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First description of *Cedicoides pavlovskiyi* female (Aranei: Trionycha) and comments on taxonomic placement of *Cedicus* and related genera

Первоописание самки *Cedicoides pavlovskiyi* (Aranei: Trionycha) и комментарии по таксономическому положению *Cedicus* и близких родов

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KEY WORDS: Araneae, Desidae, Cedicinae, new subfamily, Central Asia, Tajikistan.

КЛЮЧЕВЫЕ СЛОВА: Araneae, Desidae, Cedicinae, новое подсемейство, Средняя Азия, Таджикистан.

ABSTRACT: Previously unknown female of *Cedicoides pavlovskiyi* (Spassky, 1941), a species restricted to Tajikistan, is described. Three related genera, *Cedicus* Simon, 1875, *Cedicoides* Charitonov, 1946 and *Paracedicus* Fet, 1993, long time ping ponging from family to family, vis. Agelenidae, Cybaeidae, Desidae and Amphinetidae, are briefly discussed and a new subfamily name is proposed for them, Cedicinae subfam.n. The new subfamily is placed into Desidae.

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РЕЗЮМЕ: Описание неизвестной ранее самки эндемичного для Таджикистана *Cedicoides pavlovskiyi* (Spassky, 1941). Обсуждается таксономическое положение трех близких родов, *Cedicus* Simon, 1875, *Cedicoides* Charitonov, 1946 и *Paracedicus* Fet, 1993, в течение долгого времени перебрасываемых из одного семейства в другое и побывавших попеременно в Agelenidae, Cybaeidae, Desidae и Amphinetidae. Для этих родов устанавливается новое подсемейство, Cedicinae subfam.n., включаемое в семейство Desidae.

Introduction

Cedicoides Charitonov, 1946 is a small genus comprising four named species distributed in south part of the Middle Asia (ex-Soviet republics: Turkmenistan, Uzbekistan and Tajikistan, Fig. 4). It remains to have a

disputable/uncertain taxonomic assignment. Its type species *C. simoni* (Charitonov, 1946) was originally placed in *Cedicus* Simon, 1875 in a separate subgenus *Cedicoides*. The subgenus was elevated to the genus rank by Marusik & Guseinov [2003]. All species of *Cedicoides* are lacking proper/detailed description of the habitus and copulatory organs. The generotype, *C. simoni* (Charitonov, 1946), has been scarcely depicted with only sketchy illustrations of the epigyne and male palp. Three species are known from both sexes while the easternmost one, *C. pavlovskiyi* (Spassky, 1941) is known from male only. A recent collecting trip to Tajikistan has allowed us to find previously unknown conspecific females. The goal of this study is to provide a detail morphological description of the female, first detail illustrations of the epigyne within the entire genus and also to discuss the taxonomic assignment of *Cedicoides* and two related genera, *Cedicus* Simon, 1875 and *Paracedicus* Fet, 1993.

Material and methods

Specimens were photographed using a Canon EOS 7D camera attached to an Olympus SZX16 stereomicroscope at the Zoological Museum of University of Turku. Photographs were taken in dishes with paraffin on the bottom holding the specimens in position. Digital images were montaged using CombineZP and Helicon focus 7.0 image stacking software, and edited using CorelDraw X7. Lengths of leg segments were measured on the dorsal side. These measurements are presented as: total length (length of femur, patella, tibia, metatarsus and tarsus in the parentheses). All measurements are given in mm. Acronyms: SMNH — Steinhardt Museum of Natural History, Tel Aviv, Israel; ZMMU — Zoological Museum of Moscow University, Russia. Eyes: ALE — ante-

