



## A new species of *Acantholycosa* Dahl, 1908 (Araneae: Lycosidae) from the Russian Far East

MIKHAIL M. OMELKO<sup>1,2</sup>, ANATOLY A. KOMISARENKO<sup>1</sup> & YURI M. MARUSIK<sup>3,4,5</sup>

<sup>1</sup>Far Eastern Federal University, Sukhanova 8, Vladivostok 690950, Russia

<sup>2</sup>Gornotaezhnaya Station FEB RAS, Gornotaezhnoe Vil., Ussuriyski Dist., Primorski krai 692533, Russia.

E-mail: [omelkom@gmail.com](mailto:omelkom@gmail.com)

<sup>3</sup>Institute for Biological Problems of the North, Portovaya Street 18, Magadan 685000, Russia. E-mail: [yurmar@mail.ru](mailto:yurmar@mail.ru)

<sup>4</sup>Zoological Museum, University of Turku, FI-20014 Turku, Finland

<sup>5</sup>Department of Zoology & Entomology, University of the Free State, Bloemfontein 9300, South Africa

*Acantholycosa* Dahl, 1908 is a relatively large genus, comprising 29 species to date (World Spider Catalog 2015). The genus is well delimited; its members are recognized by having 4–6 pairs of ventral spines at leg I, a wide embolus (sometimes with a spine at its base), apical pocket(s) of epigyne separated from fovea, among other characters (cf. Marusik *et al.* 2004, 2015). *Acantholycosa* is among the better known genera of Holarctic Lycosidae due to several revisions and reviews (Kronestedt & Marusik 2002; Marusik *et al.* 2004, 2015; Marusik & Logunov 2011; Marusik & Omelko 2011). Most *Acantholycosa* are known from the Altai-Sayan mountain system (21 species, of which 17 are local endemics) and the Maritime Province of Russia (6 species, three are local endemics). Although the Russian Far East is well studied, an expedition to the previously unstudied Phalaza Mt. in the south part of Maritime Province revealed a new species closely related to *A. azarkinae* Marusik & Omelko, 2011. The main goal of this paper is to provide detailed description of this new species.

Specimens were photographed using an Olympus C-7070 Wide Zoom camera attached to an Olympus SZX12 stereomicroscope at the Biodiversity and Marine Biological Resources Department of Far Eastern Federal University. Photographs were taken from specimens in dishes with ethanol and paraffin on the bottom. Holes of different sizes were made in the paraffin to keep the specimens or their parts in the appropriate position. The epigynes were macerated with NaOH aqueous solution. Stacking of images was performed by using Combine ZP (<http://www.hadleyweb.pwp.blueyonder.co.uk/>) and Adobe Photoshop CS5 softwares. All measurements are in mm. All material listed in the paper will be deposited in the Zoological Museum of the Moscow State University (ZMMU).

We thank Alexander Semenchenko (Far Eastern Federal University) for providing us facilities to photograph specimens of the new species. English of the final draft was kindly checked and edited by Don Buckle (Saskatoon, Canada). This project was supported in part by the Far Eastern Federal University.

