

Four new species of Mygalomorphae (Araneae) from Tajikistan and Afghanistan

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ABSTRACT

Four new species of mygalomorph spiders are described on the basis of material collected from south-western Tajikistan and eastern Afghanistan. These are: *Anemesia gidzhovak* **sp. n.** (male, female; Tajikistan) [Cyrtacheniiidae], *Ummidia dudkoi* **sp. n.** (male; Tajikistan) [Halonoproctidae], *Raveniola farkhor* **sp. n.** (male; Tajikistan), and *Raveniola zonsteini* **sp. n.** (male; Afghanistan) [Nemesiidae]. The diversity and distribution of mygalomorphs in Central Asia are briefly reviewed.

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Introduction

The spider infraorder Mygalomorphae Pocock, 1892 comprises more than 3550 species in 31 families worldwide (Nuruyeva *et al.* 2024; World Spider Catalog 2025). Although their highest diversity is in the tropics, they can be found on all continents except Antarctica. In Central Asia, mygalomorphs are represented by the following families and genera: Atypidae Thorell, 1870 [*Atypus* Latreille, 1804], Cyrtacheniiidae Simon, 1889 [*Anemesia* Pocock, 1895], Euagridae Raven, 1979 [*Phyxioschema* Simon, 1889], Halonoproctidae Pocock, 1901 [*Ummidia* Thorell, 1875], and Nemesiidae Simon, 1889 [*Raveniola* Zonstein, 1987] (see Mikhailov 2024). The region harbours a high diversity of *Anemesia* and *Raveniola* species, which is relatively well known thanks to comprehensive revisions (Zonstein 2018b, 2024) and numerous smaller taxonomic contributions (eg Zonstein 2001, 2009). The fauna of Tajikistan has been particularly well surveyed in the course of numerous expeditions during the past decade. Nevertheless, new species of mygalomorphs continue to be discovered regularly in that region, even in well-sampled areas where other species were known before.

Recently we had the opportunity to examine a series of mygalomorph spiders collected from south-western Tajikistan and eastern Afghanistan. Among this material we identified four species new to science, which are herein described and illustrated with photographs.

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Furthermore, we provide a brief review of the diversity and distribution of mygalomorphs in Central Asia.

Material and methods

Photographs of preserved specimens and their structures were taken using an Olympus DP74 camera attached to an Olympus SZX16 stereomicroscope at the Altai State University, and with an Olympus Camedia E-520 camera attached to an Olympus SZX16 stereomicroscope at the Zoological Museum of the University of Turku. The vulva was cleared in a potassium hydroxide (KOH)/water solution until all soft tissue was dissolved and then it was dyed with methylene blue. Digital images taken at different focal planes were stacked with Helicon Focus™ 8.1.1. Body measurements include the chelicerae but not the spinnerets. Leg segments were measured on the dorsal or prolateral side and their lengths are listed as: total (femur, patella, tibia, metatarsus [absent in palp], tarsus). The diameter of the anterior median eye (AME) is given as the diameter of a sharply edged AME circle (the 'pupil'). When the AME cornea was well-separated and elevated, and its diameter could be measured, the corresponding data follow in brackets. Any eye interdistances incorporating this parameter are also given in brackets. All measurements are given in millimetres.

Abbreviations: Eyes: ALE = anterior lateral eye, AME = anterior median eye, PLE = posterior lateral eye, PME = posterior median eye. **Spinneret:** PLS = posterior lateral spinneret, PMS = posterior median spinneret. **Palp and leg segments:** Fe = femur, Mt = metatarsus, Pa = patella, Ta = tarsus, Ti = tibia. **Spination:** d = dorsal, p = prolateral, r = retrolateral, v = ventral.

Depositories: ISEA = Institute of Systematics and Ecology of Animals, SB RAS, Novosibirsk, Russia (curator: G.N. Azarkina); ZMUT = Zoological Museum of the University of Turku, Turku, Finland (curator: V. Vahtera).