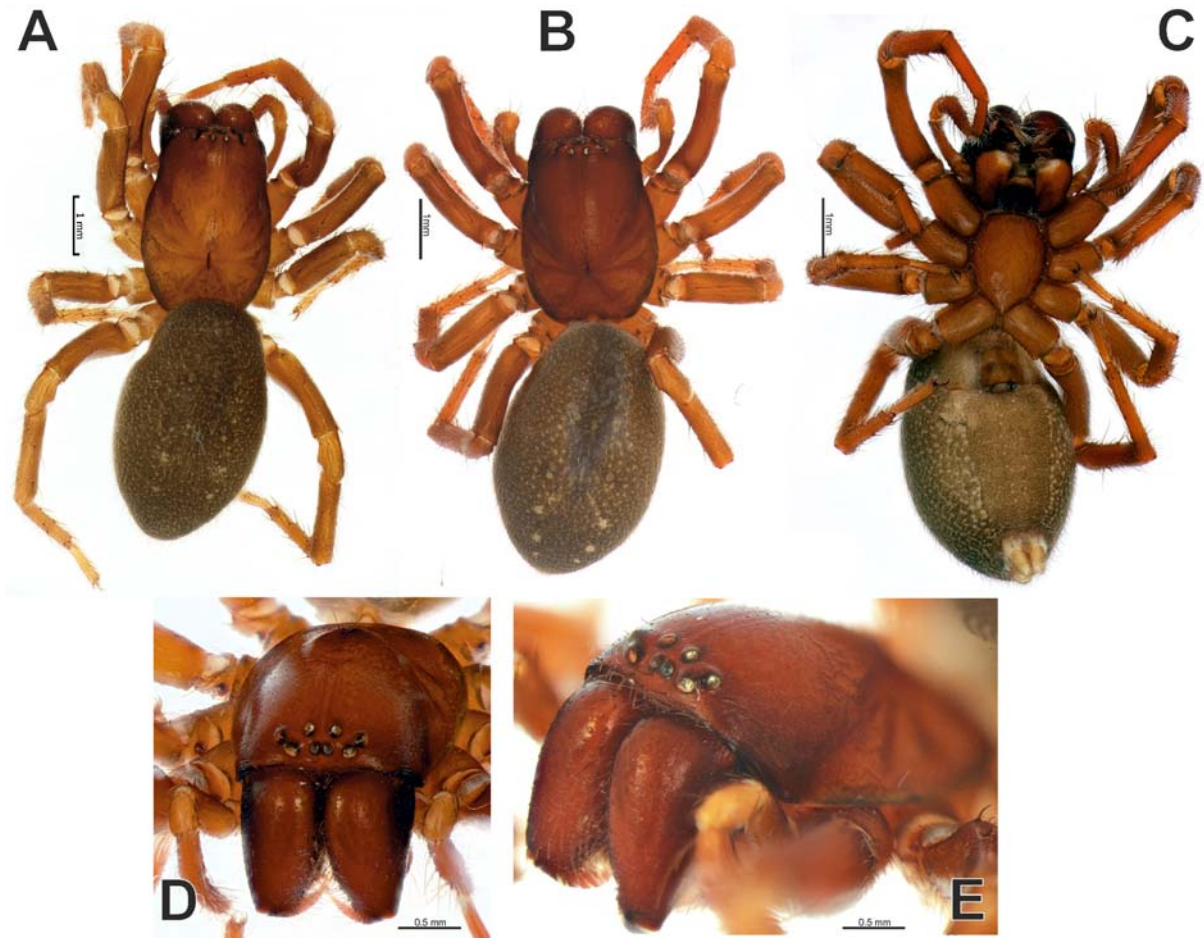


Fig. 1. General appearance of *Cedicoides pavlovskiyi* female. A–B — two different females, dorsal; C — ventral; D — prosoma, frontal; E — same, antero-lateral.

Рис. 1. Общий вид самки *Cedicoides pavlovskiyi*. A–B — две разные самки, сверху; C — снизу; D — головогрудь спереди; E — то же, спереди-сбоку.

rior lateral eyes, AME — anterior median eyes. Leg segments are abbreviated as follows: Fe — femur, Pa — patella, Ti — tibia, Mt — metatarsus, Ta — tarsus. Position of spines corresponds to the following abbreviations: ap — apical, p — prolateral, r — retrolateral, v — ventral.

Taxonomy

Genus *Cedicoides* Charitonov, 1946

Cedicoides Charitonov, 1946: 21 (described as subgenus of *Cedicus* Simon, 1875 originally including two species, *C. simoni* Charitonov, 1946 and *C. pavlovskiyi* Spassky, 1941).