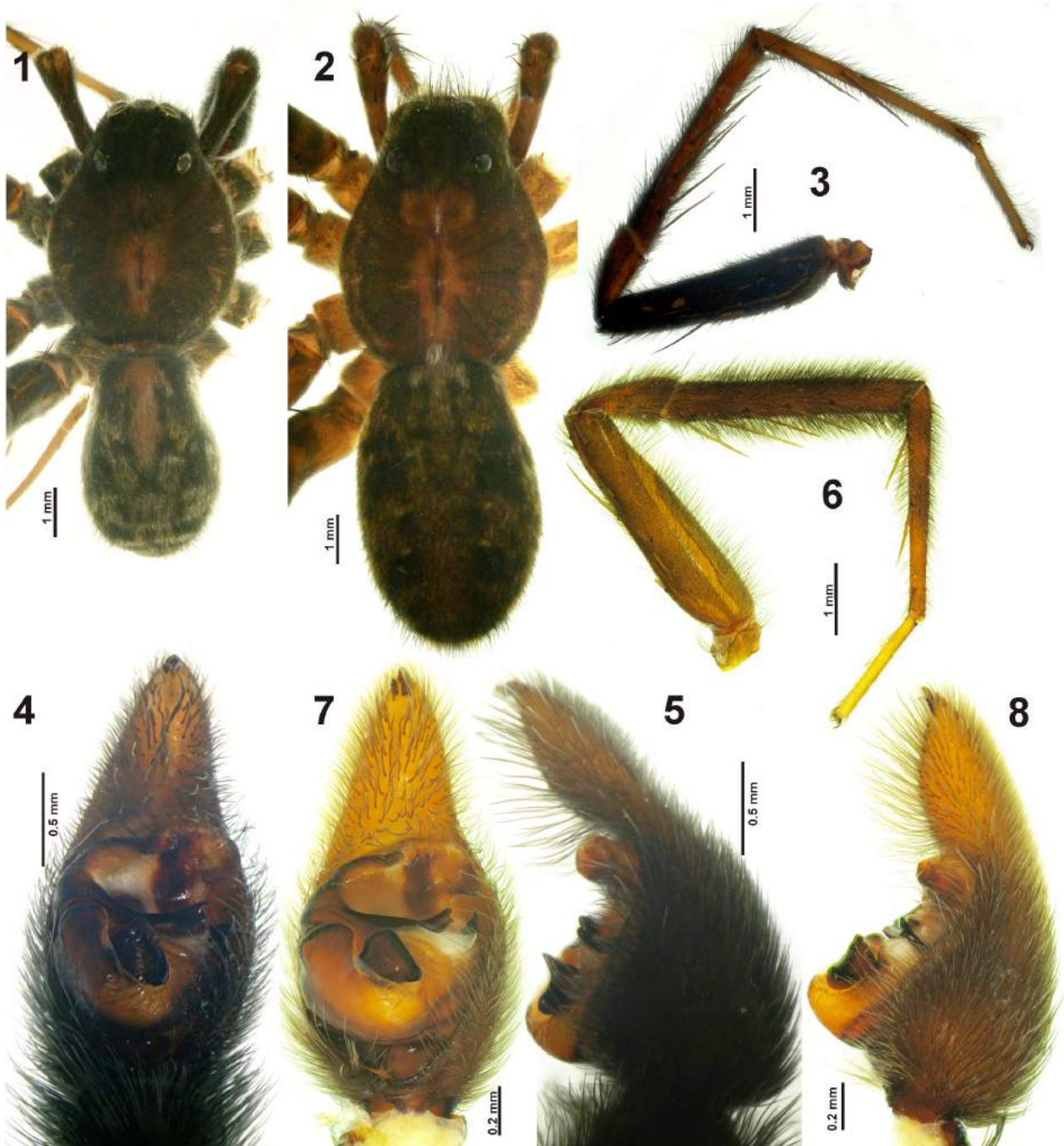
### *Acantholycosa valeriae* sp. n.

Figs 1–5, 9–11, 15–17, 21–23, 27

**Type material.** Holotype ♂ and paratypes 2♀ (ZMMU), Russia, Maritime Province, Falaza (=Litovka) Mt., alpine belt, 1200 m, 43°06'10"N, 132°46'52"E, 17.06.2015 (M.M. Omelko, A.A. Komisarenko).

**Etymology.** The specific name is a patronym in honor of Russian paleozoologist and senior author's wife Valeria Omelko.

**Diagnosis.** The new species is closely related to *Acantholycosa azarkinae*; which is known only from Sestra Mt. in Maritime Province. Males of the new species can be easily distinguished by absence of dense hairs on legs I and II, by having 3 prolateral spines on metatarsus I instead of 2, and dark colored tarsus (yellowish in sibling species, Figs 3, 6). Tegular apophysis in the new species has a pointed upper part, while in *A. azarkinae* it is rounded. *Acantholycosa valeriae* sp. n. differs from sibling species by the rounded inner part of embolus tip (*Ie*) and straight sperm duct (*Sd*) in the tip of embolus (straight inner part and dorsally bent sperm duct in *A. azarkinae*, Figs 16, 19). Females of the new species can be distinguished by having epigyne with a single median hood (two widely spaced hoods in *A. azarkinae*) and shorter receptacles (compare Figs 21–23 and 24–26).



