

Who is *Eresus tristis* Kroneberg, 1875 (Aranei: Eresidae)?Кто такой *Eresus tristis* Kroneberg, 1875 (Aranei: Eresidae)?Yuri M. Marusik^{1–3}, Galina N. Azarkina^{4–5}
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KEY WORDS: Araneae, Asia, distribution, Kazakhstan, species revalidated, spider, type locality, Xinjiang.

КЛЮЧЕВЫЕ СЛОВА: Araneae, Азия, распространение, Казахстан, ревалидация вида, паук, типовой локалитет, Синьцзян.

ABSTRACT. The male palp of the holotype of *Eresus tristis* Kroneberg, 1875, a species considered a junior synonym of *E. kollari* Rossi, 1846, is illustrated. A comparison with the palp of *E. kollari* reveals clear differences, and therefore *E. tristis* is revalidated. The previously unknown type locality is recognized as southernmost Kazakhstan. All literature records of *E. tristis* are surveyed, and it seems that records from Eastern Kazakhstan and Xinjiang (China) refer to an undescribed species.

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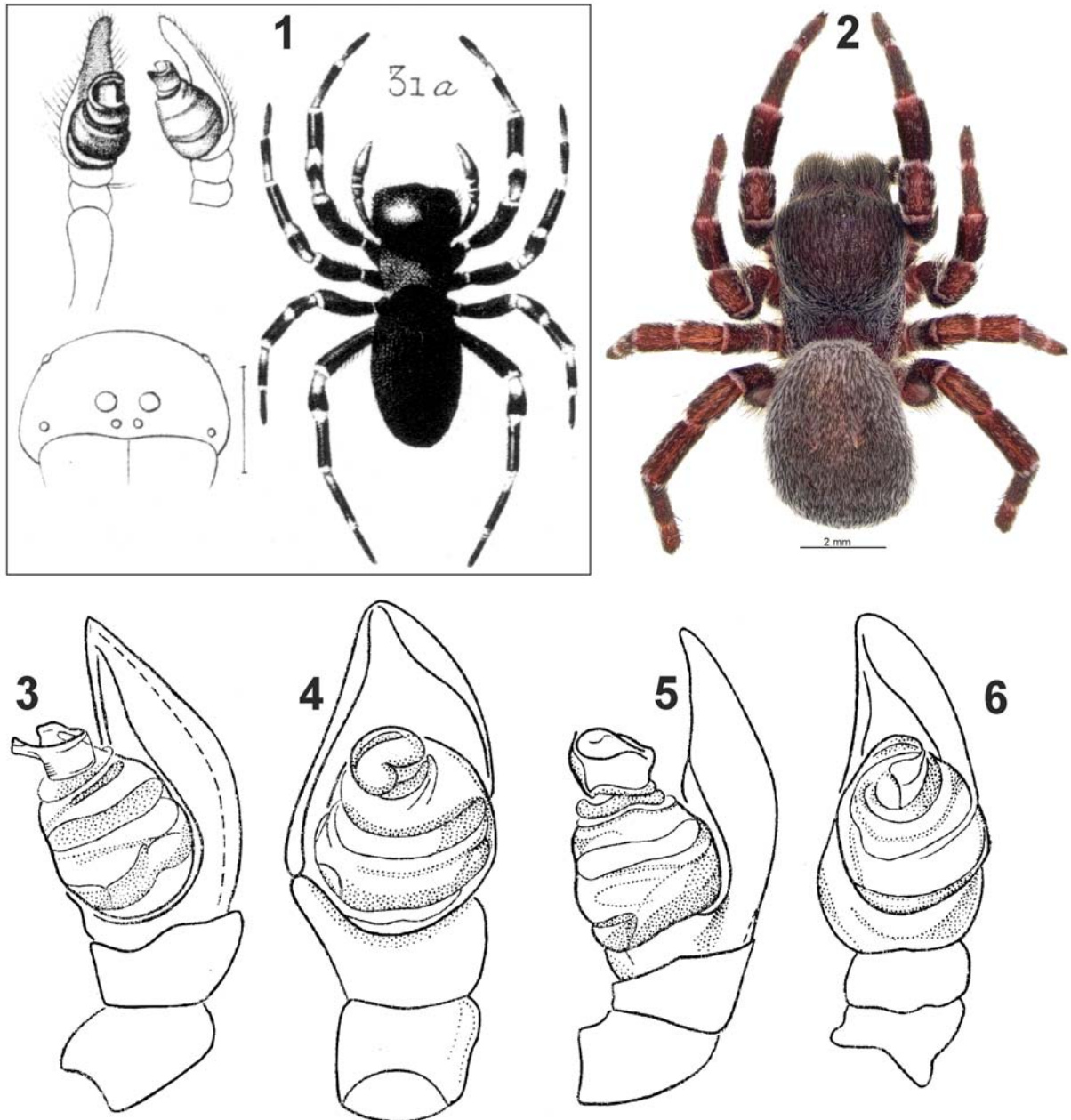
РЕЗЮМЕ. Приведены рисунки пальпы голоти-па *Eresus tristis* Kroneberg, 1875 — вида, синонимизированного с *E. kollari* Rossi, 1846. Сравнение пальп двух видов показало, что *E. tristis* должен быть ревалидизирован. Определён ранее неизвестный типовой локалитет (южный Казахстан). Приведён обзор всех литературных находок, выявлено, что все находки из Восточного Казахстана и Синьцзяна (Китай) относятся к другому, в настоящее время не описанному виду.

