

On two rare spider species of the genus *Alopecosa* Simon, 1885 (Aranei: Lycosidae) from the South Urals

О двух редких вида пауков рода *Alopecosa* Simon, 1885 (Aranei: Lycosidae) с Южного Урала

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КЛЮЧЕВЫЕ СЛОВА: Пауки, Lycosidae, *Alopecosa*, южное Зауралье.

ABSTRACT. A rare wolf-spider species *Alopecosa azsheganovae* Esyunin, 1996 is redescribed on the basis of specimens collected from the type locality: Troitskii Reserve, the southern Transuralia. New records, diagnosis and ecological data are given for *Alopecosa kungurica* Esyunin, 1996. The *solivaga* species group is defined to include not less than 11 species predominantly distributed in Asia.

РЕЗЮМЕ. Редкий вид пауков-волков *Alopecosa azsheganovae* Esyunin, 1996 переописывается из типового местообитания: Троицкий заказник, южное Зауралье. Для *Alopecosa kungurica* Esyunin, 1996 приведены новые указания, диагноз и данные по экологии. Обосновывается выделение группы *solivaga* рода *Alopecosa*. Группа содержит не менее 11 видов, распространенных преимущественно в Азии.

Introduction

Of the 21 wolf-spiders of the genus *Alopecosa* Simon, 1885 recorded from the Urals, two species — *Alopecosa azsheganovae* Esyunin, 1996 and *A. kungurica* Esyunin, 1996 — are considered endemics of this region. Both are rare species known to date from a few specimens. New material received from the time of their original descriptions allows us to clarify the diagnoses and variation of both species and to extend our knowledge of their distribution and ecology.

The material examined has been deposited at the Manchester Museum, the University of Manchester, UK (curator: D.V. Logunov).

Dried uncoated copulatory organs were studied by means of SEM (Hitachi TM3000), with BSE (back-scattered electrons) detector at 15 kV accelerating

voltage. All images were stored electronically as TIFF files at a resolution of 600 pixels inch⁻¹.

The following abbreviations are used: a — apical, AME and ALE — anterior median and lateral eyes, d — dorsal, pl — prolateral, PME and PLE — posterior median and lateral eyes rl — retrolateral, v — ventral. All measurements are in mm.

Alopecosa azsheganovae Esyunin, 1996 Figs 1A–C, 2.

Alopecosa azsheganovae sp.n. — Esyunin, 1996: 1149, Fig. 4: 3,4 (♀)

MATERIAL. 2 ♀♀, Russia, Chelyabinsk Region, Troitskii Reserve, steppe, 26.VI–10.VII.2005, A. Kuznetsova.

DESCRIPTION. Female. Total length 9.7(9.0–10.9). Carapace length 4.5(4.3–4.8), width 3.4(3.3–3.5). Chelicerae length 2.1(1.9–2.2). Clypeus 0.23. Diameter of eyes: ALE — 0.15, AME — 0.20, PLE — 0.30, PME — 0.38. Posterior eyes quadrangle trapeziform: PLE–PLE — 1.38, PME–PME — 1.05, PLE–PME — 1.03.

Coloration. Carapace dark brown, with a brown longitudinal median stripe (Fig. 1C). Chelicerae dark brown (almost black). Sternum dark brown. Pedipalps brown, with darkened tips. Legs dark brown, but patella ventrally yellow-brown and femora dorsally with light brown spots. Abdomen dorsally grey, ventrally yellow-gray.