Cedicoides: Fet, 1993: 74 (transferred two additional species to the subgenus).

Cedicoides: Marusik, Guseinov, 2003: 32 (elevated to the genus rank).

TYPE SPECIES: *Cedicus* (*Cedicoides*) *simoni* Charitonov, 1946, by the original designation.

DISTRIBUTION AND COMPOSITION: Currently four species are considered in the genus: *C. maerens* (Simon, 1889) (Turkmenistan), *C. parthus* (Fet, 1993) (Turkmenistan), *C. pavlovskiyi* (Spassky, 1941) (Tajikistan) and *C. simoni* (Charitonov, 1946) (Uzbekistan) [WSC, 2023]. In

total, *Cedicoides* is known from western Turkmenistan to western Tajikistan (Fig. 4).

NOTES: The genus diagnosis was based on an enlarged number of teeth (4) in the posterior teeth row of cheliceral furrow [Charitonov, 1946]. None of the species assigned to the genus were described/illustrated in detail. Within four species assigned to the genus, one, *C. pavlovskiyi*, is known only from male. The endogynes of only two species are schematically illustrated: *C. simoni* [Charitonov, 1946, fig. 9] and *C. parthus* [Fet, 1993, fig. 4e]. They look rather different. The monophyly of the genus has never been discussed/tested.

Cedicoides pavlovskiyi (Spassky, 1941)

Figs 1–4.

Cedicus pavlovskiyi Spassky, 1941: 13, pl. 1, figs 1–2 (♂).

Cedicus pavlovskiyi: Spassky, Luppova, 1945: 44 (♂, description based on the same holotype).

Cedicus pavlovskiyi: Charitonov, 1946: 21 (considered as related to the generotype *C. simoni*).

Cedicus (*Cedicoides*) *pavlovskiyi*: Fet, 1993: 74.

Cedicoides pavlovskiyi: Marusik, Guseinov, 2003: 32 (elevated *Cedicoides* to genus rank).



Fig. 2. Epigyne of *Cedicooides pavlovskiyi*. A, B — intact, ventral and ventro-caudal; C, D — dissected, ventral and caudal. Abbreviations: *Ar* — arch of anterior foveal margin; *At* — atrium; *Mp* — median plate. Scale bars — 0.2 mm.

Рис. 2. Эпигина *Cedicooides pavlovskiyi*. A, B — не рассеченная, снизу и снизу-сзади; C, D — отделенная, снизу и сзади. Сокращения: *Ar* — дуга переднего края ямки; *At* — атриум; *Mp* — срединная пластинка. Масштаб 0,2 мм.

MATERIAL EXAMINED: 4♀♀ (2♀♀ SMNH, 2♀♀ ZMMU), TAJIKISTAN, *Khatlon Region*, Khazratisho Mts., Sangdara Gorge, 1650 m, 38°22' N, 70°09' E, 21.05.2002 (S. Zonstein).

DIAGNOSIS: Female of this species well differs from the congeners and species of the related genera *Paracedicus* and *Cedicus* by having no abdominal pattern (vs. present) and globular receptacles (vs. elongate).

DESCRIPTION: Habitus as shown in Fig. 1A–C. Total length 7.5; carapace 3.15 long, 2.3 wide, fovea 0.27; abdomen 4.5 long, 2.9 wide; chelicera long edge 1.75, short edge 1.25, 1.25 wide, fang 0.83. Chelicera with 7 anterior/pro-marginal (3 small, 1 large, 3 small), and 4 posterior/retro-marginal teeth (3 small, 1 large).

Carapace uniformly brown coloured, with blackish margins and cephalic region, covered with sparse adpressed setae (see Fig. 1D, E). ALE larger than other eyes, AME — smallest, clypeus about 1.5 of AME diameter. Chelicera almost triangle in lateral view, strongly protruding. Maxillae straight, not converging, 2 times longer than wide; labium rebordered, 1.25 longer than wide.

Abdomen dark brown, lacking distinct pattern, with 2 or 3 light brown spots in posterior half. Legs uniformly brown; relatively short (shorter than body length), anterior 2 pairs with fewer spines than posterior, tarsi III–IV with 1 spine.

