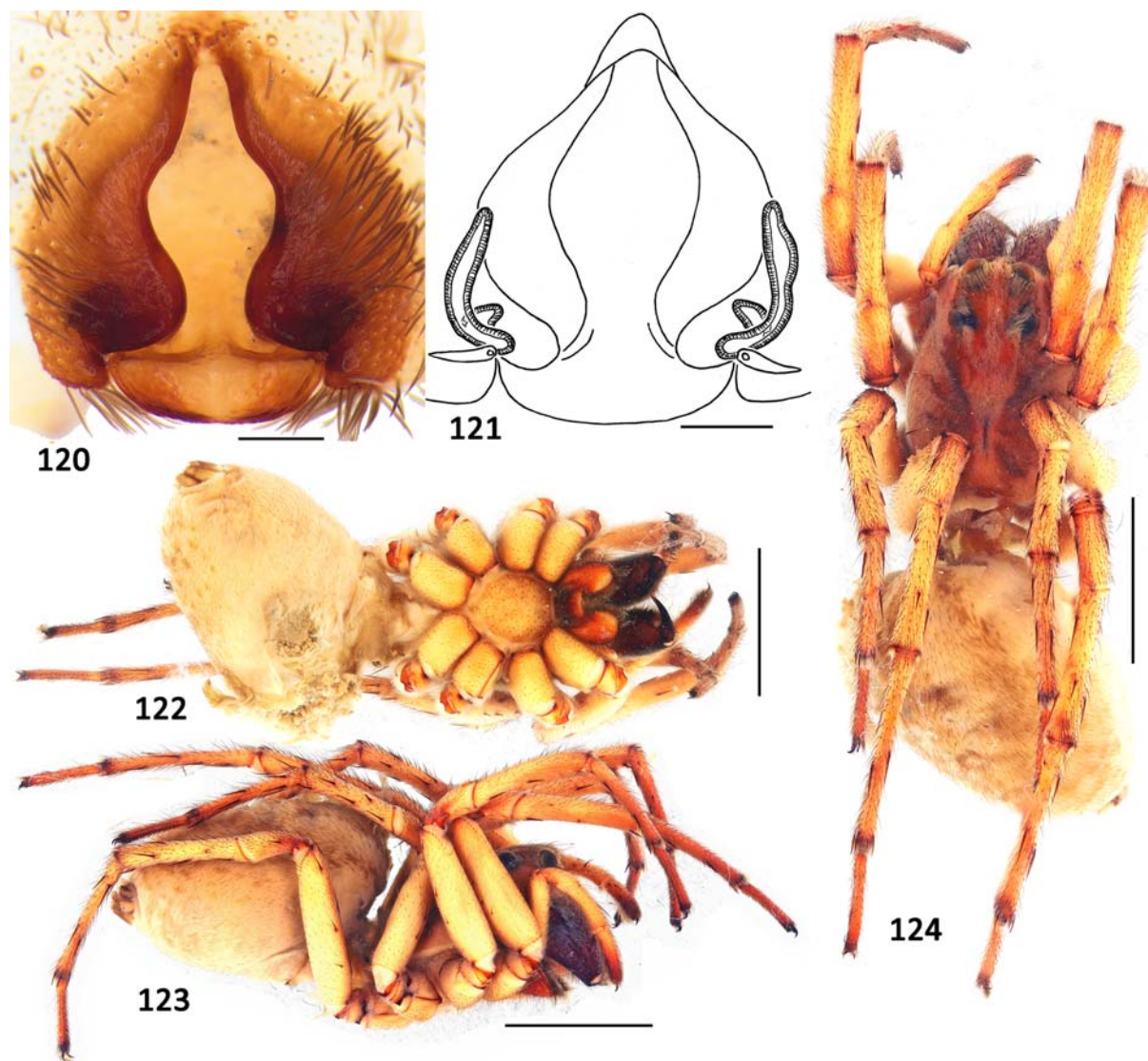
DISTRIBUTION. Only the type locality (Map 3).

DESCRIPTION. MALE (holotype). Carapace 10.00 long, 8.00 wide. Eye sizes and interdistances: AME 0.45, ALE 0.45, PME 1.10, PLE 1.15, AME-AME 0.35, AME-ALE 0.15, PME-PME 0.90, PLE-PLE 2.40. Width of anterior eye row 2.30, second row 3.10, third row 3.80. Clypeus height 0.33, chelicera length 4.50. Abdomen 9.30 long, 6.50 wide. Length of leg segments: I 10.30 + 4.00 + 8.70 + 9.00 + 4.10 (36.10); II 10.00 + 3.80 + 8.20 + 10.20 + 3.90 (36.10); III 9.40 + 3.50 + 7.10 + 10.40 + 4.00 (34.40); IV 11.30 + 3.70 + 8.80 + 12.40 + 4.60 (40.80). *Spination of leg I*: Fm d 1-1-3-5ap; Pt pr 0-1-0; Tb pr 1-0, rt 1-1, v 2-2-2ap; Mt densely covered with hairs, no spine count was possible. *Colouration* (Fig. 118). Carapace yellowish brown, with brown radial stripes, covered with long white recumbent scales. Sternum yellow, densely covered with white hairs. Labium and endites yellow, with brown tinge and white tips. Chelicerae brown. Abdomen: dorsum and sides brown, with a dorsal pattern of transverse white lines and spots as in Fig. 118; venter light yellow, with a brownish median spot on pre-epigastric area. Book-lung covers and spinnerets yellow, slightly tinged with brownish. All legs and palps yellow, Tb, Mt and Tr of legs I and II ventrally and laterally densely covered with grey hairs (especially dense on Mt). Palpal structure as in Figs 109–112, 119: acutely pointed synembolic lamellae subparallel to each other, dorsal one twice as short as ventral one, the tip of ventral lamella rests on conductor; median tooth medium-sized, about equal in size to proximal extension, with a serrate median edge; proximal extension wide and obtuse at its prolaterad-directed shoulder, separated from median tooth by one width of the latter; inner plate large and ovoid, clearly visible in ventral view; conductor square and round, not pointed at its tip.



Figs 109–119. *Karakumosa ovchinnikovi* sp.n., holotype ♂ (109–112, 118, 119) and paratype ♀ from MMUE (113–117): 109 — bulbus, ventral view; 110 — same, retrolateral view; 111 — embolar division; 112 — median tooth; 113, 115 — epigyne, ventral view; 114 — vulva, dorsal view; 116 — body, ventral view; 117 — same, dorsal view; 118 — abdomen, dorsal view; 119 — median apophysis. Scale bars: 0.1 mm (112), 0.25 mm (111, 113–115, 119), 0.5 mm (109, 110), 10 mm (116–118).

Рис. 109–119. *Karakumosa ovchinnikovi* sp.n., голотип ♂ (109–112, 118, 119) и паратип ♀ из ММУЕ (113–117): 109 — бульбус, вид снизу; 110 — то же, вид сзади-сбоку; 111 — эмболярный отдел; 112 — медиальный зуб; 113, 115 — эпигина, вид внизу; 114 — вульва, вид сверху; 116 — тело, вид снизу; 117 — то же, вид сверху; 118 — брюшко, вид сверху; 119 — медиальный апофиз. Масштаб: 0,1 мм (112), 0,25 мм (111, 113–115, 119), 0,5 мм (109, 110), 10 мм (116–118).



Figs 120–124. *Karakumosa severtsovi* sp.n., holotype ♀: 120 — epigyne, ventral view; 121 — vulva, dorsal view; 122 — body, ventral view; 123 — same, lateral view; 124 — same, dorsal view. Scale bars: 0.25 mm (120, 121), 5 mm (122, 124).

Рис. 120–124. *Karakumosa severtsovi* sp.n., голотип ♀: 120 — эпигина, вид снизу; 121 — вульва, вид сверху; 122 — тело, вид снизу; 123 — то же, вид сбоку; 124 — то же, вид сверху. Масштаб: 0,25 мм (120, 121), 5 мм (122, 124).

FEMALE (paratype from MMUE, G7693.1). *Measurements*. Carapace 9.30 long, 7.70 wide. Eye sizes and interdistances: AME 0.55, ALE 0.50, PME 1.35, PLE 1.20, AME-AME 0.30, AME-ALE 0.15, PME-PME 0.90, PLE-PLE 2.40. Width of anterior eye row 2.35, second row 3.25, third row 3.95. Clypeus height 0.30, chelicera length 5.85. Abdomen 5.30 long, 3.95 wide. Length of leg segments: I 8.20 + 3.50 + 6.10 + 5.60 + 3.20 (26.60); II 7.30 + 3.40 + 5.60 + 3.10 (25.00); III 7.10 + 4.10 + 4.80 + 6.30 + 3.20 (25.50); IV 8.70 + 3.20 + 6.60 + 8.80 + 3.70 (31.00). *Spination of leg I*: Fm d 1-1-3-6ap; Pt pr 0-1-0; Tb pr 1-1, v 2-2-2ap; Mt pr 1-0, v 2-2-3ap. *Colouration* (Figs 116, 117), as in the male, but legs I and II without dense grey hairs on Tb, Mt and Tr. Epigyne and vulva as in Figs 113–115: epigynal atrium twice as long as wide, almost glass-shaped, with a constriction at its rear half and markedly sigmoid lateral edges; posterior transverse plate narrow and straight; sec-

ondary receptacles boot-shaped, twice as short as epigynal atrium, inclined towards each other, but their apical ends directed antero-laterad; fertilization ducts prominent, directed proximad.

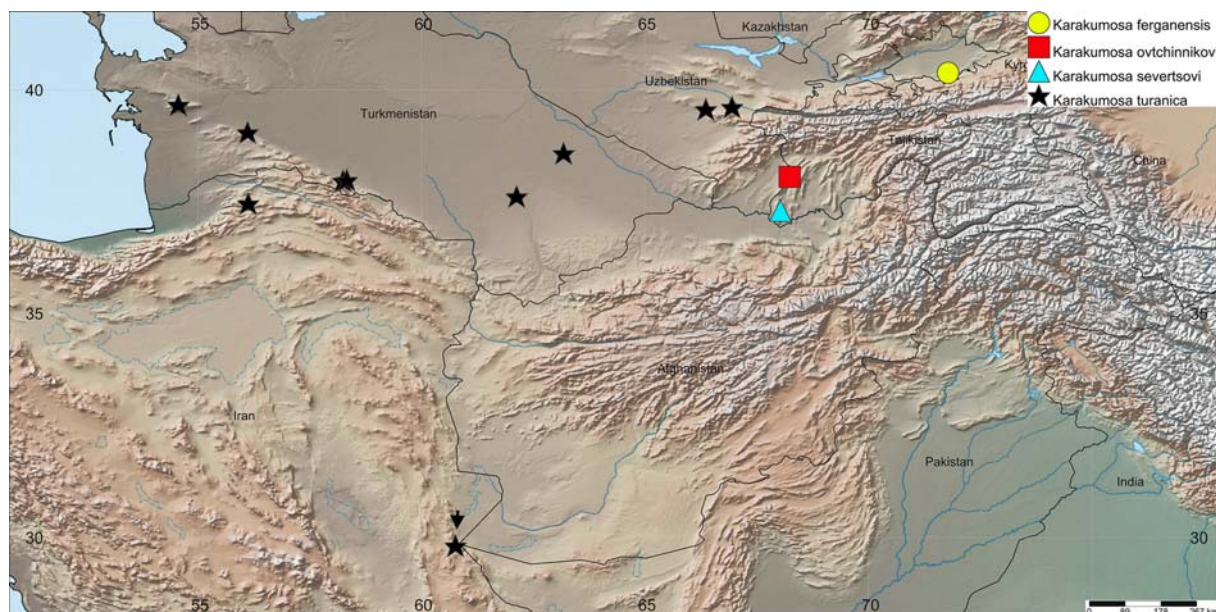
Karakumosa severtsovi sp.n.