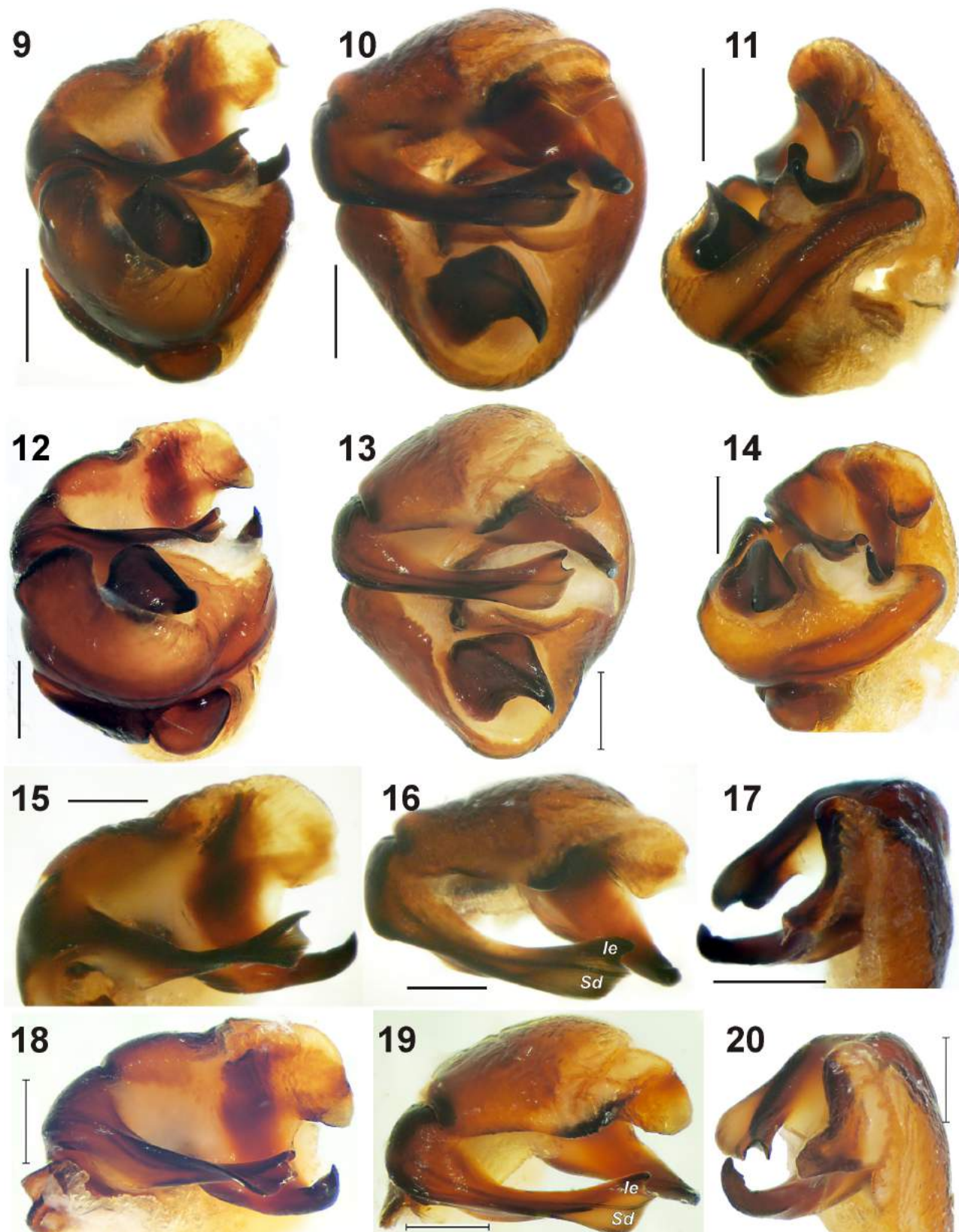
**FIGURES 1–8.** *Acantholycosa valeriae* sp. n. (1–5) and *A. azarkinae* (6–8). 1–2 habitus of male and female, dorsal; 3, 6 male leg I prolateral; 4, 7 male palp, ventral; 5, 8 male palp, retrolateral. 6–8 after Marusik & Omelko (2011).