Introduction

Eresus Walckenaer, 1805 is a genus with 22 named species. The genus is known only from the Palearctic and occurs from the Iberian Peninsula to the Maritime Province of Russia. Although males of the genus are very colorful and conspicuous, *Eresus* has never been the subject of a widescale revision; however, species from Central Europe [Řezáč *et al.*, 2008; Kovács *et al.*,

2015], Iran, Turkey [Zamani *et al.*, 2020] and the Soviet Union [Nenilin, Pestova, 1986] have been revised. All species reported and/or described from the territory of the Soviet Union were synonymized with *E. niger* (Petagna, 1787), a species now considered as a nomen dubium [WSC, 2020], and all records of *E. niger* are currently considered to refer to *E. kollari* Rossi, 1846. So far, three species of *Eresus* have been described from the Asian part of either the Russian Empire or Soviet Union: *E. arenarius* Kroneberg, 1875, *E. tristis* Kroneberg, 1875 and *E. niger bifasciatus* Ermolajev, 1937. *Eresus arenarius* is currently considered as a synonym of *Stegodyphus lineatus* (Latreille, 1817), and *E. niger bifasciatus* is no longer considered a subspecies but rather *E. bifasciatus* [Azarkina, Trilikauskas, 2012; WSC, 2020]. Females of all species are similar in appearance, nearly uniformly dark patterned, while males of most species have distinct, contrasting patterns on the abdomen. The most common pattern in males is a dorsally red abdomen with several pairs of black dots. The shape of the male palp is rather uniform, and at the first look can appear to be of the same shape. Nenilin & Pestova [1986] concluded that the shape of the male palp and the abdominal pattern are highly variable, although their reasoning is unclear. They synonymized with *E. niger* all species from the Asian part of the USSR, including *E. tristis*, whose male has a uniformly-coloured abdomen.

We recently had the opportunity to examine the holotype male of *E. tristis* and realized that it has distinct differences in the shape of the conductor compared to species occurring in Europe and currently considered as *E. kollari* (sensu Řezáč *et al.* [2008]). Based on this, we remove it from the synonymy of *E. kollari*. Additionally, we conducted research to found



Figs 1–6. *Eresus tristis* (1, 5–6), *Eresus* sp. (2) and *E. kollari* (3–4): 1 — original figures by Kroneberg [1875] showing male habitus (dorsal), palp (ventral and retrolateral), and carapace (frontal); 2 — male from Eastern Kazakhstan, legs lacking white annulations; 3, 5 — male palp, retrolateral; 4, 6 — same, ventral. 3–6 — after Nenilin & Pestova [1986]; 2 — courtesy of A.A. Fomichev.

Рис. 1–6. *Eresus tristis* (1, 5–6), *Eresus* sp. (2) и *E. kollari* (3–4): 1 — оригинальные рисунки Кронеберга [1875], габитус самца (дорсально), палпа (вентрально и ретролатерально) и карапакс (спереди); 2 — габитус самца из Восточного Казахстана, ноги без белых колец; 3, 5 — палпа самца, ретролатерально; 4, 6 — то же, вентрально. 3–6 — из Ненилина и Пестовой [1986]; 2 — фото А.А. Фомичёва.

the exact distribution to find the exact type locality which is not specified in Kroneberg [1875] or subsequent publications.

