



# The north-easternmost record of a Central Asian funnelweb spider, *Coelotes turkestanicus* Ovtchinnikov, 1999 (Araneae, Agelenidae)

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## Abstract

The first record of the funnelweb spider *Coelotes turkestanicus* Ovtchinnikov, 1999 from the eastern Kazakhstan is presented. This species was previously known from Kyrgyzstan, Uzbekistan, southern Kazakhstan, and the Orenburg Oblast of Russia. The new record is located approximately 500 km northeast from the closest known locality of the species in southern Kazakhstan. A redescription, digital photographs, and a distribution map are provided.

## Keywords

Aranei, biodiversity, *charitonovi*-group, distribution, Kazakhstan, redescription

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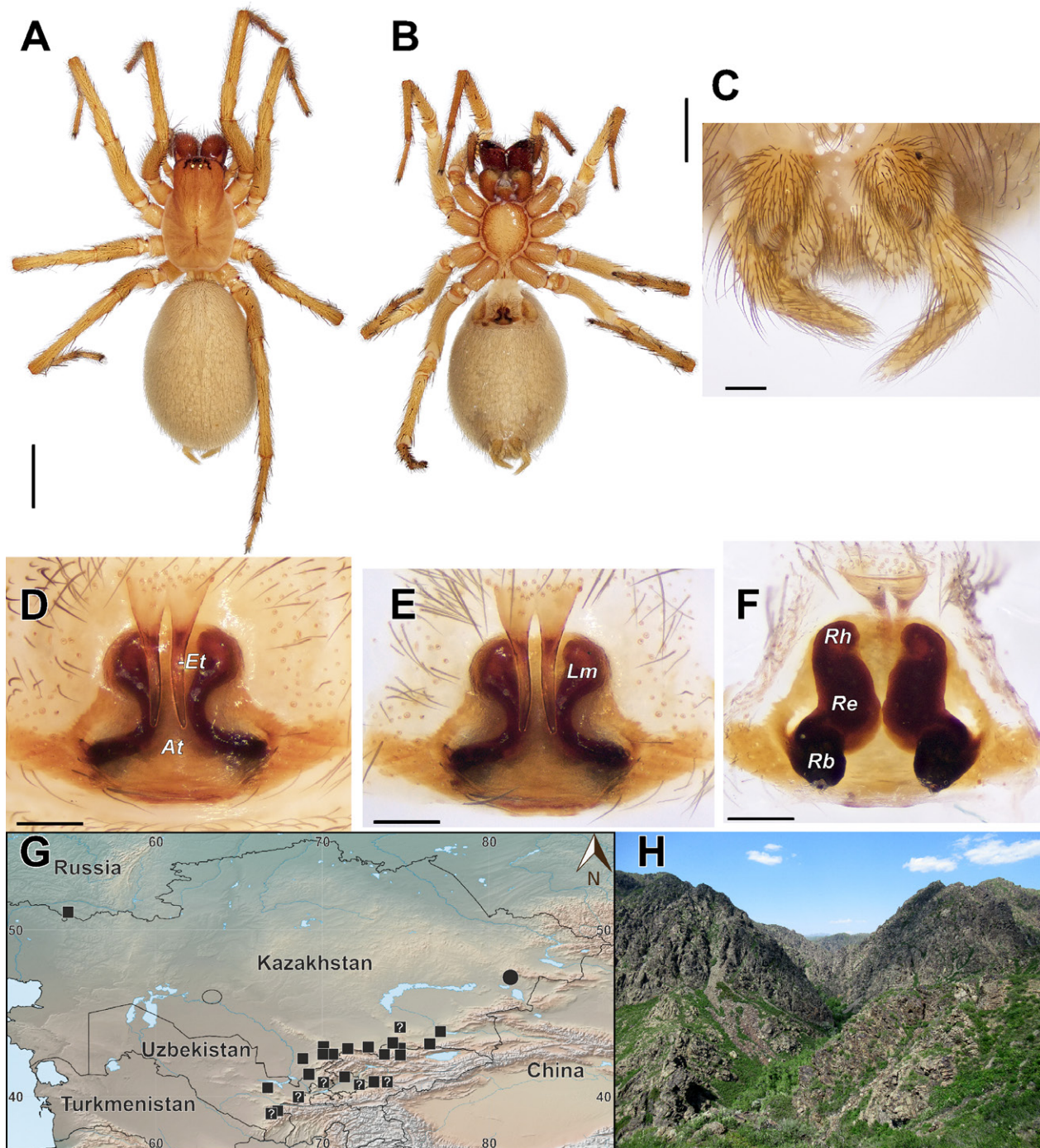
## Introduction