Taxonomy

Family CYRTAUCHENIIDAE Simon, 1889

Genus *Anemesia* Pocock, 1895

Comment

This genus currently comprises 14 species in six groups (*sensu* Zonstein 2018b), all from Central Asia: northern Afghanistan, north-eastern Iran, Tajikistan, southern Turkmenistan, and eastern Uzbekistan.

Anemesia gidzhovak **Zamani and Fomichev sp. n.**

(Figures 1–18, 45, 47–48)

Types

♂ holotype (ISEA, 001.9166) and 1♀ paratype (ISEA, 001.9167); TAJIKISTAN: Khatlon Region, Vakhsh Mt. Range, Gidzhovak Village, 38.1826°N, 69.3674°E, 1200 m, 2 May 2024, leg. A.A. Fomichev.



Figures 1–5. Habitus (1–2), eye tubercle (3–4), and spinnerets (5) of male (2–3, 5) and female (1, 4) of *Anemesia gidzhovak* **sp. n.** 1–4 = dorsal view; 5 = lateral view. Scale bars: 1–2 = 5 mm; 3–4 = 0.2 mm; 5 = 1 mm.

Etymology

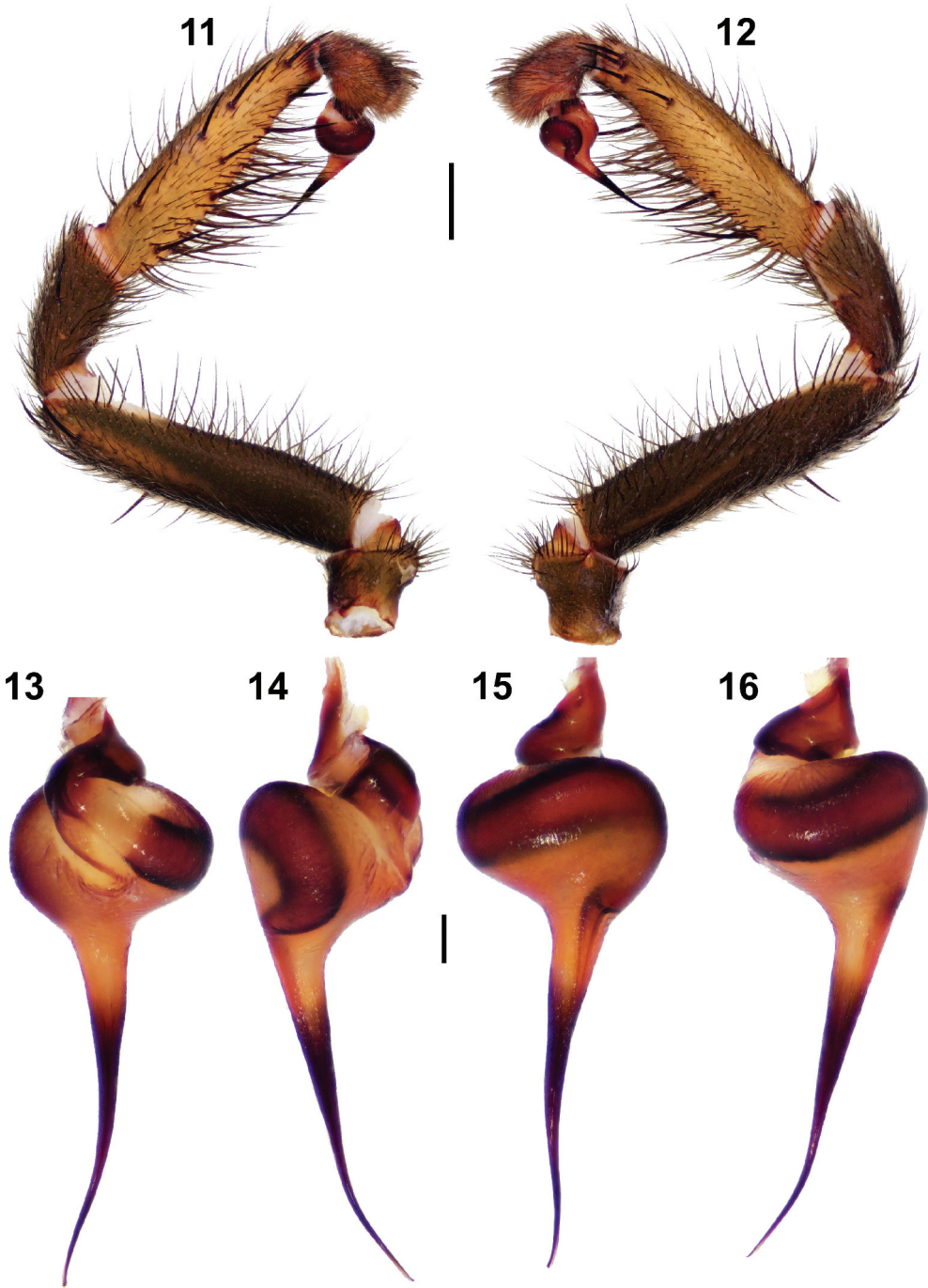
The specific epithet, a noun in apposition, refers to the type locality of the species.