Figs 120–124, Map 3.

TYPES. TAJIKISTAN: 1 ♀ (ZISP, ARA_ARA_0000379), Kurgan-Tyube Area, Beshkentskaya Valley (Chiluchor-Chashma Spring; c. 37°18'N, 68°02'E), 300–400 m a.s.l., 22–24.08.1967, coll.? [8].

ETYMOLOGY. The new species is dedicated to Nikolai A. Severtsov (1827–1885), a famous Russian scientist-naturalist, traveller and explorer of Central Asia (see Andreev & Matveev [1946] and Zolotnitskaya [1978] about him).

DIAGNOSIS. In the conformation of the epigyne, the female of *K. severtsovi* sp.n. is most similar to that of the



Map 3. Collecting localities of four *Karakumosa* species.
Карта 3. Точки находок четырёх видов *Karakumosa*.

south-Kazakhstani *K. alticeps*, from which it can be easily distinguished by the stronger sigmoid atrium edges and the comparatively longer and narrower secondary receptacles (cf. Figs 120, 121 with figs 27–29 in Logunov & Ponomarev [2020]).

DISTRIBUTION. Only the type locality (Map 3).

DESCRIPTION. MALE unknown.

FEMALE. *Measurements.* Carapace 9.50 long, 6.80 wide. Eye sizes and interdistances: AME 0.50, ALE 0.40, PME 1.10, PLE 1.15, AME-AME 0.30, AME-ALE 0.15, PME-PME 0.90, PLE-PLE 2.25. Width of anterior eye row 2.05, second row 2.90, third row 3.70. Clypeus height 0.40, chelicera length 4.40. Abdomen 12.80 long, 9.20 wide. Length of leg segments: I 7.80 + 3.30 + 6.00 + 5.20 + 3.00 (25.30); II 7.50 + 3.00 + 5.50 + 5.50 + 3.00 (24.50); III 6.40 + 2.90 + 4.80 + 5.70 + 3.40 (23.20); IV 8.30 + 3.20 + 6.40 + 7.50 + 3.80 (29.20). *Spination of leg I:* Fm d 1-1-3ap, rt 1-1; Pt pr 0-1-0; Tb pr 1-1, v 2-2-2ap; Mt pr 1-1, v 2-2-3ap. *Colouration* (Figs 122–124). Carapace light yellow, with brownish radial lines, covered with long white and brown recumbent scales. Sternum light yellow, covered with brown protruded hairs. Labium and maxillae yellowish brownish, with light yellow tips, covered with brown hairs. Chelicerae dark red-brown. Abdomen damaged and notably faded, light yellow, but dorsum with a pale colour pattern consisting of white longitudinal interrupted band. Book-lung covers and spinnerets yellow, slightly tinged with brown. All legs and palps yellow, but Mt and Tr orange. Epigyne and vulva as in Figs 120, 121: epigynal atrium twice as long as wide (in its widest part), with a constriction at its rear half and markedly sigmoid lateral edges; posterior transverse plate boat-shaped and straight; spermathecae narrow and elongated, subparallel, as thick as insemination ducts; fertilization ducts prominent, directed proximo-laterad.

Karakumosa shmatkoi Logunov et Ponomarev, 2020

K. shmatkoi Logunov et Ponomarev, 2020: 295, figs 103–141 (D♂♀).

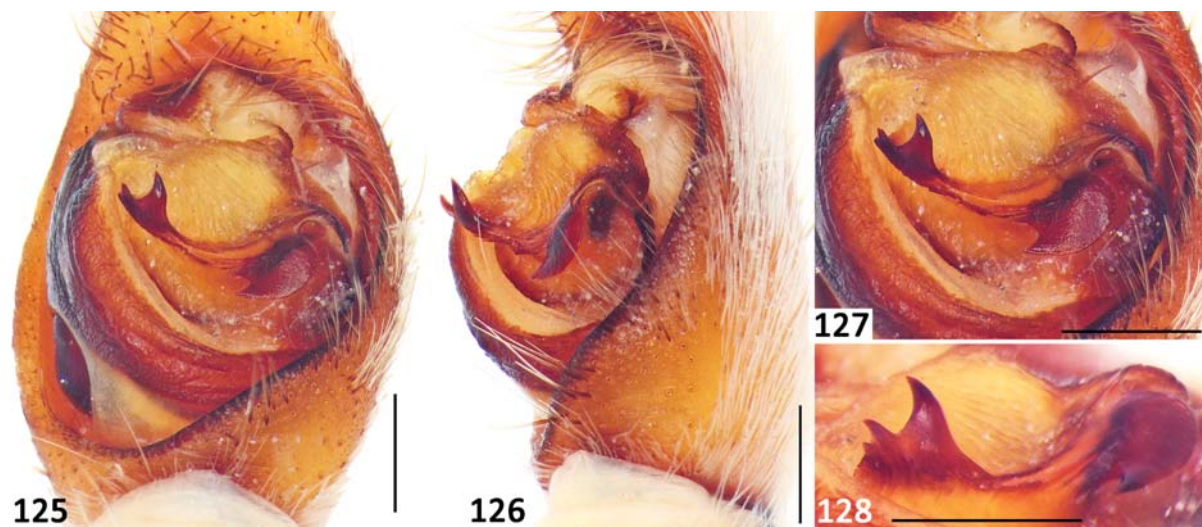
MATERIAL. AZERBAIJAN: 1 ♂ (ZISP, ARA_ARA_0000049; earlier identified by P. Schmidt as *Lycosa alticeps*), Baku (coordinates are given for east Baku, c. 40°25'N, 49°56'E), no date and name collector [880]. — KAZAKHSTAN: 1 ♂ (ZMMU), E shore of Caspian Sea, [Ustyurt], Kenderli (c. 42°56'N, 54°26'E), 10.07.1956, G.B. Zevina.

COMMENTS. Both new records lie within the species range outlined by Logunov & Ponomarev [2020: fig. 155], i.e. within the region surrounding the northern two-thirds of Caspian Sea. The record of *Lycosa alticeps* (1 ♂) from Baku by Schmidt [1895] actually belongs to this species (Schmidt's material re-examined).

Karakumosa spp.

MATERIAL. UZBEKISTAN: 2 immature ♀♀ (ZISP, ARA_ARA_0000163), Turkistan, Tashkent [c. 41°17'N, 69°15'E], no date, A. Sobennikov [3759]; epigyne on the slide preparation 4674 (examined). — TURKMENISTAN: 3 immature ♀♀ (ZISP, ARA_ARA_0000052; earlier identified by P. Schmidt as *Lycosa alticeps*), Zakaspiiskaya Oblast, Uch-Adzhi sands [c. 38°05'N, 62°48'E], 12–27.04.1892, Zarudnyi [884 (799)]; 1 ♀ & 2 juveniles (ZISP, ARA_ARA_0000048, no epigyne; earlier identified by P. Schmidt as *Lycosa alticeps*), Zakaspiiskaya Oblast (no exact locality; according to Schmidt [1895: 450], it was Turkomania — see below under 'Comments'), 05–06.1859, [N.A.] Severtsov [881 (784); these specimens were collected together with *Oculicosa supermirabilis* Zyuzin, 1993 (1♂, see Table; Figs 160, 162) which was also identified by Schmidt as *Lycosa alticeps*].

COMMENTS. It is likely that all three samples studied belong to different *Karakumosa* species. However, as all of them contain either immature specimens or the female without the epigyne, they cannot be positively identified. According to Schmidt [1895: 450], the ZISP sample (ARA_ARA_0000048) was collected by Severtsov in Turkomania in May–June 1859 and should contain five females. Yet, currently it contains a single adult ♀ (without epigyne) and two juveniles; the sample also contained the adult male which in fact belongs to *O. supermirabilis* (see below). The adult female studied cannot belong to *K. alticeps*, because



Figs 125–128. *Karakumosa turanica* Logunov et Ponomarev, 2020, the male from Repetek, Turkmenistan (ARA_ARA_0000163): 125 — bulb, ventral view; 126 — same, retrolateral view; 127 — median apophysis, ventral view; 128 — median tooth, ventral view. Scale bars: 0.5 mm.

Рис. 125–128. *Karakumosa turanica* Logunov et Ponomarev, 2020, самец из Репетека, Туркменистан (ARA_ARA_0000163): 125 — бульбус, вид снизу; 126 — то же, вид сбоку-сзади; 127 — медиальная апофиза, вид снизу; 128 — медиальный зуб, вид снизу. Масштаб bars: 0,5 мм.

its body size is about 30% larger than in the latter species; yet, true *K. alticeps* is restricted to south-east Kazakhstan [Logunov, Ponomarev, 2020: fig. 76].

The location 'Turkomania' given by Schmidt [1895] causes some difficulty, as this term has been applied to various geographical regions. Based on Lanségüe [1791: 293], Turkomania was the territory "between Persia in the east, and Georgia in the west", i.e. between modern-day Iranian Azerbaijan and Armenia. Yet, Wikipedia interprets this historic term as Turkmenland (=Turkmeneli; lit. 'Land of Turkmens' in Turkish), that is the territory lying around northern Iraq's border with Turkey and Syria. Since this sample was collected by N.A. Severtsov, who had never been to either Iran or Turkey, none of the above definitions of 'Turkomania' are appropriate in our case.

Based on the labelling data of the sample in question, it was collected by Severtsov in May–June 1859. Unfortunately, in the two books on Severtsov available to me [Andreev, Matveev, 1946: 56; Zolotnitskaya, 1978: 30–31], this trip neither was mapped, nor was even mentioned. Recently Pirumshoev [2021] mentioned that in 1859 Severtsov undertook a journey to the northern desert of Kyzyl-Kum (i.e., the territory of modern Kazakhstan). However, Bakal [2022: 145] provided transcribed data from the label for the northern shoveler (*Spatula chrypeata*) from the ZISP collected by Severtsov during his 1859 trip: viz., "4.V.1859, Udzhak (border with Persia)". So, based on this information, the collecting locality should be in the territory of modern Turkmenistan, which coincides with the definition of 'Turkomania' by some earlier authors who outlined it as Kara-Kum desert (e.g., Lessar [1885]) and what is followed in this paper.

Karakumosa turanica Logunov et Ponomarev, 2020
Figs 125–128, Map 3.