**Description.** Male. Carapace 5.8 long, 3.5 wide. Total length 9.0. Carapace blackish with yellow median band visible only in central part. Lateral stripes yellowish, indistinct. Eye area dark, almost black. Abdomen ventrally blackish with distinct cardiac mark and white spots. Chelicerae dark brown, maxillae and labium brown. Sternum dark, without stripes and spots.

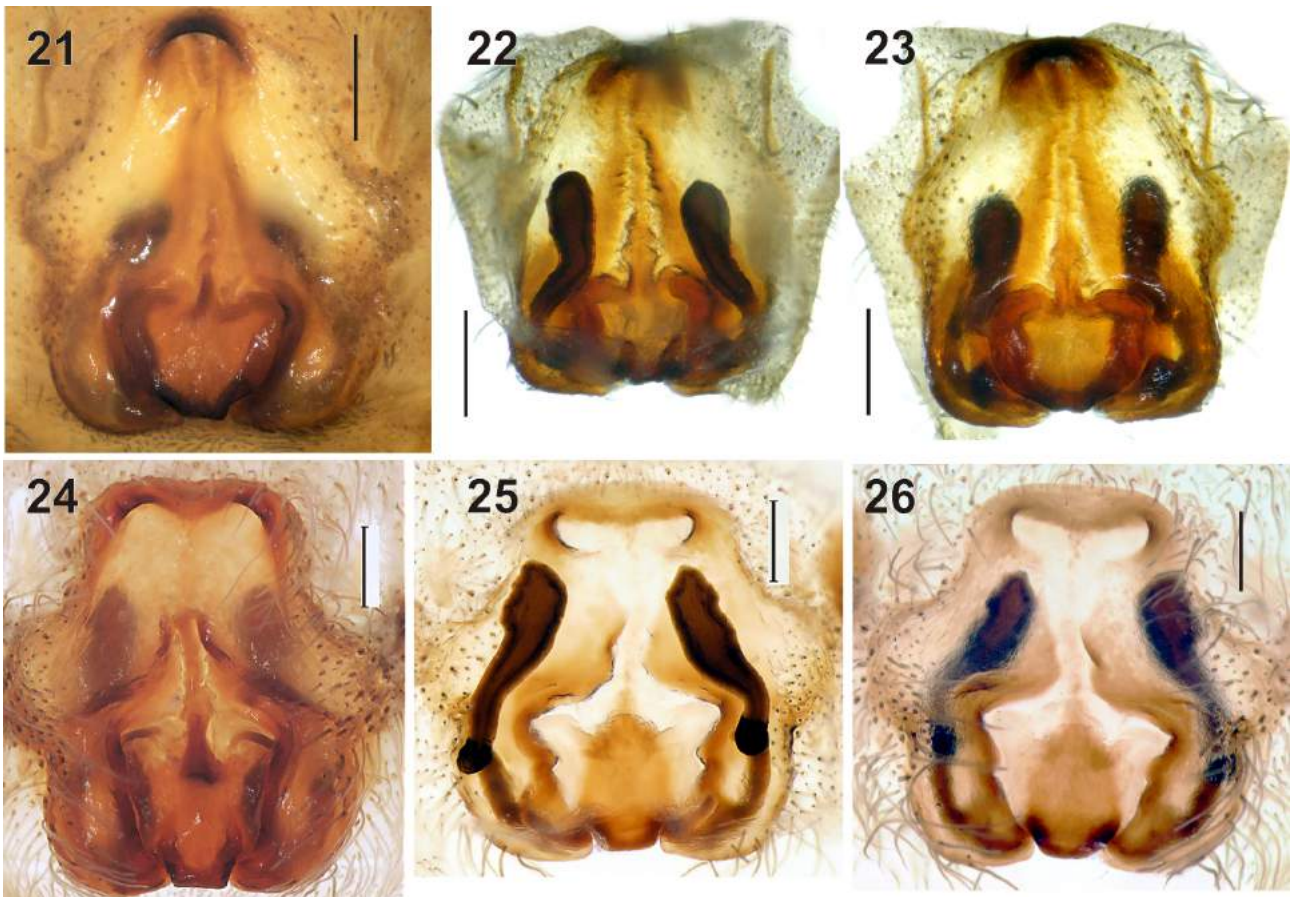
Spination of leg I: femur with 3 dorsal, 2 prolateral and 3 retrolateral spines; patella with 1 prolateral and 1 retrolateral spines; tibia with 3 prolateral, 3 retrolateral and 4 pairs of ventral spines; metatarsus with 3 prolateral, 2 retrolateral and 3 pairs of ventral spines. Femur dark brown, with light spot. Patella, tibia and metatarsus brown.