Diagnosis

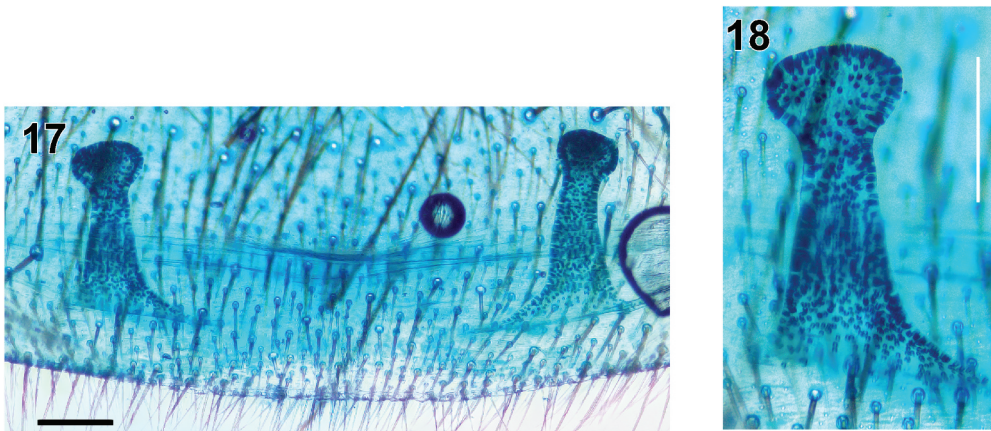
The new species belongs to the *incana* group *sensu* Zonstein (2018b), which currently comprises three species: *Anemesia incana* Zonstein, 2001; *A. infumata* Zonstein, 2018; and



Figures 6–10. Tibia and metatarsus of left leg I (6), left chelicera (7–8), and cephalothorax (9–10) of male (6–7, 9) and female (8, 10) of *Anemesia gidzhovak* **sp. n.**; 6 = retrolateral view; 7–10 = ventral view. Scale bars: 6–8 = 1 mm; 9–10 = 2 mm.



Figures 11–16. Left palp (11–12) and palpal organ (13–16) of *Anemesia gidzhovak* **sp. n.**; 11, 14 = prolateral view; 12, 16 = retrolateral view; 13 = anterior view; 15 = posterior view. Scale bars: 11–12 = 1 mm; 13–16 = 0.2 mm.



Figures 17–18. Spermathecae of *Anemesia gidzhovak* **sp. n.**, dorsal view; 17 = both spermathecae; 18 = left spermatheca. Scale bars = 0.2 mm.