*Coelotes* Blackwall, 1841 is a large genus of Agelenidae containing 190 species and subspecies. The majority of these species occur in China and Japan (WSC 2020). Eleven species of *Coelotes* are recorded from Central Asia (Mikhailov 2013). Ovtchinnikov (1999) placed six species of *Coelotes* known from Central Asia in the subgenus *Brignoliolus* Ovtchinnikov, 1999, designating *C. turkestanicus* Ovtchinnikov, 1999 as the type species. In addition, the following five species were assigned to *Brignoliolus*: *Coelotes arganoi* Brignoli, 1978; *C. caudatus* de Blauwe, 1973; *C. charitonovi* Spassky, 1939; *C. juglandicola* Ovtchinnikov, 1984; and *C. nenilini* Ovtchinnikov, 1999. Wang (2002) assigned all these species, together with *Coelotes coenobita* Brignoli, 1978 and *C. vignai* Brignoli, 1978, to the *charitonovi* species group of the genus *Coelotes*. Later, Wang and Zhu (2009) provided an identification key to species of the *charitonovi*

species group. This group is distributed from Turkey and Lebanon to Central Asia (Wang and Zhu 2009). While studying newly collected material from the eastern Kazakhstan, a single female of *Coelotes turkestanicus* was found. The new finding is separated by about 500 km from the known range of the *charitonovi* species group. Here, I provide a new locality of *C. turkestanicus* in the eastern Kazakhstan and an illustrated redescription of this species.

## Methods

A single specimen was found on the rocks in a deep gorge (Fig. 1H) and preserved in 70% ethanol. Specimen was photographed by means of an Olympus DP74 camera attached to an Olympus SZX16 stereomicroscope at the Altai State University (Barnaul, Russia). Photographs



**Figure 1.** *Coelotes turkestanicus*. **A, B.** Female habitus, dorsal and ventral. **C.** Spinnerets, ventral. **D.** Intact epigyne, ventral. **E, F.** Macerated epigyne, ventral and dorsal. **G.** Distribution map. **H.** Habitat in Kyzylbel'tau Mountains. Square = literature-derived data, circle = new record. Question mark in square designates an unclear locality. Some symbols could refer to more than one closely situated localities. Abbreviations: At = atrium, Et = epigynal tooth, Lm = lateral atrial margin, Rb = receptacle base, Re = receptacle, Rh = receptacle head. Scale bars: A, B = 2 mm, C–F = 0.2 mm.

were taken in a dish with cotton at the bottom, filled with alcohol. The epigyne was cleared in a KOH/water solution until soft tissues were dissolved. Digital images were montaged using Helicon Focus software (<https://www.photo-soft.ru/helicon-focus/>). The distribution map was produced by using the online mapping software SimpleMapp (Shorthouse 2010). All measurements are in millimeters. Length of leg segments were measured on their dorsal sides. Leg measurements are shown as: femur, patella, tibia, metatarsus, tarsus (total length).

