*Zootaxa* 4232 (4): 597–600
http://www.mapress.com/j/zt/
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**Correspondence**

ISSN 1175-5326 (print edition)
**ZOOTAXA**
ISSN 1175-5334 (online edition)

https://doi.org/10.11646/zootaxa.4232.4.12
http://zoobank.org/urn:lsid:zoobank.org:pub:C2796968-3EAC-40A2-A176-6D229658D7D7

# A new species of *Acantholycosa baltoroi*-group (Araneae: Lycosidae, Pardosinae) from the Russian Far East

YURI M. MARUSIK[1,2,3]& MIKHAIL M. OMELKO[3,4]

[1]*Institute for Biological Problems of the North, Portovaya Street 18, Magadan 685000, Russia. E-mail: yurmar@mail.ru*
[2]*Department of Zoology & Entomology, University of the Free State, Bloemfontein 9300, South Africa.*
[3]*Zoological Museum, Biodiversity Unit, FI-20014 University of Turku, Finland*
[4]*Far Eastern Federal University, Sukhanova 8, Vladivostok 690950, Russia.*
[5]*Federal Scientific Center of the East Asia Terrestrial Biodiversity FEB RAS, 690022 Vladivostok, Russia.*
*E-mail: omelkom@gmail.com*

*Acantholycosa* Dahl, 1908 is relatively large genus of wolf spiders with 28 named species and one subspecies (World Spider Catalog 2016) distributed in the Holarctic, though the majority of its species (24) is known from Russia. Although the genus is well studied due to several revisions (Marusik *et al.* 2004; Marusik & Omelko 2011; Omelko *et al.* 2016), its real species diversity remains unknown. A recent study of the collections of the Zoological Museum of Moscow State University revealed one undescribed species from Khabarovsk Province of Russia, belonging to the *A. baltoroi*-group of species. The main goals of this publications are the description of this new species and the proposition of an identification key to males of the *A. baltoroi*-group.

Specimens were photographed using a Nikon DS-Ri2 camera attached to a Nikon SMZ25 stereomicroscope at the laboratory "Biology of marine invertebrates" of Far Eastern Federal University. Photographs were taken from specimens in dishes with ethanol and paraffin at the bottom. Holes of different sizes were made in the paraffin to keep the specimens or their parts in the appropriate position. Stacking of images was performed by using Zerene Stacker software (http://zerenesystems.com/cms/stacker). All measurements are in millimetres. The holotype male is deposited at the Zoological Museum of the Moscow State University (ZMMU).

English of the final draft was kindly checked and edited by Mary Marusik (Houston, USA). This project was supported in part by the Far Eastern Federal University and grant of the President of the Russian Federation (MK-6046.2016.4).

## *Acantholycosa zonsteini* sp. n. Figs 1–9

*Acantholycosa* ? *baltoroi* (Caporiacco, 1935): Marusik *et al.* 2016: 7, figs 26–27 (♂, misidentification).

**Type material**. Holotype ♂ (ZMMU), Russia, Khabarovsk Province, Slavyanka Vill., 1990 (S. Golovatch).

**Etymology.** The species name is a patronym in honour of our friend and colleague Sergei L. Zonstein, the leading expert in Old World Mygalomorphae, Filistatidae and Palpimanidae, on the occasion of his 60th birthday (29th of April 2016).

**Diagnosis**. The new species is most similar to *A. levinae* Marusik, Azarkina & Koponen, 2004 (Fig. 11), a species known from Altai, Russia. Both species have rather large paleal apophysis (*Pa*), bilobated tip of embolus and flat and broad embolic tooth (*Et*). The two species differ by the size of the embolic tooth, which is much larger in *A. zonsteini* **sp. n.** (Figs 1, 11), by the tip of embolus (rounded in *A. zonsteini* **sp. n.**, and sharply pointed in *A. levinae*). The new species also has the retrolateral part of palea rounded, while in *A. levinae* it is angled. Additionally, the two species have different number of ventral tibial spines, four pairs in *A. zonsteini* (Fig. 3) and five pairs in *A. levinae*. *Acantholycosa zonsteini* **sp. n.** differs from *A. baltoroi* by having an embolic spine, the tip of the embolus bilobated (both lacking in *A. baltoroi,* Fig. 10), and a large paleal apophysis, which is small, spine-like in *A. baltoroi* (Fig. 10).