Armament of leg femora: T1

Leg	Femur	Tibia	Metatarsus
I	d 1-1-1, pl 0-0-1, rl 0-0-1	pl 0-1-1, v 2-2-2a	pl 0-1-0, v 2-2-3a
II	d 1-1-1, pl 0-1-1, rl 0-0-1	pl 0-1-1, v 1-1-2a	pl 0(1)-1-0, v 2-2-3a
III, IV	d 1-1-1, pl 0-1-1, rl 0-0-1	d 1-1-0, pl 1-1-0, rl 1-1-1f, v 2-2-2a	pl 1-1-1a, v 2-2-3a

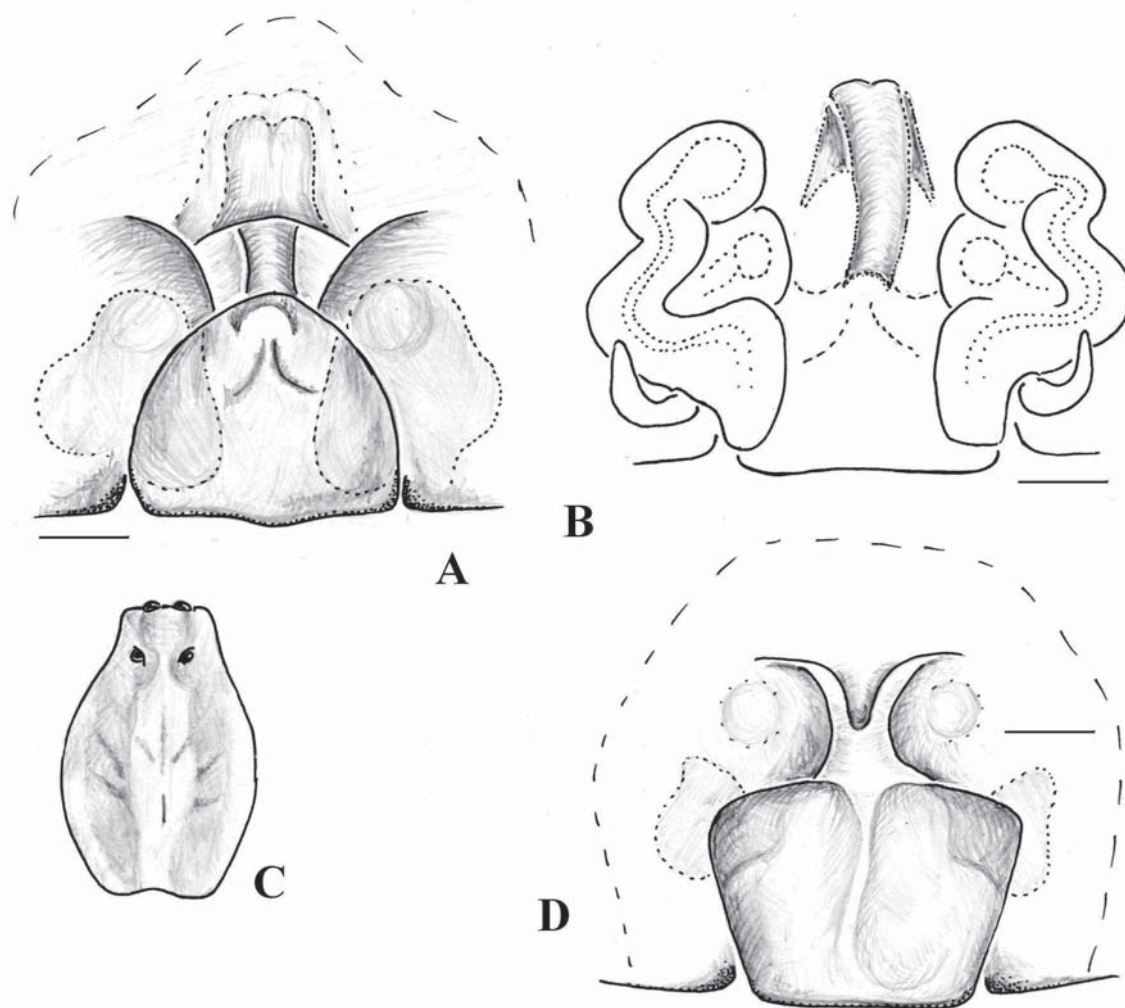


Fig. 1. *Alopecosa azsheganovae* Esyunin, 1996 (A-C) and *Alopecosa kungurica* Esyunin, 1996 (D: Chelyabinsk Area): A, D — epigyne, B — spermathecae, C — carapace, scheme. Scale 0.1 mm.