K. turanica Logunov et Ponomarev, 2020: 303, figs 156–168 (D♂♀).

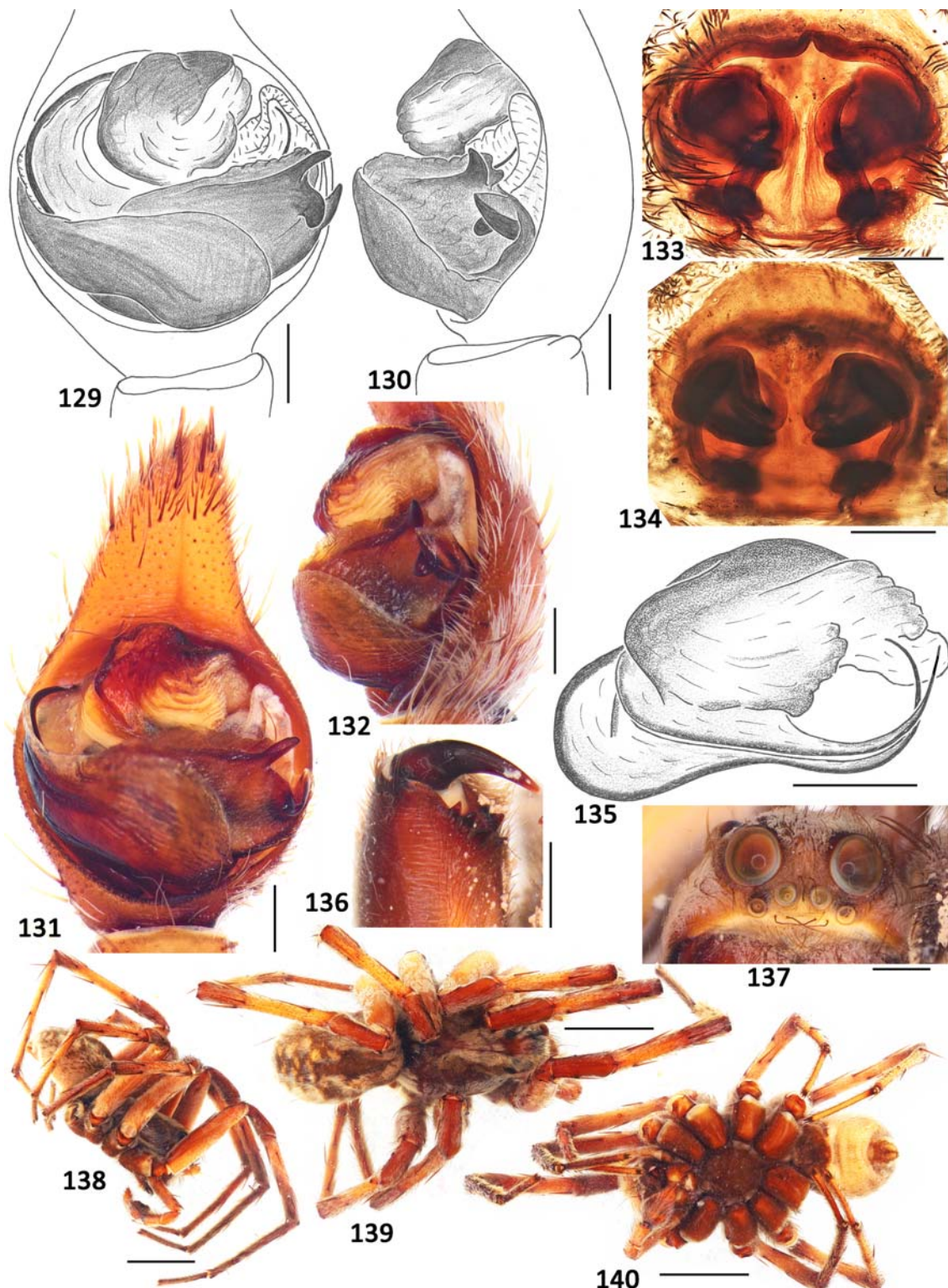
K. golestonica Shafaie, Nadolny et Mirshamsi, 2022a: 505, figs 8–20 (D♂); holotype ♂ not examined. **Syn.n.**

MATERIAL. TURKMENISTAN: 1 ♀ (ZISP, ARA_ARA_0000169), Ashgabat (coordinates are given for the centre of modern city, c. 37°58'N, 58°15'E), 11–30.05.1916, G.A. Shkaff [346-916]; 1 ♂ (ZISP, ARA_ARA_0000170), Dzhekal' station (failed to trace this locality), Bol'shoi Balkhan [=Uly Balkan dagi; c. 39°40'N, 54°34'E], Zakaspiiskaya Oblast, 16.08.1909, Nasonov [164-909]; 1 ♂ (ZISP, ARA_ARA_0000163; Figs 125–128), Repetek [c. 38°35'N, 63°11'E], 17.07.1915, S. Tsarevskii [281-915]; 1 ♂ (ZISP, ARA_ARA_0000173), Zakaspiiskaya Oblast, Bairam-Ali (now Bayramaly, c. 37°37'N, 62°08'E), 08.1908, K.D. [494-910].

COMMENTS. To date, the species has been known from a number of localities in southern Turkmenistan, south-east Uzbekistan and Iran [Logunov, Ponomarev, 2020; Shafaie *et al.*, 2022a: sub *K. golestonica*, 2022b; present data] (Map 3).

Although the median tooth of the median apophysis in the holotype male of *K. turanica* appears rather square [Logunov, Ponomarev, 2020: figs 161, 164], in all other males of this species studied by me to date such tooth is not square but rather as shown in Fig. 128. Besides, the posterior extension of the median apophysis is situated somewhat further from the median tooth than it was shown by Logunov & Ponomarev [2020: fig. 161] (Figs 125, 127). Based on these clarifications, the conformation of the male palp in *K. turanica* is identical to that in the recently described Iranian *K. golestonica* (cf. figs Shafaie *et al.* [2022a]). Therefore, it is safe to conclude that name *K. golestonica* is to be considered a junior synonym of *K. turanica*.

At the same time, one of the distant localities for *K. turanica* from Sistan & Baluchistan Province of Iran [Shafaie *et al.*, 2022b] (arrowed in Map 3) was based on a single female and is in need of confirmation when both sexes have been collected from this locality. It is possible that a similar but different species actually occurs there.



Figs 129–140. *Lycosa aragogi* Nadolny et Zamani, 2017, the male from Kerman Province, Iran (ARA_ARA_0000393): 129, 131 — bulbus, ventral view; 130, 132 — same, retrolateral view; 133 — epigyne, ventral view; 134 — vulva, dorsal view; 135 — embolar division, dorsal view; 136 — right chelicera, ventral view; 137 — carapace, frontal view; 138 — body, lateral view; 139 — same, dorsal view; 140 — same, ventral view. Scale bars: 0.5 mm (129–135), 1 mm (136, 137), 5 mm (138–140).

Рис. 129–140. *Lycosa aragogi* Nadolny et Zamani, 2017, самец из провинции Керман, Иран (ARA_ARA_0000393): 129, 131 — бульбус, вид снизу; 130, 132 — то же, вид сзади-сбоку; 133 — эпигина, вид снизу; 134 — вульва, вид сверху; 135 — эмболярный отдел, вид сверху; 136 — правая хелицера, вид снизу; 137 — головогрудь, вид спереди; 138 — тело, вид сбоку; 139 — то же, вид сверху; 140 — то же, вид снизу. Масштаб: 0,5 мм (129–135), 1 мм (136, 137), 5 мм (138–140).

Lycosa Latreille, 1804

Type species: *Aranea tarantula* Linnaeus, 1758; by original designation [Latreille, 1804].

COMMENTS. It is a large paraphyletic genus currently accounting for 220 named species in the world fauna [WSC, 2023]. The fauna of Middle Asia and Iran, currently consists of five species [Logunov, Ponomarev, 2020; Zamani *et al.*, 2023]. A new *Lycosa* species from Uzbekistan is described in the present paper.

Lycosa aragogi Nadolny et Zamani, 2017 Figs 129–140.

Lycosa aragogi Nadolny et Zamani, 2017: 597, figs 1–6 (D♀)

MATERIAL. IRAN: 1 ♂ (ZISP, ARA_ARA_0000392; Figs 129–132, 135–140), Iran, Kerman Province (no exact locality), 20.04.1904, A. Matissen; 1 ♂ 1 ♀ (without epigyne) (ZISP, ARA_ARA_0000393; the epigyne in PSU, slide05-08, Figs 133, 134), Iran, Kerman Province (no exact locality), 28.04–8.05.1904, A. Matissen.

DIAGNOSIS. In having extra processes of the median apophysis, the male of *L. aragogi* is most similar to that of *L. elymaisa* Zamani et Nadolny, 2022 from Kohgiluyeh and Boyer-Ahmad Province of Iran, from which it can be easily distinguished by the claw-shaped distal process directed apicad (vs. spiral, directed proximad in *L. elymaisa*) and the spoon-shaped ventral outgrowth (vs. pointed) (cf. Figs 129–132 with figs 3, 4 in Zamani *et al.* [2022]).

COMMENTS. When describing *L. elymaisa*, Zamani *et al.* [2022: 559] stated that this species is congeneric to *L. tarantula* and the related species, in other words, it is a true representative of the genus *Lycosa*. At the same time, they suggested that two other Iranian *Lycosa* species — *L. aragogi* and *L. macrophthalma* Nadolny et Zamani, 2020 — could actually belong to a different genus. Based on the newly described male of *L. aragogi* (Figs 129–132, 135–140), it is safe to conclude that (1) this species is indeed very close to *L. elymaisa* (see ‘Diagnosis’ above), and (2) it has well-developed both synembolus and embolus (Fig. 135), very similar to those of the type species *L. tarantula*. Hence, contrary to Zamani *et al.* [2022], there is no doubt that *L. aragogi* is indeed a member of the genus *Lycosa*.

DISTRIBUTION. Two localities in Kerman province of Iran.

DESCRIPTION. MALE (sample ARA_ARA_0000393). Carapace 9.50 long, 7.00 wide. Eye sizes and interdistances: AME 0.48, ALE 0.43, PME 1.10, PLE 1.05, AME-AME 0.20, AME-ALE 0.15, PME-PME 0.75, PLE-PLE 2.10. Width of anterior eye row 1.85, second row 2.85, third row 3.45. Clypeus height 0.25, chelicera length 3.65. Abdomen 8.20 long, 5.80 wide. Length of leg segments: I 8.80 + 3.80 + 7.50 + 8.10 + 4.00 (32.20); II 8.40 + 3.70 + 7.20 + 8.00 + 3.80 (31.10); III 7.80 + 3.10 + 6.20 + 8.50 + 3.60 (29.20); IV 9.40 + 3.50 + 8.00 + 10.80 + 4.30 (36.00). *Spination of leg I*: Fm d 2-2-4ap; Pt pr 0-1-0; Tb pr and rt 1-1, v 2-2-2ap; Mt pr and rt 1-1, v 2-2-3ap. *Colouration* (Figs 138–140). Carapace yellowish brown, with dark brown radial lines, densely covered with white elongated recumbent scales. Sternum brownish yellow, densely covered with brown protruded hairs. Labium and endites orange-yellow, with white tips. Chelicerae light brown. Abdomen: dorsum and sides light brown, with a pattern of yellow stripes and spots as in Fig. 139, brown cardiac mark prominent; venter yellow, with brown pre-epigastric area. Book-lung covers brown,

spinnerets yellow, slightly tinged with brown. All legs orange-yellow, but Mt and Tr I–II brown. Palps yellow, with brown bulbus. Palpal structure as in Figs 129–132, 135: cymbium 1.6 times longer than wide, its apex with 6–7 widely separated strong bristles; bulbus slightly (1.1 times) wider than long; median apophysis with three additional processes, two of which directed apicad and one ventrad; synembolus thin, embolus-like; embolus thin, long and curved, with well-developed *pars pendula*; conductor well-developed, spoon-shaped.