Colulus large trapezoidal with abrupt posterior margin, 2 times shorter than anterior lateral spinnerets.

Leg segments length. Leg I: 6.86 (2.07, 1.03, 1.50, 1.38, 0.88). Leg II: 6.04 (1.88, 0.98, 1.18, 1.25, 0.75). Leg III: 5.51 (1.63, 0.88, 0.95, 1.25, 0.80). Leg IV: 7.07 (2.13, 1.05, 1.63, 1.38, 0.88).

Spination. Leg I: Fe 1p, Ti 1p, 3-3v, Mt 3-3v. Leg II: Fe 1p, Ti 1p, 3-3v, Mt 2p, 3-3v. Leg III: Pa 1p, 1r, Ti 2p, 3r, 3-3v, Mt p4(2ap), 4r(2ap), 3-3v, Ta 1p. Leg IV: Pa 1r, Ti 2r, 3-3v, Mt 3p(2ap), 3r(2ap), Ta 1p.

Epigyne as in Figs 2–3. Epigynal plate as wide as long, trapezoidal; fovea located posteriorly, about 1/3 of plate width, anterior margin with 3 arches (*Ar*); median plate (*Mp*) transversal, almost 3 times wider than long; atrium (*At*) oval; receptacles (*Re*) almost globular, 1.17 longer than wide, not spaced; copulatory ducts (*Cd*) short (as long as atrium length).

DISTRIBUTION: The species is known from two closely located sites in surroundings of Khovaling, Tajikistan.

NOTES: This species was described two times with the same name. Spassky was not aware that his paper was already published in 1941 because of the WW2. According to Fet [1993] the holotype male is in St. Petersburg Zoological Institute. Although we have no male of this species, it is safe to conclude that females are conspecific with the holotype