Рис. 1. *Alopecosa azsheganovae* Esyunin, 1996 (A-C) и *Alopecosa kungurica* Esyunin, 1996 (D): A, D — эпигина, B — сперматека, C — карапакс, схема. Масштаб 0,1 мм.

Leg formula: IV-I-III,IV. The size of segments — average (max–min): T2

Leg	Femur	Patella+Tibia	Metatarsus	Tarsus	Total
I	3.0 (3.1–3.0)	3.8(3.9–3.7)	2.4 (2.7–2.1)	1.6 (1.7–1.5)	10.8 (11.4–10.4)
II	2.9	3.7(3.8–3.6)	2.4 (2.5–2.1)	1.6 (1.7–1.5)	10.6 (10.9–10.1)
III	2.9 (2.9–2.8)	3.4	2.7 (2.9–2.5)	1.5 (1.5–1.4)	10.5 (10.7–10.1)
IV	3.7 (3.8–3.6)	4.5	4.2 (4.3–4.0)	2.0 (2.0–1.9)	14.4 (14.6–14.0)

Epigyne: median septum with a triangular plate (Fig. 1A, 2). Spermathecae as in Fig. 1B.

Male is unknown.

REMARKS. *A. azsheganovae* has been described from the steppe of Troitskii Reserve (east of Chelyabinsk Region, Transuralia) on the basis of three females [Esyunin, 1996]. The species was named in honour of Nina S. Azheganova who made an important contribution to the studies of Urals spiders. A type

series was distributed between the three Russian museums: the Zoological Museum of the Moscow State University; the Siberian Zoological Museum of Novosibirsk; and the Zoological Museum of the Perm State University. Despite annual collecting carried out in the Troitskii Reserve, this species has not been found in almost 15 years. The two female caught in 2005, have insignificant differences from the type specimens.

A. azsheganovae seems to belong to the *pulverulenta* species group, as was defined by Kronstedt [1990], but clearly differs from other congeners in having the isolated triangular plate of the median septum (Fig. 1). Besides, this species is characterized by the monochrome body's colour pattern.

DISTRIBUTION: The type locality only.

ECOLOGY. Habitat: various kinds of the *Stipa* steppes. Phenology: ♀♀ can be found from June to September.

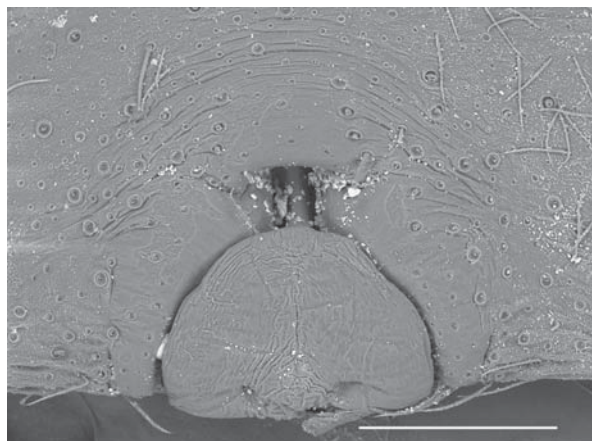


Fig. 2. Epigyne of *Alopecosa azsheganovae* Esyunin, 1996. Scale 300 μ m.
Рис. 2. Эпигина *Alopecosa azsheganovae* Esyunin. Масштаб 300 μ m.

Alopecosa kungurica Esyunin, 1996
Fig. 1D, 3A–D.

Alopecosa kungurica sp.n. — Esyunin, 1996: 1151, figs 1: 1–5 (σ^7 ♀).