FEMALE, see Nadolny & Zamani [2017]. The shape of the epigyne and the vulva of the female studied here (Figs 133, 134) leaves no doubt in its identification as *L. aragogi*. Its type locality (Kerman-Rafsanjan to Zarand pass) lies in Kerman Province of Iran [Nadolny, Zamani, 2017].

Lycosa piochardi Simon, 1876 Figs 156, 157.

Lycosa piochardi Simon, 1876: 72, pl. 3, figs 8–9 (D♂♀).

MATERIAL. EGYPT: 1 ♀ (ZISP, ARA_ARA_0000044; earlier identified by P. Schmidt as *Lycosa cambridgei*), Desert Libyicum [apparently, the western part of Libyan desert, now in Egypt (no exact locality)], no date, Dr Yunkers [1879; 890 (768)].

COMMENTS. This species was recently redescribed [Armiach Steinpress *et al.*, 2022], and the present record lies within the known species’ range [WSC, 2023].

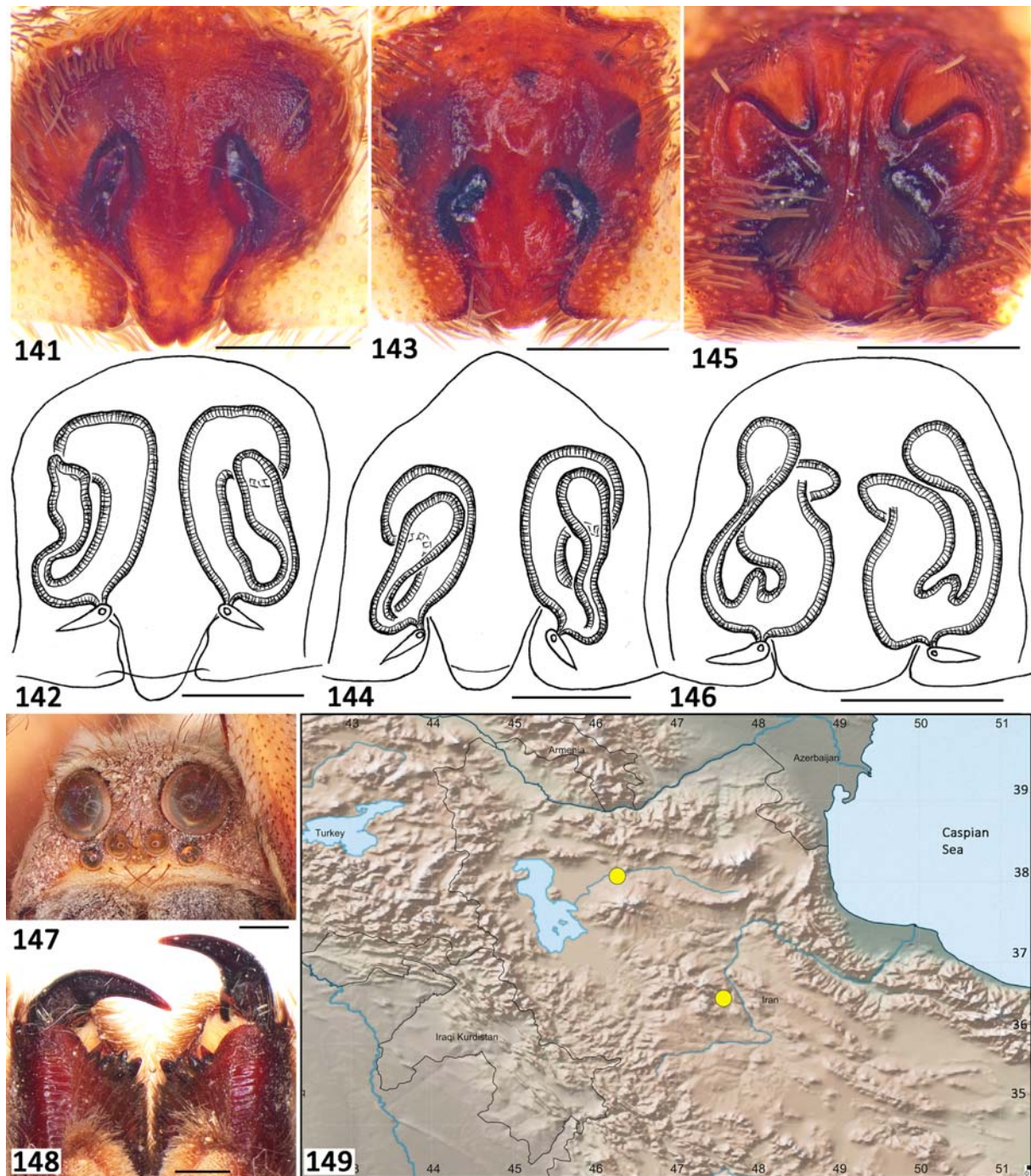
The record of *Allocosa cambridgei* (Simon, 1876) from Egypt by Schmidt [1895: 478, sub *Lycosa c.*] was based on a single misidentified female, which has been re-examined here (Table; Figs 156, 157). To date, *A. cambridgei* has been known from Turkey and Syria only [WSC, 2023], but all its records are based on old (unverified) findings, and its taxonomic status requires validation.

Lycosa praegrandis C.L. Koch, 1836 Figs 141–144.

Lycosa praegrandis C.L. Koch, 1836: 22, fig. 180 (D♀).

MATERIAL. KAZAKHSTAN: 1 ♂ 2 ♀♀, 3 juveniles (ZISP, ARA_ARA_0000049), East Kyzylkum desert, road to Aidarly, Cyra... (illegible; not found locality), 5.07.1912, N.A. Zarudnyi [320-912]. — TURKMENISTAN: 3 ♂♂ 3 ♀♀, 1 juvenile (ZMMU), Central Kopetdagh, Gaudan (now a district of Ashgabat, c. 37°55'N, 58°24'E), 26–17.07.1895, baron O.V. Rozen; 1 ♀ (ZISP, ARA_ARA_0000177), Zakaspiiskaya Oblast, Gaudan (Koil-Dol ?; now a district of Ashgabat, c. 37°55'N, 58°24'E), no date, Filippovich [N132-97]; 1 ♀ (ZMMU), Krasnovodsk Oblast, Gasan-Kuli Reserve, Delili cordon, N of Maloe Delili Lake [E of Esenguly, c. 37°28'N, 54°14'E], 25.01.1982, K.G. Mikhailov [1982-05]; 1 ♀ (ZMMU), Gasan-Kuli Reserve, Delili cordon, bottom of the former Bol'shoe Delili Lake [of Esenguly, c. 37°28'N, 54°14'E], in burrow, 28.01.1981, K.G. Mikhailov [1982-05]; 2 ♂♂ 1 ♀ (ZISP, ARA_ARA_0000171), Dzheidal' station (not found locality), Bol'shoi Balkhan [=Uly Balkan dary; c. 39°40'N, 54°34'E], Zakaspiiskaya Oblast, 16.08.1909, Nasonov [164-909]. — IRAN: 1 ♀ (ZISP, ARA_ARA_0000389; Figs 141, 142), northern Iran, Shahrud [c. 36°25'N, 54°58'E], 14.VI.1914, A. Kirichenko [492-1914]; 1 ♀ (ZISP, ARA_ARA_0000390; Figs 143, 144), ?Khuzestan Province (?), 6.IV.1904, ?N.A. Zarudnyi [6.IV.?] [97-1904]. — COUNTRY (?): 1 ♀ (ZISP, ARA_ARA_0000189), 5 versts S of Serke-bai mosk (not found locality), 6.07.1909, Mitskevich [29-910].

COMMENTS. It is an east-Mediterranean – Middle Asian species, known from Greece in the west throughout Asia Minor and the Caucasus, to Kyrgyzstan and south-east Kazakhstan in the east, and to northern Iran in the south [Zyuzin, Logunov, 2000; Zamani *et al.*, 2023].