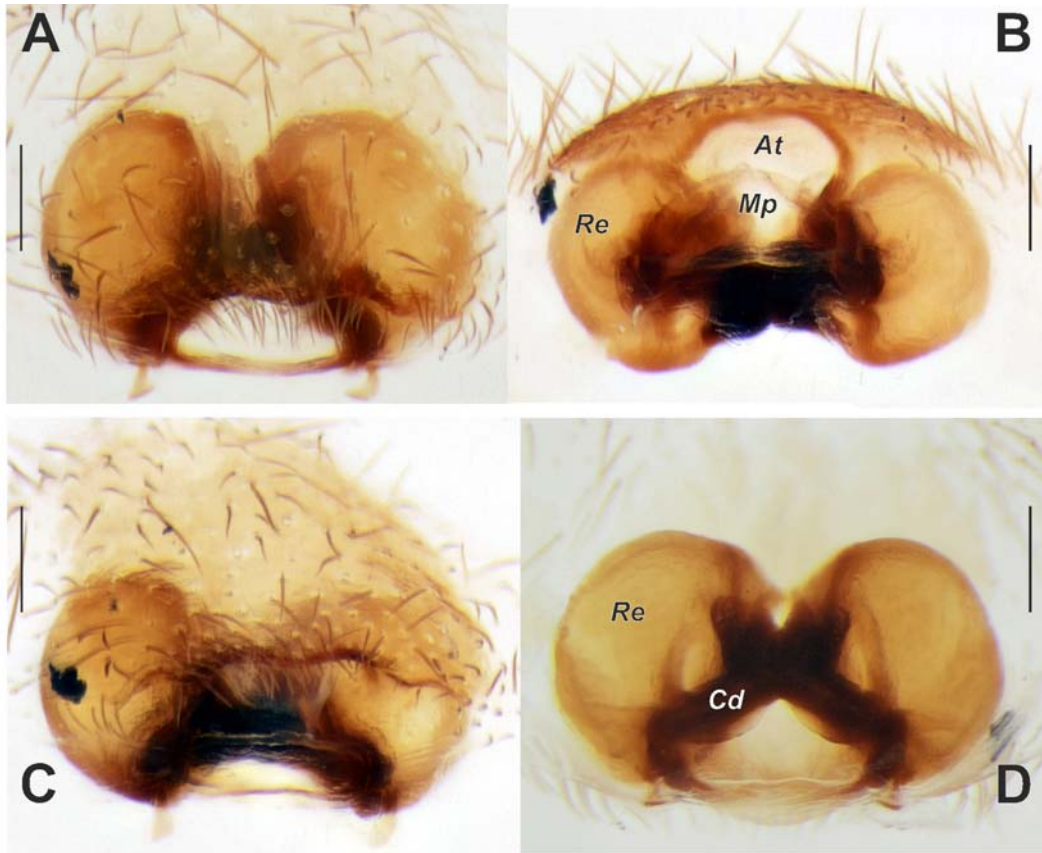


Fig. 3. Macerated epigyne of *Cedicoides pavlovskiy*. A — ventral; B — caudal; C — ventro-caudal; D — dorsal. Abbreviations: *Ar* — arch of anterior foveal margin; *At* — atrium; *Cd* — copulatory duct; *Mp* — median plate; *Re* — receptacle. Scale bars — 0.2 mm.

Рис. 3. Мацерированная эпигина *Cedicoides pavlovskiy*. А — снизу; В — сзади; С — снизу-сзади; D — сверху. Сокращения: *Ar* — дуга переднего края ямки; *At* — атриум; *Cd* — канал семяприемника; *Mp* — срединная пластинка; *Re* — рецептакула. Масштаб 0,2 мм.

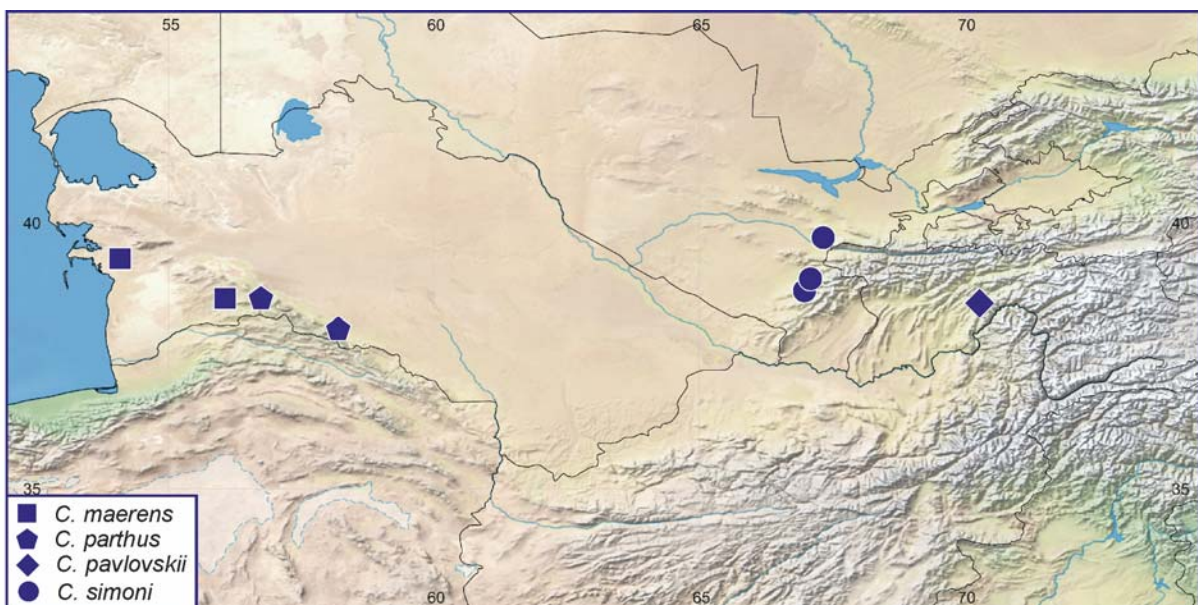


Fig. 4. Distribution records of *Cedicoides* species.

Рис. 4. Отмеченное распространение видов рода *Cedicoides*.

male collected nearby (12–15 km apart), and accounting that other species of *Cedicoides* are not known in Tajikistan.

Discussion

Initially, *Cedicus* was placed by Simon [1898: 224] in the agelenid subfamily Cybaeinae Banks, 1892, a group currently considered as a separate family. Kishida [1955] placed this genus in Argyronetidae Thorell, 1870 (considered now in Dictynidae O. Pickard-Cambridge, 1871).