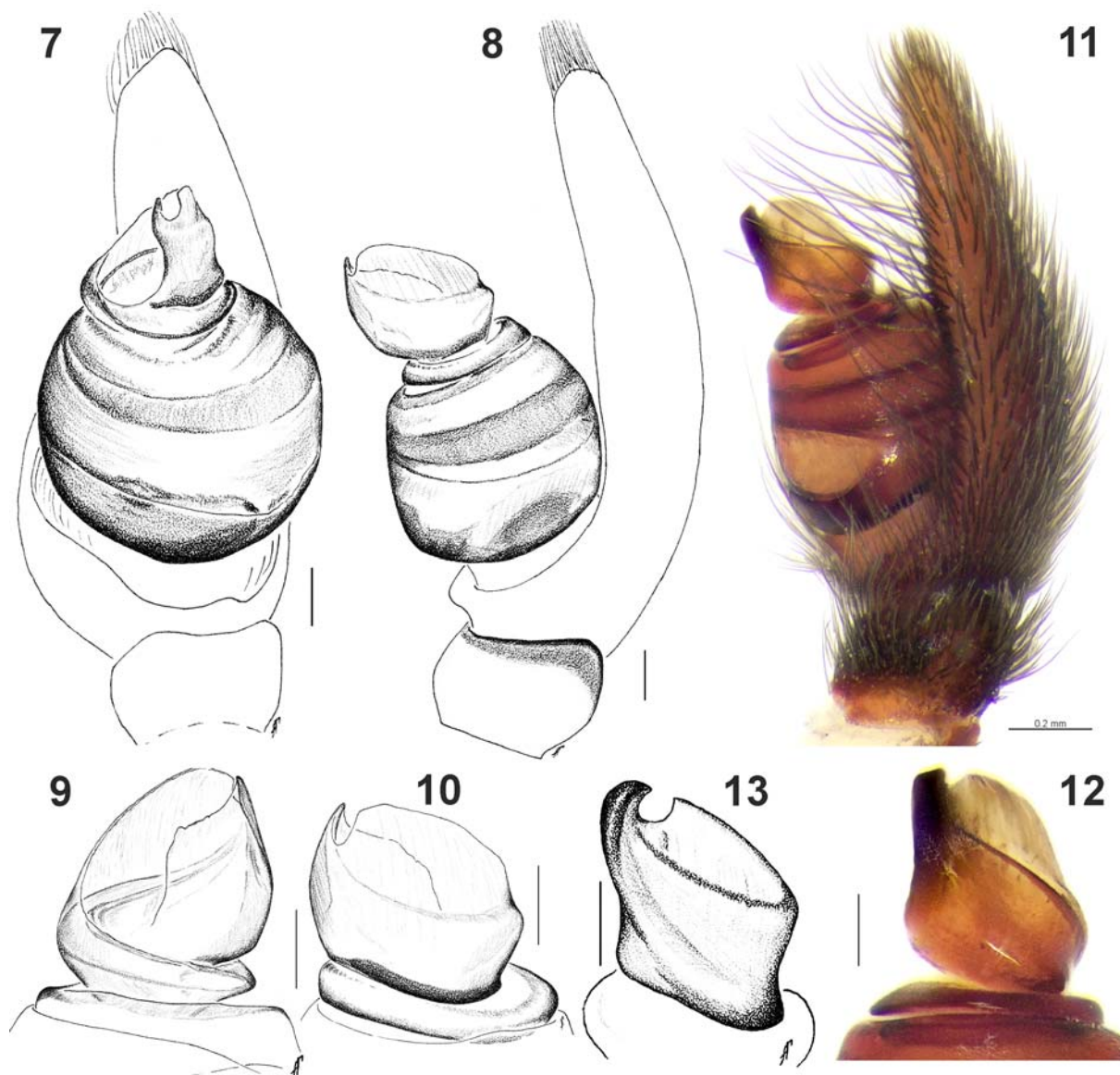
Eresus tristis Kroneberg, 1875
Figs 1, 5–10, 14.

E. tristis Kroneberg, 1875: 44, pl. 4, f. 31a–d (♂).

E. tristis: Simon, 1895: 331 (♂, reported from Xinjiang, and briefly described, seems misidentified and most likely refers to an undescribed species).

E. tristis: Spassky, Shnitnikov, 1937: 269 (♂, reported from Kazakhstan, without precise locality and briefly described, seems misidentified and referring to an undescribed sibling species).

E. niger: Nenilin, Pestova, 1986: 1734, f. 3–4 (♂, illustrated holotype of *E. tristis* and synonymized with *E. niger*).



Figs 7–13. Male palps of the holotype of *Eresus tristis* (7–10), *Eresus* sp. from Eastern Kazakhstan (11–12) and *E. kollari* (13): 7 — ventral; 8, 11 — retrolateral; 9 — embolic division, prolateral; 10, 12, 13 — same, retrolateral. 11–12 — courtesy of A.A. Fomichev; 13 — after Azarkina & Trilikauskas [2012], species probably undescribed [Zamani *et al.*, 2020]. Scale bars: 0.1 mm.