MATERIAL. Middle Urals: 1 σ^7 (PSU-3631), Perm Area, Kishert' District, Preduralie Reserve, Mezhevoi Kamen', pitfall-traps, 20.VI.1994, S.L. Esyunin; 1 σ^7 , 12 ♀♀ (PSU-3343, 3631), same locality, burned-out steppe pine forest, VII.2003, 2004, S.V. Tvorogov. South Urals: 1 ♀ , Chelyabinsk Area, Ilmenskii Reserve, mountain steppe, 4.VII.1991, Pichugina.

REMARKS. The shape of epigyne of *A. kungurica* is rather variable (see Figs 3C,D). The male palp with the wide tegular apophysis bearing a longitudinal crest-shape outgrowth with claw-like tip (Fig. 3A). The terminal apophysis is in parallel with the embolus (Fig. 3B).

By the detailed conformation of the copulatory organs, *A. kungurica* differs from the generotype — *Alopecosa fabrilis* (Clerck, 1757) — and is close to a group of Asian species related to *A. solivaga* (Kul-

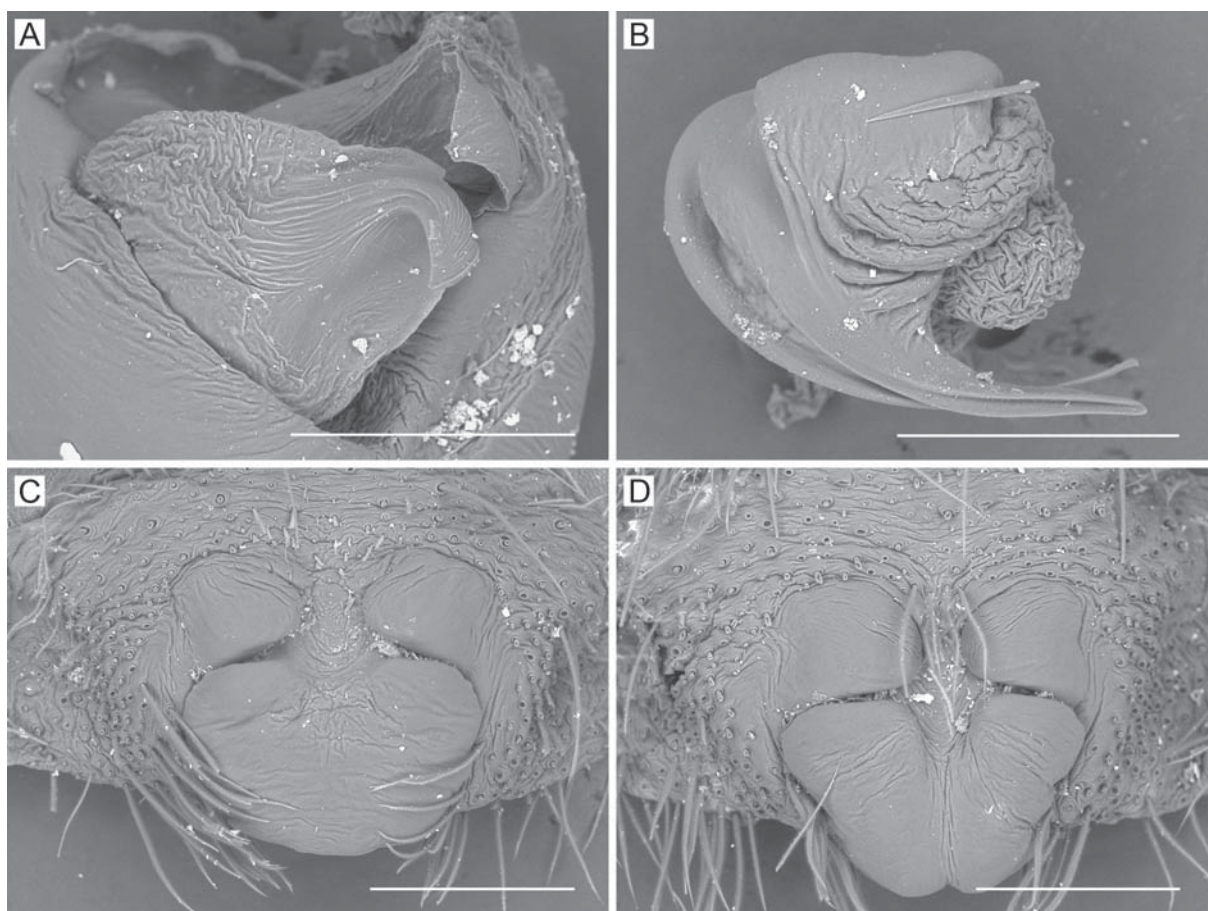


Fig. 3. *Alopecosa kungurica* Esyunin, 1996 (Perm Area): A — tegulum with tegular apophysis and embolic conductor, B — embolic division, C, D — epigyne. Scale 300 μ m.
Рис. 3. *Alopecosa kungurica* Esyunin, 1996: A — тегулум с тегулярной апофизой и кондуктор эволюса, B — эмболосный отдел, C, D — эпигина. Масштаб 300 μ m.

zyński, 1901) which is worth considering a separate species group. Members of this group can be diagnosed by the following characters: (1) the median septum of the epigyne is plate-shaped with rounded angles, covering the epigynal atrium completely; (2) the anterior edge of epigynal atrium with two lobes; (3) the cymbium with a group of thick, basal spines; (4) the terminal apophysis large, its tip reaches the embolic tip and is in parallel with it; and (5) the median apophysis is directed laterad or laterad-backwards, its upper part having a longitudinal crest-shape outgrowth with claw-like tip. The majority of species of this group are known from their original descriptions only. The authors intend to revise all of the within the scope of Siberian fauna.