Lehtinen [1967: 325] transferred *Cedicus* to Desinae Pocock, 1895 (now Desidae). Levy [1996] transferred genus back to Cybaeidae. Murphy & Roberts [2015] placed genus in Amphinectidae Forster & Wilton, 1973 (now considered as synonym of Desidae) without argumentation but seems based on a presence of a large colulus like in other Amphinectidae genera. Marusik & Guseinov [2003] and Zamani & Marusik [2017] esteemed *Cedicus* and related genera *Paracedicus* and *Cedicoides* in Desidae, arguing that a shape of the copulatory organs in *Cedicus* is very different from that in *Cybaeus* L. Koch, 1868.

First of all, *Cybaeus* has no colulus, and male palps in *Cybaeus* and *Cedicus* are different (see Marusik & Guseinov [2003]). Meanwhile, *Desis* also has male palps different from those in *Cedicus* and related genera, but similarly well developed (large) colulus. Accounting these facts, we suggest to treat the three related genera *Cedicus*, *Cedicoides* and *Paracedicus* as a separate subfamily, Cedicinae **subfam.n.** of Desidae (with the type genus *Cedicus* Simon, 1875). There is, nevertheless, a certain distribution gap between the known range of Desidae (Australasia, India, Afrotropical and Neotropical realms) and Central Asia.

Conflict of interests

The authors declare no potential conflict of interest.

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References

- Charitonov D.E. 1946. [New forms of spiders of the USSR] // *Izvestiya Estestvenno-Nauchnogo Instituta pri Molotovskom Gosudarstvennom Universitete imeni M. Gor'kogo*. Vol.12. P.19–32 [in Russian].
- Charitonov D.E. 1969. [Materials to the USSR spider fauna] // *Uchenye Zapiski Permskogo Gosudarstvennogo Universiteta imeni A.M. Gor'kogo*. Vol.179. P.59–133 [in Russian].
- Fet V. 1993. The spider genus *Cedicus* Simon 1875 (Arachnida Aranei Agelenidae) from Middle Asia // *Arthropoda Selecta*. Vol.2. No.1. P.69–75.
- Kishida K. 1955. [A synopsis of spider family Agelenidae] // *Acta Arachnologica* Vol.14. No.1. P.1–13 [in Japanese].
- Lehtinen P.T. 1967. Classification of the cribellate spiders and some allied families, with notes on the evolution of the suborder Araneomorpha // *Annales Zoologici Fennici*. Vol.4. No.3. P.199–468.
- Levy G. 1996. The agelenid funnel-weaver family and the spider genus *Cedicus* in Israel (Araneae, Agelenidae and Cybaeidae) // *Zoologica Scripta*. Vol.25. No.2. P.85–122.
- Marusik Yu.M., Guseinov E. 2003. Spiders (Arachnida: Aranei) of Azerbaijan. 1. New family and genus records // *Arthropoda Selecta*. Vol.12. No.1. P.29–46.
- Murphy J.A., Roberts M.J. 2015. Spider families of the world and their spinnerets. York: British Arachnological Society. Vol.1, p.i–xii, 1–189; vol.2, p.xiii–xvi, 191–553.
- Simon E. 1898. *Histoire naturelle des araignées*. Deuxième édition. T.2. Paris: Roret. P.193–380.
- Spassky S. 1941. Araneae palaearticae novae VI // *Folia Zoologica et Hydrobiologica*, Rigā. Vol.11. No.1. P.12–26.
- Spassky S.A., Luppova E. 1945. [Materials to the spider fauna of Tajikistan] // *Entomologicheskoe Obozrenie*. Vol.28. No.1–2. P.43–55 [in Russian].
- WSC. 2023. World Spider Catalog. Version 24. Natural History Museum Bern, online at <http://wsc.nmbe.ch>, accessed on 28.02.2023.
- Zamani A., Marusik Yu.M. 2017. Six new species of spiders (Arachnida: Araneae) from Iran // *Oriental Insects*. Vol.51. No.4. P.313–329.

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