Male palp as in Figs 4–5, 9–11, 15–17. Cymbium with 3 claws. Tegular apophysis comparatively small, without apical arm. Terminal apophysis large, claw-shaped, heavily sclerotized. Palea with weakly sclerotized laminar outgrowth lacking any apophyses. Embolus broadly twisted near tip, basal spine absent, tip subdivided, sperm duct straight, terminating in mesal outgrowth of the tip, inner part of embolic tip rounded.





**FIGURES 9–20.** Bulb of *Acantholycosa valeriae* sp. n. (9–11, 15–17) and *A. azarkinae* (12–14, 18–20). 9, 12 ventral; 10, 13 anterior; 11, 14 retrolateral; 15, 18 embolic division, ventral; 16, 19 embolic division, anterior; 17, 20 embolic division, retrolateral. Scale = 0.2 mm. Abbreviations: *le* inner part of embolus; *Sd* sperm duct.



**FIGURES 21–26.** Intact and macerated epigyne of *Acantholycosa valeriae* sp. n. (21–23) and *A. azarkinae* (24–26). 21, 24 intact epigyne, ventral; 22, 25 macerated epigyne, dorsal; 23, 26 macerated epigyne, ventral. 24–26 after Marusik & Omelko (2011). Scale = 0.2 mm.

Female. Total length 9.4 (10.9) (2 ♀♀ measured). Carapace 4.9 (4.9) long, 3.8 (3.9) wide. Median band, postcephalic light spot and submarginal light stripes distinct. Legs dark brown, with dark rings on femora of all legs. Spination of leg I: femur with 3 dorsal, 2 prolateral and 2 retrolateral spines; patella with 1 retrolateral spine; tibia with 2 prolateral, 2 retrolateral and 4 pairs of ventral spines; metatarsus with 2 prolateral, 2 retrolateral and 2 pairs (and 1 unpaired) of ventral spines.

Epigyne as in Figs 21–23. Apical pocket small, arch-shaped with only one hood; septum with distinct stem, stem length twice the septal base height, septal base heart-shaped; receptacles elongate without distinct heads, relatively short (1/2 of the height of epigyne, from base to apical pocket); trapezoidal base; spermathecae comparatively short.