At present, *solivaga* species group provisionally encompasses more than 11 species: *ermolaevi* Saveljeva, 1972, *fabifer* (Schenkel, 1963), *hirtipes* (Kulczyński, 1907), *hokkaidensis* Tanaka, 1985, *kungurica* Esyunin, 1996, *moriutii* Tanaka, 1985, *parahirta* (Schenkel, 1963), *parasibirica* (Schenkel, 1963), *pseudohirta* (Schenkel, 1963), *sibirica* (Kulczyński, 1908), *solivaga* (Kulczyński, 1901) with 4 subspecies, and *wiehle* (Schenkel, 1963). It is possible that the following three species also belong to the *solivaga* group: *A. chagyabensis* Hu et Wu, 1987 possessing the long bending embolus; *frigens* (Kulczyński, 1916) which maybe an aberrant form; and *volubilis* Yoo, Kim et Tanaka, 2004 having the tip of the median apophysis twirling along its axis. Species of this group are common in Asia and northern Nearctic, but are most diverse in Asia.

By the conformation of epigyne, *A. kungurica* (the westernmost species of the group) is most similar to *A. ermolaevi* from East Kazakhstan and *A. hokkaidensis* from Japan. A diagnosis of *A. kungurica* on the basis of its copulatory organs is difficult, as the species remains known from females only. Nevertheless, it can be readily distinguished from both related species by the abdominal colour pattern: black laterally and red-

brown dorsally in *kungurica*, “dorsally grey-brown, with longitude wide yellow-white medial band” [Saveljeva, 1972: 456] in *A. ermolaevi*; and “reddish brown in dorsal surface, with an indistinct lanceolate median mark and some light yellow transverse bars on posterior half; lateral and ventral surface reddish brown” [Tanaka, 1985: 68] in *A. hokkaidensis*.

DISTRIBUTION. The Middle and South Urals: Perm and Chelyabinsk Regions.

ECOLOGY. In the Middle Urals, *A. kungurica* occurs in lime stone denudations, steppe-like associations and xerophytic burnt-out places of pine forests; in the South Urals — in the mountain steppe. Phenology: ♂♂ can be found from June to July; ♀♀ from June to September.

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