Material examined is deposited in the Institute of Systematics and Ecology of Animals SB RAS, Novosibirsk, Russia (ISEA; curator: G.N. Azarkina). The terminology follows Wang and Zhu (2009), with some modifications. Abbreviations: copulatory organs: At = atrium, Et = epigynal tooth, Lm = lateral atrial margin, Rb = receptacle base, Re = receptacle, Rh = receptacle head. Leg segments: Fe = femur, Mt = metatarsus, Pa = patella, Ti = tibia. Spination: d = dorsal, p = prolateral, r = retrolateral, v = ventral.



## Results

### *Coelotes turkestanicus* Ovtchinnikov, 1999

**Material examined.** KAZAKHSTAN – East Kazakhstan Oblast • 1♀; Tarbagatai Mountain Range, Kyzylbel'tau Mountains, Eginsu River Gorge (left side), 5 km N of Zhana-Tilek (Juzhnyi) Village; 47°10'32"N, 081°15'55"E; 790 m a.s.l.; 9 May 2019; A. A. Fomichev leg.; rocks, collected by hand; ISEA 001.8574.

**Identification.** Females of the *charitonovi* species group can be recognized by closely set epigynal teeth (Et), situated anteriorly. The female of *C. turkestanicus* resembles those of *C. charitonovi* and *C. nenilini* in having similar adjoined epigynal teeth and stretched receptacles (Re). It differs from *C. charitonovi* by parallel or diverging epigynal teeth (vs. pincers-like, converging) (cf. Fig. 1D, E and Spassky 1939: fig. 4). The female of *C. turkestanicus* can be distinguished from those of *C. nenilini* by contiguous and curved receptacles (vs. straight, separated by a distance equal to their diameter) (cf. Fig. 1F and Ovtchinnikov 1999: fig. 44).

**Redescription.** Female. Total length 9.0. Carapace: 3.5 long, 2.35 wide. Carapace yellow-brown, darker in pars cephalica. Sternum, labium and maxillae yellow-brown. Chelicerae brown. Legs and palps yellow. Abdomen cream-colored. Spinnerets yellow (Fig. 1A–C). Measurements of legs: I: 2.63, 1.08, 2.08, 2.1, 1.25 (9.14). II: 2.58, 1.2, 1.85, 1.68, 1.25 (8.56). III: 2.33, 1.1, 1.6, 1.98, 1.18 (8.19). IV: 3.05, 1.25, 2.53, 2.9, 1.43 (11.16). Leg spination: I: Fe d0-4-0 p0-0-3; Ti v2-6-3; Mt p0-0-1 v5-0-2. II: Fe d1-1-0 p0-0-1; Ti p0-1-1 v2-2-2; Mt p0-1-2 v2-2-2. III: Fe d1-1-0 p0-1-1 r0-0-2; Pa pl r1; Ti d1-0-0 pl-0-1 r1-0-1 v2-2-2; Mt d0-2-2 pl-1-1 r1-1-1 v2-2-2. IV: Fe d1-1-0 p0-0-1 r0-0-1; Pa pl r1; Ti d1-0-0 pl-0-1 r1-0-1 v2-2-2; Mt d0-2-2 pl-1-1 r1-0-1 v2-2-2. Epigyne as in Fig. 1D–F; epigynal teeth slightly diverging, as long as atrium (At); lateral atrial margins (Lm) hourglass-shaped, widened anteriorly; receptacles elongated and curved, touching each other in the middle part; receptacle head (Rh) large, almost equal in size with receptacle base (Rb).

**Distribution.** The species was known from the Hissar Mountains and Fergana Valley in Uzbekistan through the Tian Shan Mountains in Kyrgyzstan to the Ili river valley in Kazakhstan (Ovtchinnikov 1999). Also, one isolated

record is known from Orenburg Oblast of Russia (Esyunin et al. 2007). The new record in the Tarbagatai Mountain Range represents the north-easternmost locality of this species, considerably expanding its range (Fig. 1G).

**Comments.** The newly collected female is significantly smaller than the allotype female from Kyrgyz Ala-Too Mountain Range (Tian Shan Mountains) described by Ovtchinnikov (1999). Carapace length in female from the new locality is 3.5 (vs. 5.4 in the type female).