**Description**. Male. Carapace 3.43 long, 2.64 wide. Total length 5.86. Coloration poorly visible due to bad preservation of the only specimen. Carapace blackish, with yellow median band and short white setae near the eye area. Lateral stripes yellowish, poorly visible. Eye area blackish. Abdomen dark brown with cardiac mark and white spots. Chelicerae dark brown with long white setae. Maxillae yellow, labium brown. Sternum dark brown, without stripes and spots. Leg I without pubescence.

*Accepted by A. Santos: 28 Dec. 2016; published: 20 Feb. 2017*

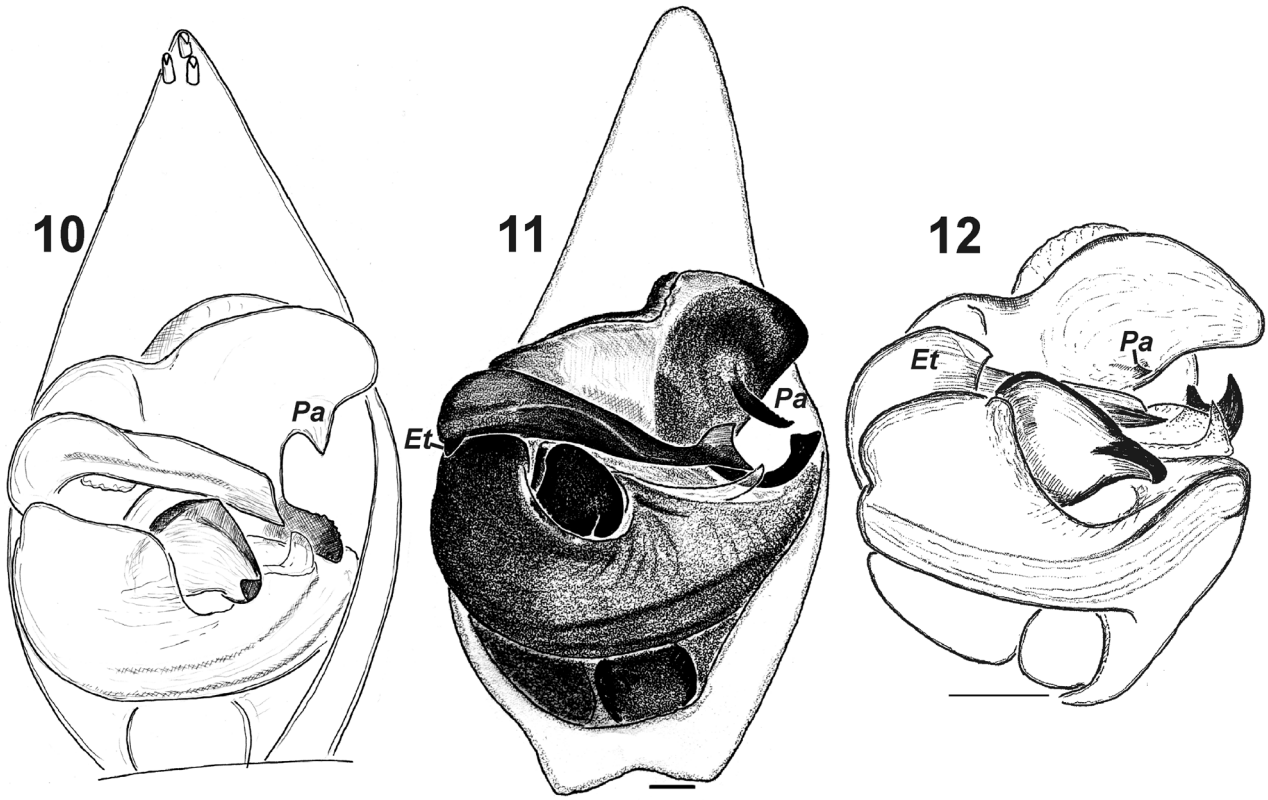
Spination of leg I: femur with 3 dorsal, 2 prolateral and 2 retrolateral spines; tibia with 1 prolateral, 1 retrolateral and 4 pairs of ventral spines; metatarsus with 1 prolateral, 1 retrolateral and 2 pairs of ventral spines. All leg segments dark brown, except for light brown coxae, with light spots and rings.