**TABLE 1.** Leg segments length. Male (female).

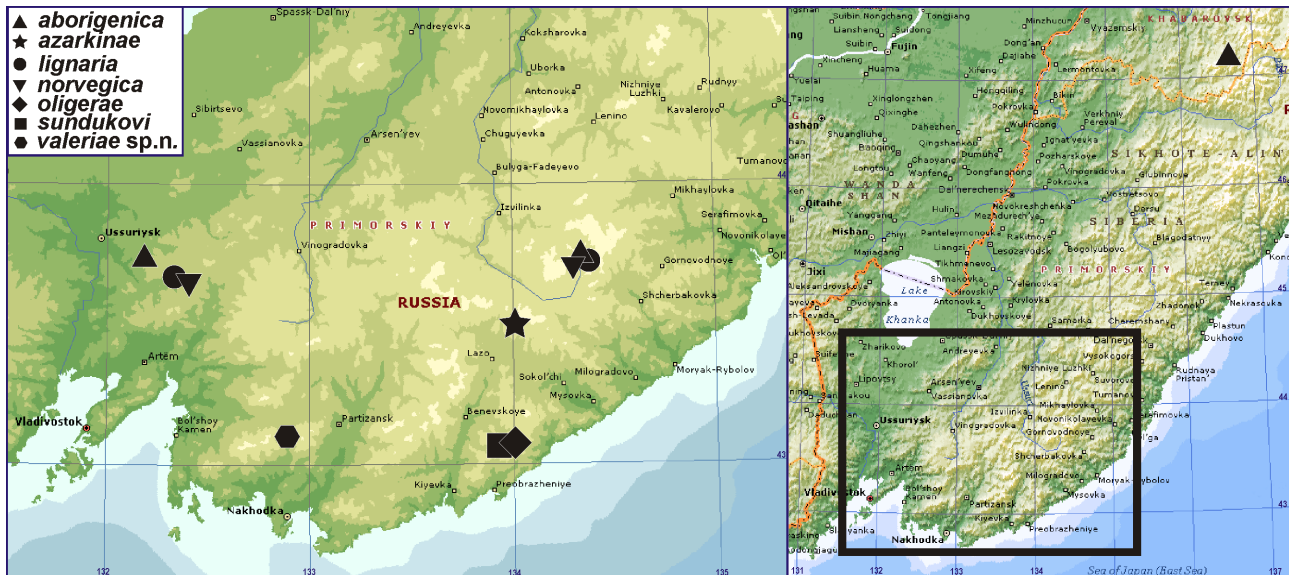
	Femur	Patella	Tibia	Metatarsus	Total
I	4.3 (4.2)	1.6 (1.7)	3.6 (4.6)	5.3 (3.8)	14.8 (14.3)
II	4.4 (4.9)	1.7 (1.9)	4.0 (4.1)	4.8 (4.3)	14.9 (15.2)
III	4.5 (4.8)	2.0 (1.7)	4.5 (4.0)	4.7 (4.8)	15.7 (15.3)
IV	5.0 (5.3)	1.8 (1.8)	4.6 (4.9)	7.5 (8.1)	18.9 (20.1)

**Distribution.** Type locality only.

**Discussion.** The discovery of this new species increased the number of named species in *Acantholycosa* to 30. Twenty two of them are known in Altai-Sayan Mountainous system (Marusik *et al.* 2004; Marusik & Logunov 2011), and 18 are endemic to this region. Such a high level of diversity and this large number of endemic species is unknown in other Holarctic Lycosidae and probably all other spiders occurring north of 45°N. Maritime Province, with seven species of *Acantholycosa* (*A. aborigenica* Zyuzin & Marusik, 1998, *A. azarkinae*, *A. lignaria* (Clerck, 1757), *A. norvegica*



(Thorell, 1872), *A. oligeræ* Marusik, Azarkina & Koponen, 2004, *A. sundukovi* Marusik, Azarkina & Koponen, 2004 and *A. valeriae* sp. n.), represents a second region with high species richness and endemism. Four of seven species are known exclusively from the Maritime province. These four endemic species form two species groups, each with two sibling species: *oligeræ*-group, with *A. oligeræ* and *A. sundukovi*, and *azarkinae*-group, with *A. azarkinae* and *A. valeriae* sp. n. Both species of *oligeræ*-group are known from nearby localities in the Lazo Reserve, while the very similar *A. azarkinae* and *A. valeriae* sp. n. are known from distant localities (Fig. 27) separated by about 115 km. Given that all *Acantholycosa* species, except for *A. lignaria*, inhabit screes (open stony debris) and that such habitats are isolated from each other in the Maritime Province and poorly studied (chiefly due to poor road network and lack of mapping of such habitats) it is reasonable to expect the discovery of other undescribed species.



**FIGURE 27.** Distribution records of *Acantholycosa* species in the Maritime Province and adjacent part of Khabarovsk Province, Russia.

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