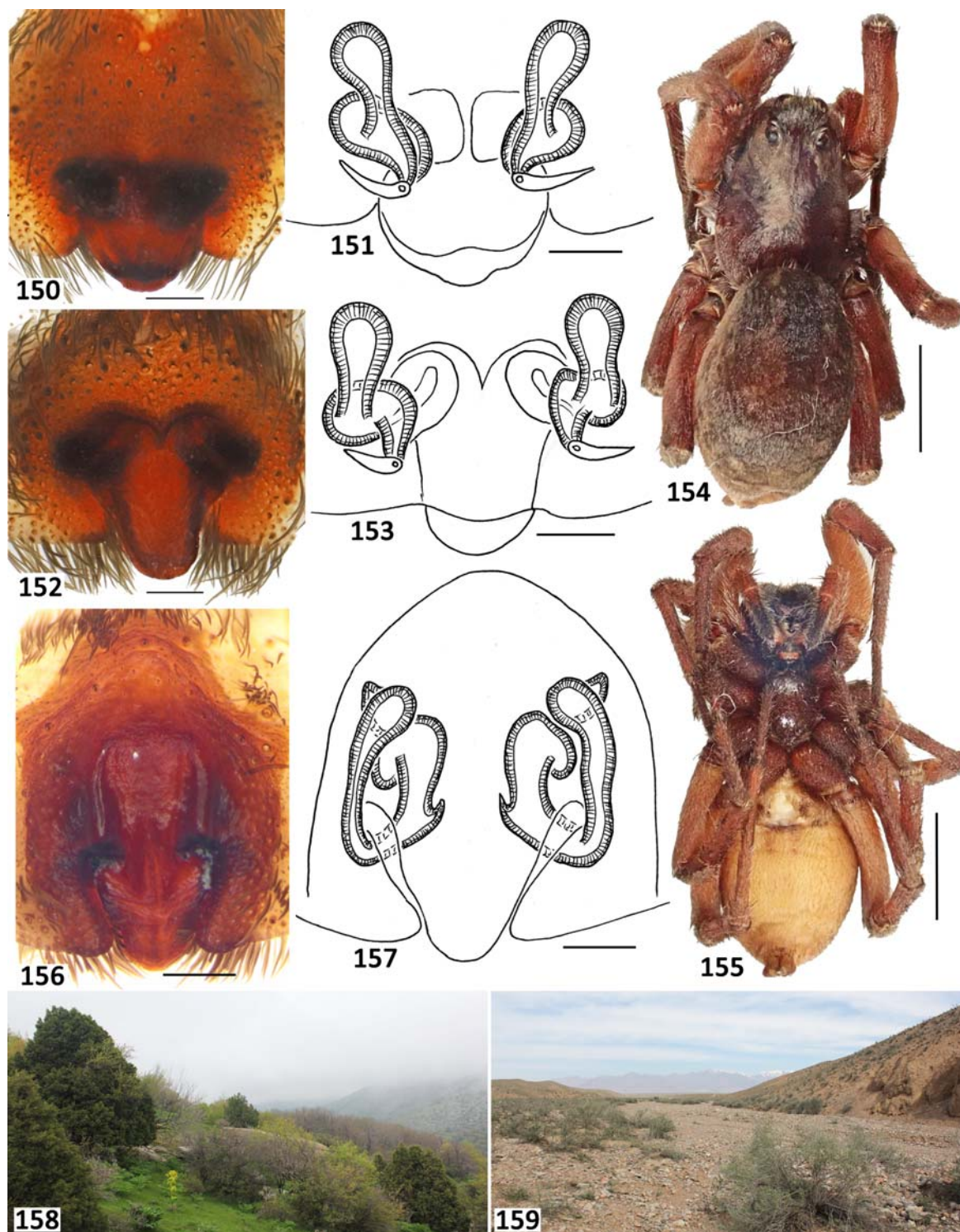


Figs 141–149. Females of *Lycosa praegrands* C.L. Koch, 1836 (141, 142 — Iran, Shahrud, ARA_ARA_0000389; 143, 144 — Iran, Khuzestan Province, ARA_ARA_0000390) and *Lycosa soboutii* Shafaie, Nadolny et Mirshamsi, 2022 (145–149 — Iran, Tabriz, ARA_ARA_0000391): 141, 143, 145 — epigyne, ventral view; 142, 144, 146 — vulva, dorsal view; 147 — carapace, frontal view; 148 — chelicerae, ventral view; 149 — map with collecting localities. Scale bars: 0.5 mm (141–146), 1 mm (147, 148).

Рис. 141–149. Самки *Lycosa praegrands* C.L. Koch, 1836 (141, 142 — Иран, Шахруд, ARA_ARA_0000389; 143, 144 — Иран, пров. Хужестан, ARA_ARA_0000390) и *Lycosa soboutii* Shafaie, Nadolny et Mirshamsi, 2022 (145–149 — Иран, Табриз, ARA_ARA_0000391): 141, 143, 145 — эпигина, вид снизу; 142, 144, 146 — вульва, вид сверху; 147 — головогрудь, вид спереди; 148 — хелицеры, вид снизу; 149 — карта с точками находок. Масштаб: 0,5 мм (141–146), 1 мм (147, 148).

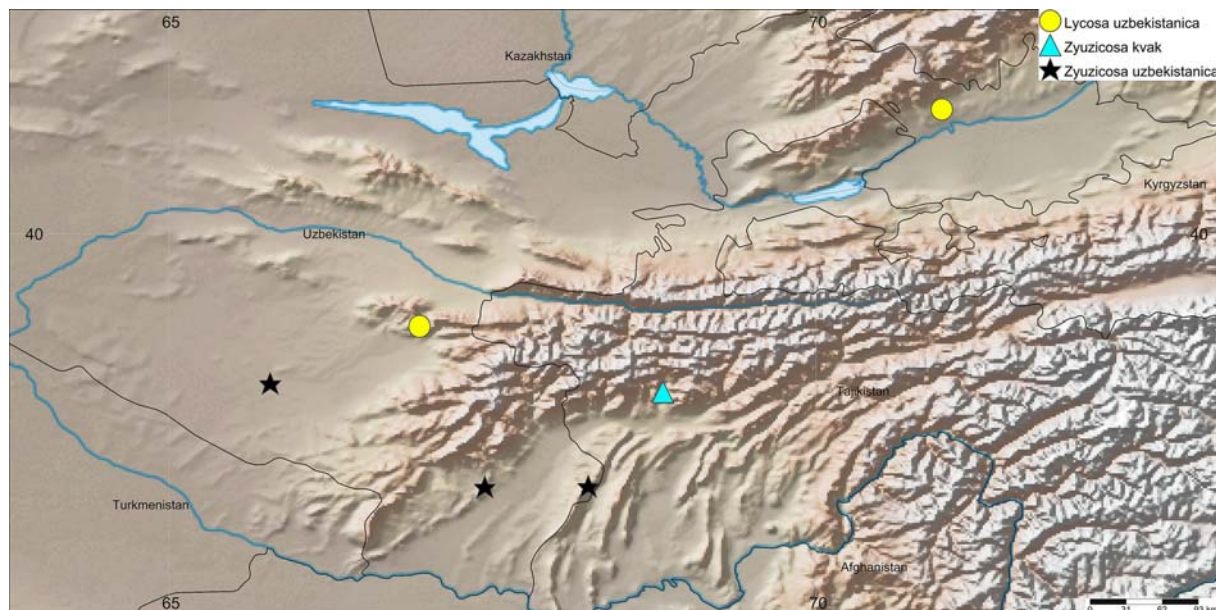
Although the species is rather common, it remains poorly illustrated, especially its vulva. In this paper, the copulatory organs of the studied females from Iran (Figs 141–144) are

presented to demonstrate the variation of the vulva, which is probably not less than that described for the related species *L. piochardi* (see Armiach Steinpress *et al.* [2022: figs 9, 10]).



Figs 150–159. Females of *Lycosa piochardi* Simon, 1876 (156, 157 — Libyan desert, Egypt) and *Lycosa uzbekistanica* sp.n. (150, 151, 154, 155, 158 — holotype; 152, 153, 159 — paratype): 150, 152, 156 — epigyne, ventral view; 151, 153, 157 — vulva, dorsal view; 154 — body, dorsal view; 155 — same, ventral view; 158 — the type locality and habitat of *L. uzbekistanica* sp.n., Uzbekistan, Zerafshan Mts, Aman Kutan pass; 159 — the habitat of paratype of *L. uzbekistanica* sp.n., Uzbekistan, Kuramin Mts, 8 km NW of Ugursal. Habitat photos: © A. Zamesov. Scale bars: 0.25 mm (150–153, 156, 157), 5 mm (154, 155).

Рис. 150–159. Самки *Lycosa piochardi* Simon, 1876 (156, 157 — Ливийская пустыня, Египет) и *Lycosa uzbekistanica* sp.n. (150, 151, 154, 155, 158 — голотип; 152, 153, 159 — паратип): 150, 152, 156 — эпигина, вид снизу; 151, 153, 157 — вульва, вид сверху; 154 — тело, вид сверху; 155 — то же, вид снизу; 158 — типовой локалитет и местообитание *L. uzbekistanica* sp.n., Узбекистан, Зеравшанский хр., перевал Аман-кутан; 159 — местообитание паратипа *L. uzbekistanica* sp.n., Узбекистан, Кураминский хр., 8 км СЗ Уйгурсала. Фотографии местообитаний: © А. Замесов. Масштаб: 0,25 мм (150–153, 156, 157), 5 мм (154, 155).



Map 4. Collecting localities of one *Lycosa* and two *Zyuzicosa* species.
Карта 4. Точки находок одного вида *Lycosa* и двух видов *Zyuzicosa*.

Lycosa soboutii Shafaie, Nadolny et Mirshamsi, 2022
Figs 145–149.

Lycosa soboutii Shafaie, Nadolny et Mirshamsi, 2022a: 502, figs 1–7 (D♀).

MATERIAL. IRAN: 1 ♀ (ZISP, ARA_ARA_0000391), East Azerbaijan Province, Tabriz [c. 38°04'N, 46°17'E], 27.02.1914, coll.?

COMMENTS. It is the first record of this species after its description. The species is only known from two close localities in Zanjan and East Azerbaijan Provinces of Iran [Shafaie *et al.*, 2022a; present data] (Fig. 149).

Lycosa uzbekistanica sp.n.
Figs 150–153, 154–159, Map 4.

TYPES. HOLOTYPE ♀ (SMNH; Figs 150, 151, 154, 155), Uzbekistan, Kashkadarie Region, Zeravshan Mts, Aman Kutan pass (39°17.3'N, 66°56.2'E; Fig. 158), 1730 m a.s.l., 22.04.2019, S.L. Zonstein. — PARATYPE: 1 ♀ (SMNH; Figs 152, 153), Uzbekistan, Namangan Region, Kuramin Mts, 8 km NW Ugursal (40°57.7'N, 70°58.3'E; Fig. 159), 830 m a.s.l., 13.04.2019, S.L. Zonstein.

ETYMOLOGY. The specific epithet is an adjective originating from the country where the species was found.

DIAGNOSIS. The epigyne of *L. uzbekistanica* sp.n. is similar to that of *L. piochardi*, but can be easily distinguished by the touching hood rims forming a seagull-shaped figure (vs. separated by two diameters in *L. piochardi*; cf. Figs 150, 152 and 156). The vulva of the new species is similar to that of the Oriental *L. labialis* Mao et Song, 1985, from which it differs in the absence of the duct connecting the primary and secondary receptacles (vs. present and well-developed in *L. labialis*; cf. Figs 151, 153 with fig. 95 in Zhang *et al.* [2022]).

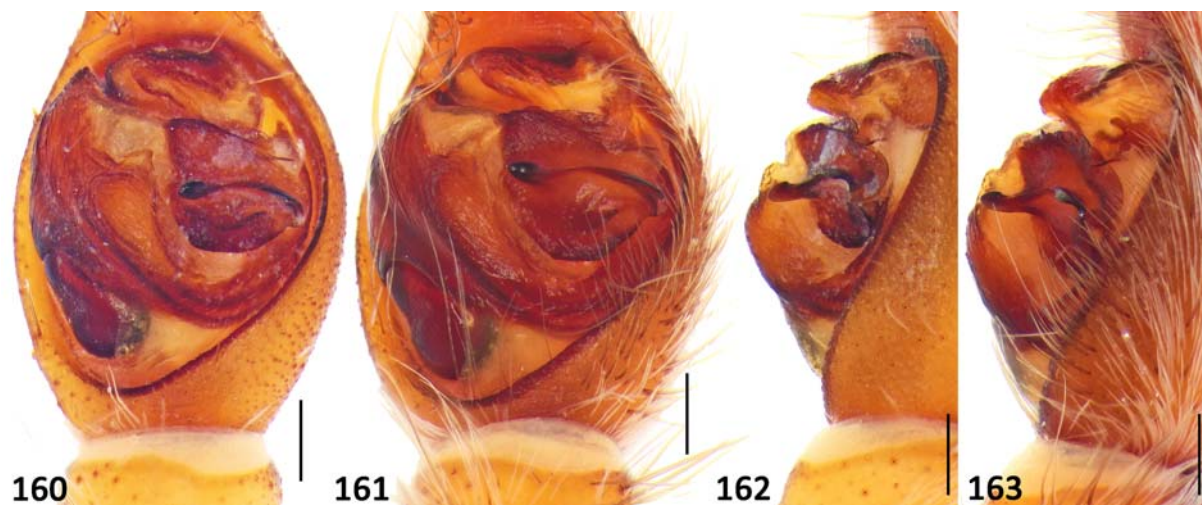
COMMENTS. Although the median septum in the females studied varies in its length and width (Figs 150, 152), the vulval structure remains constant (Figs 151, 153). Therefore, the observed differences are considered to be a varia-

tion and both females are assigned to the same species; to compare with the strong variation in female copulatory organs presented for the related *L. piochardi* [Armiaich Steinpress *et al.*, 2022]. Males are required to definitively confirm or refute the present conclusion.