Male palp as in Figs 1–2, 4–9. Cymbium with two claws. Tegular apophysis (*Ta*) small, without apical arm. Terminal apophysis (*Te*) wide and long, claw-shaped. Paleal apophysis (*Pa*) large, triangular-shaped. Embolus wide, with broad tooth at the base (*Et*) and bilobated tip.

Female unknown.




**FIGURES 1–9.** Male palp and leg I of *Acantholycosa zonsteini* **sp.n.** 1 intact palp, terminal part, ventral; 2 bulb, retrolateral; 3 leg I, prolateral; 4–5, 9 bulb, ventral, anterior and prolateral, respectively; 6–8 embolic division, anterior, ventral and prolateral, respectively. Abbreviations: *Et* embolic tooth, *Pa* paleal apophysis, *Ta* tegular apophysis, *Te* terminal apophysis.




**FIGURES 10–12.** Male palp, ventral view of *Acantholycosa baltoroi* (Caporiacco, 1935) (10), *A. levinae* Marusik, Azarkina & Koponen, 2004 (11) and *A. sterneri* (Marusik, 1993) (12). All after Marusik *et al.* (2004). Abbreviations: *Et* embolic tooth, *Pa* paleal apophysis.

**TABLE 1.** *Acantholycosa zonsteini* **sp.n.**, male holotype, length of leg segments.

| | Femur | Patella | Tibia | Metatarsus | Tarsus |
|---|---|---|---|---|---|
| I | 3.40 | 1.28 | 3.33 | 3.30 | 11.31 |
| II | 3.22 | 1.36 | 3.12 | 3.22 | 10.92 |
| III | 2.83 | 1.25 | 2.75 | 3.39 | 10.22 |
| IV | 3.69 | 1.08 | 3.29 | 4.96 | 13.02 |

**Note.** The earlier record of *A. baltoroi* from Khabarovsk Province (Marusik *et al.* 2016) is based on misidentification of the single specimen here considered as the holotype.

**Distribution**. Type locality only.

**Discussion**. The new species belongs to the *A. baltoroi*-group, the only species group of *Acantholycosa* with the Holarctic distribution. It is known from Siberia and Western Nearctic (Marusik *et al.* 2004). Together with the new species described here, it encompasses five species: *A. baltoroi* (Caporiacco, 1935) (♂♀, Himalaya, Tibet and Eastern China), *A. levinae* (♂, Altai), *A. solituda* (Levi & Levi, 1951) (♂♀, Western Nearctic, from Alberta to Utah), *A. sterneri* (Marusik, 1993) (♂♀, Siberia from Kemerovo to Chita Area) and *A. zonsteini* **sp. n.** (♂, Khabarovsk Province). Below we provide an identification key to the males of Palaearctic species of *A. baltoroi*-group (females of two species are unknown).

## Key to males of Palaearctic species belonging to the *A. baltoroi*-group

1 Embolus without embolic tooth, tip truncated, paleal apophysis a small triangle (Fig. 10) ..... *A. baltoroi*
- Embolus with tooth, paleal apophysis small to large, triangular or claw-like (Figs 1, 11–12) ..... .2
2 Tip of embolus bilobated (Figs 4–6, 11), legs I–II without pubescence ..... 3
- Tip of embolus not bilobated, embolic tooth massive, paleal apophysis very small, triangular-shaped (Fig. 12), tibiae and meta-

tarsi I–II covered with dense pubescence of long, light, fine setae ..... *A. sterneri*

3 Tip of embolus with rounded lobes, paleal apophysis large, embolic tooth large (Figs 5–6, 8) comparable with width of embolus in middle part.....*A. zonsteini* **sp. n.**

- Lobes of the tip of embolus sharply pointed, embolic tooth small, smaller than embolus width (Fig. 11) ..... *A. levinae*

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