Рис. 7–13. Пальпы самцов голотипа *Eresus tristis* (7–10), *Eresus* sp. из Восточного Казахстана (11–12) и *E. kollari* (13): 7 — вентрально; 8, 11 — ретролатерально; 9 — эмболюсный отдел, пролатерально; 10, 12, 13 — то же, ретролатерально. 11–12 — фото А.А. Фомичёва; 13 — из Azarkina & Trilikauskas [2012], изображение относится к неопisanному виду [Zamani *et al.*, 2020]. Масштаб 0,1 мм.

Misidentifications:

E. tristis: Wang, 1994: 12, f. 4–6 (♂, no precise locality in Xinjiang, male abdomen with red/black pattern).

E. tristis: Song *et al.*, 1999: 74, f. 31C–D (♂, copy of the figs from Wang [1994]).

TYPE. Holotype ♂ with the label “Ta-1104. Голотип самец, Туркестанская Учёная Экспедиция Императорского Общества Любителей Естествознания. Федченко. 26. Сырдарья, конец апреля” [museum number Ta-1104. Holotype male, Turkestan Scientific Trip of the Emperors Society of the Devotees of Natural History. Fedchenko. 26. Syrdarya [river]. end of April].

COMPARATIVE MATERIAL. *Eresus* sp. (Figs 2, 11–12): 1♂ (ISEA), KAZAKHSTAN, Almaty Region, environs of railway

station Saykan (46°26′N, 80°41′E), sandy steppe, 400 m, 15.04.2016 (A.A. Fomichev, R.Yu. Dudko & A.N. Nakonechnyi). *Eresus kollari* (Fig. 13): 2♂♂ (ISEA), RUSSIA, Altai Territory, Barnaul, near Yuzhnyi (53°14′N, 83°38–44′E) garden, 20.05.2000, 8.08.2020 (G.N. Azarkina). According to Zamani *et al.* [2020], it belongs to an undescribed species.

TYPE LOCALITY. The exact type locality is not indicated on the label or in the text of Kroneberg’s [1875] paper. The label with the holotype male indicates “end of April, Syrdarya [river]”. Fedchenko’s expedition crossed the river several times, but unfortunately in the description of the expedition [Fedchenko, 1950] the exact days are mentioned



Fig. 14. Map showing published records of *Eresus tristis* (1, 3) and *Eresus* sp. (2) from Eastern Kazakhstan: 1 — type locality; 3 — record from Simon [1895]; broken line refers to unspecified records from Spassky & Shnitnikov [1937].

Рис. 14. Точки находок *Eresus tristis* (1, 3) и *Eresus* sp. (2) из Восточного Казахстана: 1 — типовой локалитет; 3 — из работы Симона [1895]; пунктирная линия — регион где был собран самец, указанный Спасским и Шнитниковым [1937].

only a few times. Thanks to colleagues, we located a diary separately published by Fedchenko (details of the publication is unknown). Fedchenko travelled west of Tashkent in April 1871, and the specimen was collected near Chardara (now Shardara, $\sim 41^{\circ}14'N$ $68^{\circ}01'E$), an area located near the Syr Darya River in the Turkestan Region of Kazakhstan.

COMMENTS. The holotype (studied briefly, currently on loan, and not available for detailed study) is faded. Kroneberg [1875] mentioned its length as 7.5 mm, leg I 7.5 mm, leg IV 8.5 mm, and considered the species very similar to *E. cinnaberinus* (Olivier, 1789), differing in the uniformly black abdomen (without any red setae) and the legs with distinct white annulations (cf. Fig. 1). He did not find any differences in the palp and thought it might be a potential synonym of *E. cinnaberinus*.

Nenilin & Pestova [1986] examined and illustrated the holotype of *E. tristis*. Although it differs from the specimen identified as *E. niger* (Petagna, 1787) by the shape of the conductor, the width of the anterior part of the cymbium (cf. Figs 3–4 and 5–6) and the abdominal pattern, the two names were nevertheless synonymized.

Examination of the male palps of the holotype of *E. tristis* and specimens identified as *E. kollari* from the Altai revealed distinct differences in the shape of the conductor. These differences are as much as those occurring among well studied species occurring in Europe (cf. Nentwig *et al.*, 2020).

Initially, we had considered the specimen from Eastern Kazakhstan with a uniformly black abdomen to belong to *E. tristis*, but detailed examination of this specimen reveals that it differs from this species in the shape of the conductor as well as the leg coloration.

It seems that there are more than one species of *Eresus* whose males have a uniformly black abdomen. Besides the specimen from Eastern Kazakhstan illustrated in this paper, a species in Iran also has a uniformly black abdomen but differs from other species by the shape of the conductor [Zamani *et al.*, 2020].

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