DISTRIBUTION. Two localities in south-east Uzbekistan (Map 4).

DESCRIPTION. MALE unknown.

FEMALE (holotype). *Measurements.* Carapace 9.00 long, 6.30 wide. Eye sizes and interdistances: AME 0.45, ALE 0.40, PME 1.00, PLE 0.90, AME-AME 0.13, AME-ALE 0.15, PME-PME 0.70, PLE-PLE 1.85. Width of anterior eye row 1.80, second row 2.55, third row 3.05. Clypeus height 0.25, chelicera length 3.75. Abdomen 10.10 long, 7.20 wide. Length of leg segments: I 6.50 + 3.00 + 4.60 + 4.90 + 2.40 (21.40); II 6.20 + 3.10 + 5.00 + 4.70 + 3.00 (22.00); III 5.80 + 2.60 + 4.10 + 5.20 + 2.60 (20.30); IV 7.60 + 3.10 + 5.60 + 7.80 + 3.30 (27.40). *Spination of leg I:* Fm d 1-1-3ap; Pt pr 0-1-0; Tb pr 1-1, v 2-2-2ap; Mt v 2-2-2ap. *Colouration* (Figs 154, 155). Carapace yellow-brown, with a wide median and two marginal stripes of long white recumbent scales, and two longitudinal brown stripes of brown recumbent scales. Sternum light brown, covered with brown protruded hairs. Labium and endites dark brown, with bright yellow tips. Chelicera dark brown. Abdomen: dorsum and sides greyish brown, with a well-noticeable grey cardiac mark and a dorsal pattern of two longitudinal lines of white strokes and spots; venter yellow. Book-lung covers and spinnerets yellow, slightly tinged with brown. All legs and palps: coxae, Tb and Mt orange, Fm and Pt yellow; Tr brown; palpal Tr in distal halves dark brown. Epigyne and vulva as in Figs 150–153: the median septum tongue-shaped; hood cavities absent, but their rims form a seagull figure; both primary and secondary receptacles pear-shaped, with the very short (almost absent) duct connecting them; fertilisation ducts prominent, directed proximad.



Figs 160–163. *Oculicosa supermirabilis* Zyuzin, 1993 (160, 162 — ARA_ARA_0000047; 161, 163 — Kazakhstan, S foothills of Karatau): 160, 161 — bulbus, ventral view; 162, 163 — same, retrolateral view. Scale bars: 0.25 mm.

Рис. 160–163. *Oculicosa supermirabilis* Zyuzin, 1993 (160, 162 — ARA_ARA_0000047; 161, 163 — Казахстан, южные прегорья Каратау): 160, 161 — бульбус, вид снизу; 162, 163 — то же, вид сбоку-сзади. Масштаб: 0,25 мм.

Lycosa spp.

MATERIAL. UZBEKISTAN (?): 2 subadult ♀♀ (ZISP, ARA_ARA_0000042; earlier identified by P. Schmidt as *Lycosa glasunovi*), Zeravshan valley (no exact locality), 1892, [col. Glasunow; 925 (802)]. — TURKMENISTAN: 2 subadult ♀♀ (ZISP, ARA_ARA_0000045; earlier identified by P. Schmidt as *Tarentula bergsoei*), Kuldzha [c. 37°25'N, 62°14'E], 1881 [col. Alferaki; 887 (801)]; 1 subadult ♀ (ZISP, ARA_ARA_0000046; earlier identified by P. Schmidt as *Tarentula bergsoei*), Ashgabat [coordinates are given for the centre of modern city, c. 38°00'N, 58°16'E], 1888, Semenov [825].

COMMENTS. According to Schmidt [1895: 448, sub *Lycosa b.*], he studied three samples of *Hogna bergsoei* (Thorell, 1875): 2 ♀♀ from Kuldzha, 1 ♀ from Ashgabat, and 2 ♀♀ from Kizylkum desert (with no exact locality). In all cases, Schmidt presented these samples as adult females, but unfortunately that was not the case. I've been able to re-examine all three samples assigned by Schmidt to *H. bergsoei*, and all of them contained subadult females. One of the samples was identified by him as *L. glasunovi* (the non-published and non-valid name), but it was published under the name of *Lycosa bergsoei*. Although none of these females can be reliably identified to species, the following assumptions can be made about their possible identifications: the females from the sample ARA_ARA_0000042 are likely to belong to *L. praegrandis* (see above); those from the samples ARA_ARA_0000046 and ARA_ARA_0000045 belong to either *Lycosa* or *Karakumosa*.

Oculicosa Zyuzin, 1933

Type species: *Oculicosa supermirabilis* Zyuzin, 1993; by original designation [Zyuzin, 1993].

COMMENTS. It is a monotypic Middle Asian genus [WSC, 2023].

Oculicosa supermirabilis Zyuzin, 1993 Figs 160–163.

Oculicosa supermirabilis Zyuzin, 1993: 694, figs 1–4, 6–8 (D♂♀).

MATERIAL. TURKMENISTAN: 1 ♂ (ZISP, ARA_ARA_0000047; earlier identified by P. Schmidt as *Lycosa alticeps*), Zakaspiiskaya Oblast (no exact locality; according to Schmidt [1895: 450], it was Turkomania), 05–06.1859, Severtsov [881 (784)].

COMMENTS. It is a Turan lowland species recorded to date from Kazakhstan, Uzbekistan and northern Turkmenistan [Logunov, Gromov, 2011].

The studied male was in the ZISP sample collected together with the three *Karakumosa* females from 'Turkomania' and identified by Schmidt [1895] as *Lycosa alticeps* (Table); for the location of 'Turkomania' adopted in the present paper, see above "Comments" under *Karakumosa* spp.

Zyuzicosa Logunov, 2010

Type species: *Zyuzicosa baisunica* Logunov, 2010; by original designation [Logunov, 2010].

COMMENTS. It is a small Middle Asian genus of fossorial lycosids currently accounting for 11 species [WSC, 2023; Fomichev, 2023]. This paper provides new faunistic data for three species and describes a new species from Tajikistan based on old ZISP spider collections.

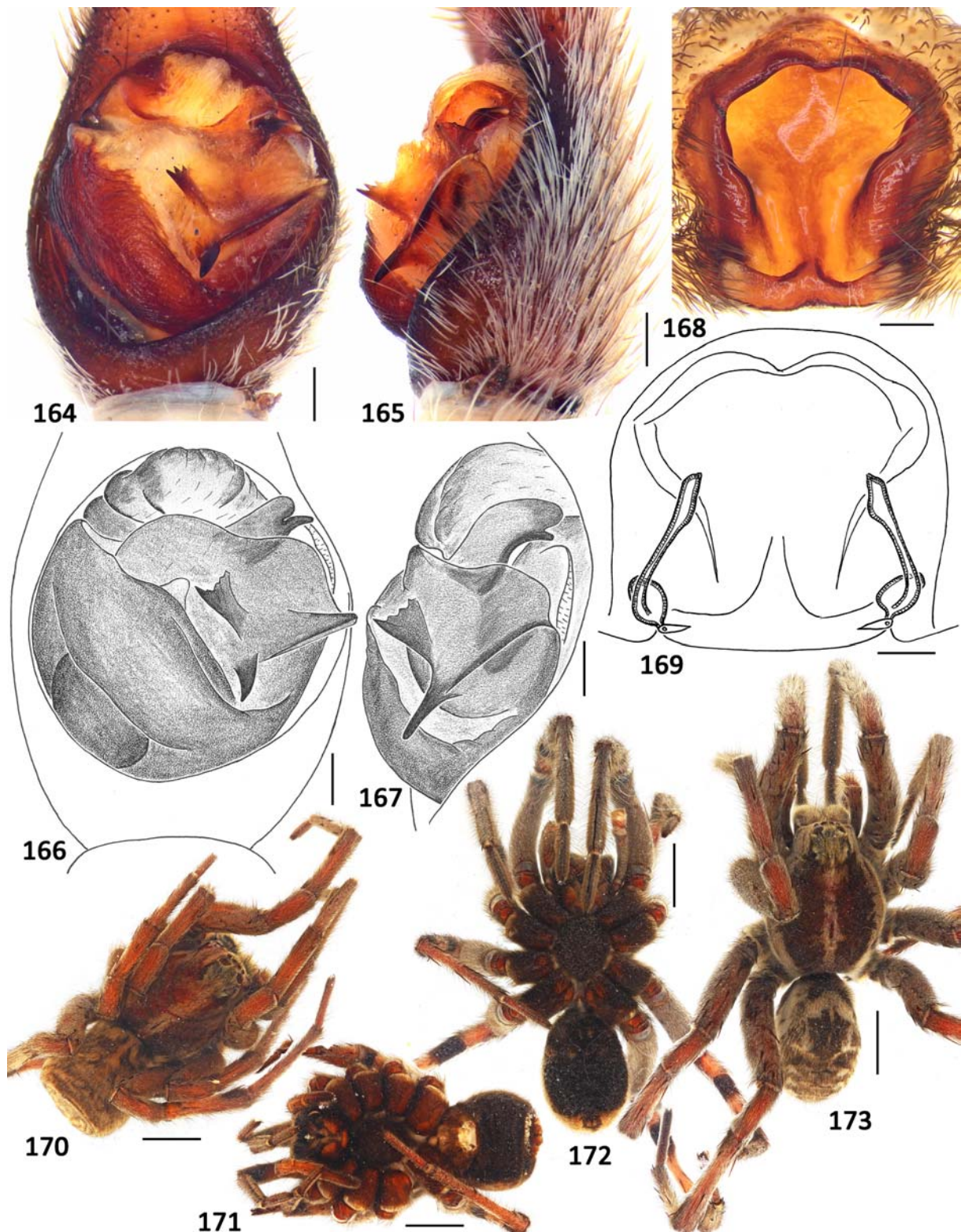
Zyuzicosa kvak sp.n.

Figs 164–173, Map 4.

TYPES. HOLOTYPE ♂ (ZISP, ARA_ARA_0000376), Tajikistan, [c. 35 km N of Dushanbe], on the road to Kvak [field station, c. 38°47'N, 68°49'E, 1800–2000 m a.s.l.], 3.06.1973, E. Blagoveshenskaya. — PARATYPES: 1 ♀, 2 subadult ♀♀ (ZISP, ARA_ARA_0000376), together with the holotype; 1 ♂ (ZISP, ARA_ARA_0000375), Tajikistan, [c. 35 km N of Dushanbe], Kondara, Kvak [field station, c. 38°47'N, 68°49'E, 1800–2000 m a.s.l.], 1–5.06.1973, E. Blagoveshenskaya.