## Discussion

The majority of species of the genus *Coelotes* lives in humid habitats (Ovtchinnikov 1999). In contrast, the species from the *charitonovi* group inhabit xeric landscapes: steppes, semi-deserts, and deserts of Central Asia and Anatolia. Most species from this group have restricted ranges and are limited in their distribution by one or a few close mountain systems (Ovtchinnikov 1999; Wang and Zhu, 2009) (Table 1). Among these species, only two have wider ranges: *Coelotes charitonovi* and especially *C. turkestanicus* (Fig. 1G). Both species are widespread in the mountains of Central Asia. Furthermore, *C. turkestanicus* was recorded from the Orenburg Oblast of Russia. Therefore, finding of this species in the Tarbagatai Mountain Range in the eastern Kazakhstan was fairly predictable despite the distance of 500 km northeast from the known species range. Ovtchinnikov (1999) emphasized that *C. turkestanicus* possesses a pronounced geographical variability. This is expressed in the variable shape of copulatory organs, body coloration, and chelicerae armament. Particularly, epigynal teeth can be fused with each other in the specimens from the southern part of its range (Fergana Valley) or can be separated from each other in the specimens from the northern part of its range (Tian-Shan Mountains). The newly collected female from the Tarbagatai Mountain Range has epigynal teeth clearly separated from each other and is similar to the females known from the Tian Shan Mts. (cf. Fig. 1D, E and Ovtchinnikov 1999: fig. 38).

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**Table 1.** List of species belonging to the *Coelotes charitonovi*-group and their distribution.

<i>Coelotes</i> species	Distribution	References
<i>C. arganoi</i> Brignoli, 1978	Turkey	Wang and Zhu (2009)
<i>C. caudatus</i> de Blauwe, 1973	Lebanon, Turkey	Wang and Zhu (2009)
<i>C. charitonovi</i> Spassky, 1939	Kazakhstan and Kyrgyzstan (Tian Shan Mts.), Tajikistan (Hissar Mts.), Turkmenistan (Badkhyz Plateau), Uzbekistan (Fergana Valley and Hissar Mts.)	Ovtchinnikov (1988); Ovtsharenko and Fet (1980); Spassky (1939); Wang and Zhu (2009)
<i>C. coenobita</i> Brignoli, 1978	Turkey	Wang and Zhu (2009)
<i>C. juglandicola</i> Ovtchinnikov, 1984	Kyrgyzstan (Tian Shan Mts.)	Ovtchinnikov (1984)
<i>C. nenilini</i> Ovtchinnikov, 1999	Uzbekistan (Tian Shan Mts.)	Ovtchinnikov (1999)
<i>C. turkestanicus</i> Ovtchinnikov, 1999	Kazakhstan (Ili River Valley, Kyzylkum Desert, Tarbagatai Mt. Range (present record), Tian Shan Mts.), Kyrgyzstan (Tian Shan Mts.), Russia (Ural Mts.), Uzbekistan (Fergana Valley and Hissar Mts.)	Esyunin et al. (2007); Ovtchinnikov (1999); present data
<i>C. vignai</i> Brignoli, 1978	Turkey	Wang and Zhu (2009)

organizing an expedition to Kazakhstan, in which the material treated in this paper was collected. Special thanks are given to Yuri M. Marusik (Magadan, Russia) for the help with identification of *Coelotes turkestanicus*. The earlier draft was reviewed by Mikhail M. Omelko (Vladivostok, Russia). The English was kindly checked by V. Fet (Huntington, USA). Finally, my cordial thanks go to Yui Marusik, Kirill G. Mikhailov (Moscow, Russia), and an anonymous reviewer for constructive comments on the manuscript. The research was carried out as a part of the Program for the Support of Scientific and Pedagogical Staff of the Altai State University, the project “Biodiversity of dominant predatory arthropods of the Great Caucasus: spiders (Arachnida: Aranei) and centipedes (Myriapoda: Chilopoda)”.

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