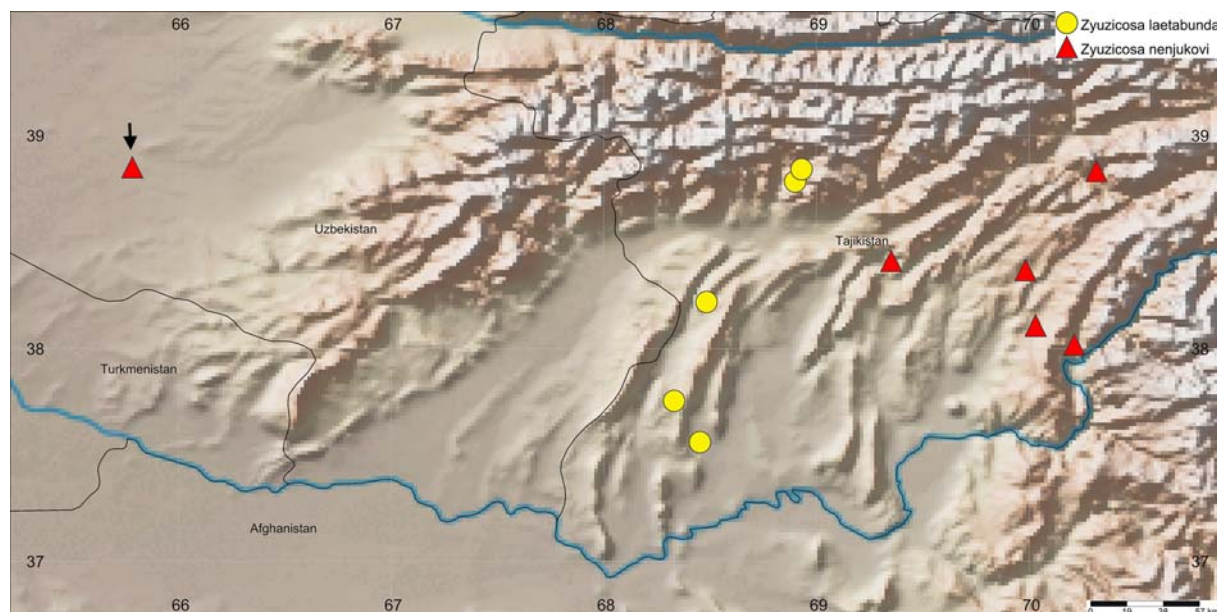
ETYMOLOGY. The specific epithet is a noun in apposition taken from the type locality.

DIAGNOSIS. The new species is most similar to *Z. laetabunda* (Spassky, 1941) and *Z. uzbekistanica* Logunov, 2010, from which it can be easily distinguished by the wider, serrated ventral process of the median apophysis directed medio-apicad in the males (vs. pointed and directed mediad



Figs 164–173. *Zyuzicosa kvak* sp.n. (164–167 — holotype; 168–173 — paratypes): 164, 166 — bulb, ventral view; 165, 167 — same, retrolateral view; 168 — epigyne, ventral view; 169 — vulva, dorsal view; 170 — female body, dorsal view; 171 — same, ventral view; 172 — male body, ventral view; 173 — same, dorsal view. Scale bars: 0.25 mm (164–169), 5 mm (170–173).

Рис. 164–173. *Zyuzicosa kvak* sp.n. (164–167 — голотип; 168–173 — паратипы): 164, 166 — бульбус, вид снизу; 165, 167 — то же, вид сбоку-сзади; 168 — эпигина, вид снизу; 169 — вульва, вид сверху; 170 — тело самки, вид сверху; 171 — то же, вид снизу; 172 — тело самца, вид снизу; 173 — то же, вид сверху. Масштаб: 0,25 мм (164–169), 5 мм (170–173).



Map 5. Collecting localities of two *Zyuzicosa* species.

Карта 5. Точки находок двух видов *Zyuzicosa*.

in the related species), and the different shape and proportions of the spermathecae in the females (cf. Figs 164–169 and figs 36–43 in Logunov [2012]). In the shape of ventral process of the median apophysis, *K. kvak* sp.n. is similar to that of the Uzbekistani *K. andreii* Fomichev, 2023, but differs from it in the absence of a tooth on the posterior process of the median apophysis; besides, its posterior process is markedly narrower than that of *K. andreii* (cf. Figs 166, 167 with figs 6–10 in Fomichev [2023]).

DISTRIBUTION. Only the type locality (Map 4).

DESCRIPTION. MALE (holotype). Carapace 12.00 long, 8.80 wide. Eye sizes and interdistances: AME 0.40, ALE 0.40, PME 1.00, PLE 0.80, AME-AME 0.20, AME-ALE 0.20, PME-PME 0.75, PLE-PLE 2.30. Width of anterior eye row 2.00, second row 2.55, third row 3.30. Clypeus height 0.55, chelicera length 8.50. Abdomen 11.00 long, 7.80 wide. Length of leg segments: I 10.80 + 4.70 + 7.80 + 8.30 + 4.00 (35.60); II 9.10 + 4.50 + 7.30 + 8.40 + 3.80 (33.10); III 8.40 + 3.70 + 6.30 + 8.20 + 3.50 (30.10); IV 10.90 + 4.30 + 8.80 + 11.80 + 4.70 (40.50). *Spination of leg I*: Fm d 1-1-3ap, pr and rt 1-1-1; Pt pr and rt 0-1-0; Tb pr 1-0, v 2-2-2ap; Mt pr 1-0, v 2-2-2ap. *Colouration* (Figs 172, 173). Carapace light brown, with dark brown radial lines, and with one median and two marginal yellow stripes. Sternum brown, densely covered with grey hairs. Labium and endites yellow-brown, with light yellow tips. Chelicerae brown. Abdomen: dorsum brown greyish, with longitudinal pattern of white strokes and spots; sides yellow; venter entirely black. Book-lung covers yellowish brownish. Spinnerets yellow, slightly tinged with brown. Legs brownish yellow, but Tb ventrally with black spots at segment joints; Mt and Tr I and II laterally and ventrally densely covered with grey hairs. Palps: Fm and cymbium brownish, Pt and Tb yellow. Palpal structure as in Figs 164–167: the median apophysis almost square; posterior processes pointed and directed proximad; ventral process with serrated edge, directed medio-apicad; sym-bolus bipartite, with a sclerotised lamella and wide base (as in all *Zyuzicosa* species; see Logunov [2012]).

FEMALE (paratype, ARA_ARA_0000376). *Measurements*. Carapace 12.00 long, 9.00 wide. Eye sizes and interdistances: AME 0.50, ALE 0.45, PME 1.05, PLE 0.90, AME-AME 0.20, AME-ALE 0.20, PME-PME 0.85, PLE-PLE 2.40. Width of anterior eye row 2.30, second row 2.90, third row 3.40. Clypeus height 0.45, chelicera length 10.50. Abdomen 10.50 long, 9.00 wide. Length of leg segments: I 8.30 + 4.30 + 6.50 + 7.10 + 3.50 (29.70); II 8.60 + 4.60 + 6.50 + 7.10 + 3.40 (30.20); III 8.00 + 3.10 + 5.80 + 7.20 + 3.60 (27.70); IV 10.70 + 4.60 + 8.60 + 11.30 + 4.50 (39.70). *Spination of leg I*: Fm d 2-3-3ap; Tb pr 1-1, v 2-2-2ap; Mt v 2-2-2ap. *Colouration* (Figs 170, 171), as in the male. Epigyne and vulva as in Figs 168, 169: epigynal atrium trapezoidal, without median septum; posterior transverse plate anchor-shaped; secondary receptacles narrow and elongated, as thick as the ducts connecting them to primary receptacles; fertilization ducts prominent, directed medio-proximad.

Zyuzicosa laetabunda (Spassky, 1941)

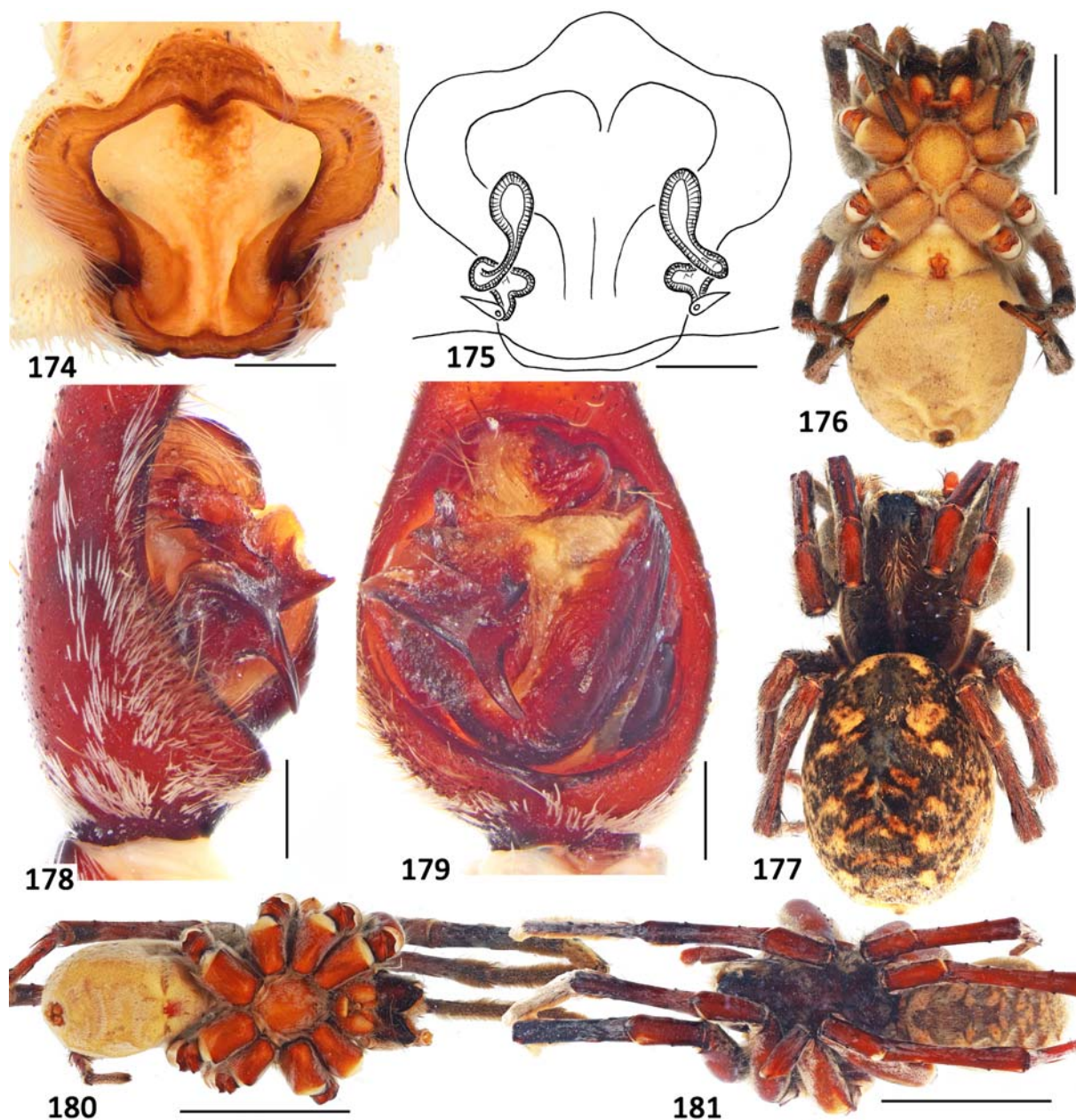
Map 5.

Lycosa laetabunda Spassky, 1941: 16, pl. 1, fig. 4 (D♀).

MATERIAL. TAJIKISTAN: 1 ♀ (MIIZ), 3 ♀♀ (ZISP, ARA_ARA_0000374; earlier identified by E.M. Andreeva as *Alopecosa nenjukovi*), Aruktau Mt. Range, Gandzhina (c. 38°13'N, 68°29'E), c. 740 m a.s.l., 10th plot, 4.07.1969, T. Domracheva; 1 ♀ (ZISP, ARA_ARA_0000380), same locality, 28.06.1969, T. Domracheva; 1 ♀ (MIIZ), [Varzob Distr.], watershed between Tagob and Odzhuk rivers [coordinates are given for Odzhuk; c. 38°47'N, 68°54'E], c. 2000 m a.s.l., in burrow (25 cm deep), with spiderlings, October 1974 (was kept in lab until March 1975), E.M. Andreeva.

COMMENTS. To date, this species has been known from Tajikistan only [Logunov, 2012; present data] (Map 5).

One of the samples studied (from Gandzhina) had previously been misidentified by E.M. Andreeva as *Alopecosa nenjukovi*, but this locality was not included in her synopsis of the Tajik spiders [Andreeva, 1976]. Nevertheless, the records of *Z. nenjukovi* from Tajikistan by Andreeva [1976]



Figs 174–181. *Zyuzicosa nenjukovi* (Spassky, 1952) (174–177 — female from Tajikistan, Peter I Mt. Range, Shahob gorge; 178–181 — male from Uzbekistan, Quarshi): 174 — epigyne, ventral view; 175 — vulva, dorsal view; 176, 180 — body, ventral view; 177, 181 — same, dorsal view; 178 — bulbus, retrolateral view; 179 — same, ventral view. Scale bars: 0.5 mm (174, 175, 178, 179), 10 mm (176, 177, 180, 181).

Рис. 174–181. *Zyuzicosa nenjukovi* (Спасский, 1952) (174–177 — самка из Таджикистана, хр. Петра Первого, ущ. Шахоб; 178–181 — самец из Узбекистана, Карши): 174 — эпигина, вид снизу; 175 — вульва, вид сверху; 176, 180 — тело, вид снизу; 177, 181 — то же, вид сверху; 178 — бульбус, вид сбоку-сзади; 179 — то же, вид снизу. Масштаб: 0,5 мм (174, 175, 178, 179), 10 мм (176, 177, 180, 181).

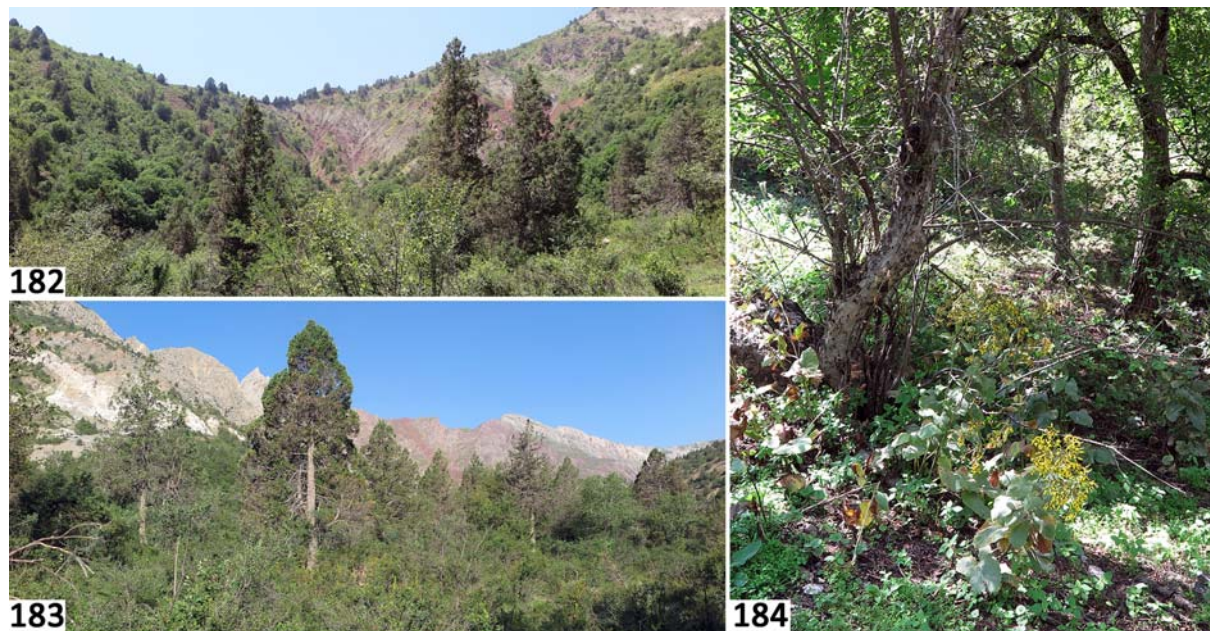
are in need of confirmation upon reference to the pertinent material, as some of them could actually belong to *Z. la-etabunda*.

Zyuzicosa nenjukovi (Spassky, 1952)
Figs 174–184, Map 5.

Tarentula nenjukovi Spassky, 1952: 200, fig. 1 (D♀).

MATERIAL. TAJIKISTAN: 2 ♀♀ (SMNH; Figs 174–177), Peter I Mt. Range, Shahob gorge, 2.5 km N of Shahob (38°50'N, 70°19'E; Figs 1824–184), 1800 m a.s.l., 8.07.2019, S.L. Zonstein & A. Hakimov. — UZBEKISTAN: 1 ♂ (ZISP, ARA_ARA_0000041; earlier identified by P. Schmidt as *Lycosa medica*; male without left palp; Figs 178–181), Karshi (Bukhara) [now Quarshi, c. 38°51'N, 65°47'E], 1882, Grum-Grzymailo [930 (780)].

COMMENTS. In the conformation of the epigyne, the female of *Z. nenjukovi* is closest to that of *Z. fulviventris*



Figs 182–184. Habitats of *Zyuzicosa nenjukovi* (Spassky, 1952) from Tajikistan, Peter I Mt. Range, Shahob gorge, © S.L. Zonstein.
Рис. 182–184. Местообитания *Zyuzicosa nenjukovi* (Спасский, 1952) из Таджикистана, хр. Петра Первого, ущ. Шахоб, © С.Л. Зонштейн.

(Kroneberg, 1875) known from Zeravshan Mt. Range in Uzbekistan, from which it can be easily distinguished by the swollen, oval secondary receptacles and the S-shaped ducts (vs. tubular or boot-shaped receptacles and straight ducts in *Z. fulviventrис*; cf. Figs 174, 175 with figs 72, 73, 76, 77 in Logunov [2010: sub *Z. zeravshanica*]). Besides, this species has an unusual body colouration that separates it from all the known *Zyuzicosa* species: viz., the speckled dorsum and the venter with no black spot (Figs 176, 177; see also Logunov [2012: figs 10, 11]).

The male from Quarshi identified here as *Z. nenjukovi* differs from the available figures of this species [e.g., Logunov, 2012: figs 30, 31] in having the slightly narrower median apophysis (Fig. 178, 179), which likely to reflect a variation of this character. Besides, the examined male has only one, right palp, with a broken tip of the proximal process of the median apophysis (Fig. 179). However, the body colouration, especially its dorsum, is identical to that of the females from Tajikistan (cf. Figs 180, 181, 176, 177 and figs 10–13 in Logunov [2012]), and therefore the present identifications is accepted as correct. This male was collected from the same site as *Z. uzbekistanica* given below, but the exact localities of both species were not clearly indicated. This locality (arrowed in Map 5) is quite far from the main array of the species records, and therefore there is a possibility that the rather generalised information on its whereabouts from the old label is not entirely correct.

To date, the species has been known only from Tajikistan and south-east Uzbekistan [Logunov, 2012; present data] (Map 5). The habitats from which the studied female of *Z. nenjukovi* was collected in Tajikistan are shown in Figs 182–184; the trees depicted on these images are Pashtun Juniper (*Juniperus seravschanica*) and Common Walnut (*Juglans regia*).

Zyuzicosa uzbekistanica Logunov, 2010 Map 5.

Zyuzicosa uzbekistanica Logunov, 2010: 259, figs 54–55 (D♂).

MATERIAL. UZBEKISTAN: 1 ♂, 1 immature ♂ (ZISP, ARA_ARA_0000082; earlier identified as *Hogna singoriensis*), Karshi (Bukhara) [now Quarshi, c. 38°51'N, 65°47'E], 1882, Grum-Grzymailo [848 (774)]; 1 subadult ♀ (ZISP, ARA_ARA_0000042; earlier identified by P. Schmidt as *Lycosa glasunovi*), Karshi (Bukhara) [now Quarshi, c. 38°51'N, 65°47'E], 1882, Grum-Grzymailo [926 (769)].

COMMENTS. To date, this species has been known only from Uzbekistan [Logunov, 2012; present data] (Map 5).

It is worth noticing that the examined male of *Z. uzbekistanica* was collected from the same site as that of *Z. nenjukovi* given above, but the exact localities of both species were not clearly indicated. Although a positive identification of the subadult female of *L. glasunovi* (as per Schmidt [1895]; ZISP, ARA_ARA_0000042) is impossible, it may belong either to *Z. uzbekistanica* or to *Z. nenjukovi* (see above), as the specimen was collected from the same site (Quarshi), in the same year (1882) and by the same collector (Grum-Grzymailo).

Conclusion

According to Logunov & Ponomarev [2020: Table], the fauna of the fossorial lycosids of Middle Asia and the Caucasus consists of 30 species in nine genera. In the context of the present paper, this estimate can be elaborated as follows: *Allohogna* Roewer, 1955 (1 species), *Alopecosa* (6), *Asiacosa* gen.n. (3), *Geolycosa* (2), *Hogna* (1), *Karakumosa* (15), *Lycosa* (6), *Oculicosa* (1), and *Zyuzicosa* (12) – 47 species in nine genera. Of this set, one genus (*Vesubia* Simon, 1910) is

removed from the fauna of Middle Asia, but another (*Asiacosa* gen.n.) has been added. The latest estimate is hardly exhaustive: more unrecorded and/or undescribed species of fossorial lycosids should be expected, at least in the genera *Alopecosa*, *Karakumosa* and *Zyuzicosa*.

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