A. infuscata Zonstein, 2018. The male of *A. gidzhovak* **sp. n.** differs from those of the aforementioned three species by having a longer embolus that gently curves in its distal part, and the ratio of the embolus length to the width of the bulbal part of the palpal organ 1.7, whereas it is 1.3 in *A. incana* and *A. infuscata*, and 1.5 in *A. infumata*. Moreover, the embolus in the other three species is less distinctly bent (Figure 13, cf. Zonstein 2018b, figs 215–223).

The female differs from that of *A. infumata* by having distinctly globular spermathecal heads that are clearly wider than the corresponding spermathecal stalks (Figure 18, cf. Zonstein 2018b, figs 255–257), from that of *A. infuscata* by having shorter, almost columnar stalks (these being noticeably longer and more strongly narrowing apically in *A. infuscata*; Figure 18, cf. Zonstein 2018b, figs 258–265), and from that of *A. incana* by having less defined spermathecal heads (these being more developed and much wider than corresponding stalks in *A. incana*; Figure 18, cf. Zonstein 2018b, figs 251–254).

Description

Male. Habitus as in Figure 2. Total length 16.5. Carapace 7.0 long, 6.1 wide. Sternum 3.3 long, 3.0 wide. Labium 0.6 long, 1.1 wide. Eye sizes and interdistances (Figure 3): AME 0.20 (0.33), ALE 0.36, PLE 0.26, PME 0.17, AME–AME 0.21 (0.11), ALE–AME 0.13 (0.10), ALE–PLE 0.11, PLE–PME 0.07, PME–PME 0.57. Cheliceral furrow with 8 pro- and 7 retromarginal teeth (Figure 7). Each maxilla with ca. 30–40 cuspules. Carapace, chelicerae, and labium brown. Maxillae, sternum, and leg coxae light brown (Figure 9). Palp: Fe–Pa brown, Ti–Ta light brown. Leg I: Fe–Ti brown, Mt–Ta orange-coloured. Legs II–IV: Fe–Pa brown, Ti light brown, Mt–Ta yellow. Dorsal side of abdomen yellow-grey, with longitudinal dark stripe medially and dark spots laterally. Ventral side of abdomen and book-lung covers yellow. Spinnerets pale yellow. Spination of palp and legs: palp: Fe d3 p1, Pa p1, Ti p5 r4 v5; leg I: Fe d5 p4 r4, Pa p1, Ti p5 r4 v7, Mt d1 p3 r1 v6; leg II: Fe d4 p3 r2, Pa p2, Ti p5 v8, Mt p3 r2 v7; leg III: Fe d6 p3 r4, Pa d1 p3 r2, Ti d3 p6 r3 v6, Mt d3 p6 r3 v8, Ta p1; leg IV: Fe d4 p3 r3, Pa p1, Ti d2 p7 r4 v9, Mt d2 p6 r3 v11, Ta p2. Distal

megaspine on tibia I 1.5× longer than metatarsus I wide. Measurements of palp and legs: palp: 11.85 (4.5, 2.35, 3.75, -, 1.25); leg I: 24.35 (7.15, 3.5, 5.4, 5.35, 2.95); leg II: 21.95 (6.55, 3.0, 4.65, 4.75, 3.0); leg III: 19.95 (5.6, 2.5, 3.6, 5.0, 3.25); leg IV: 25.15 (6.75, 2.5, 5.65, 6.75, 3.5). Spinnerets (Figure 5): PMS 0.5 long, 0.28 in diameter; PLS maximal diameter 0.68, length of its basal, medial and apical segments 1.25, 0.63, 0.58, respectively (total length 2.46).

Palp as in Figures 11–16; bulbal part of palpal organ asymmetrically oval; embolus long and tapering, with a gentle but distinct curvature in its distal part.

Female. Habitus as in Figure 1. Total length 22.3. Carapace 7.8 long, 6.7 wide. Sternum 4.0 long, 4.2 wide. Labium 1.25 long, 2.0 wide. Eye sizes and interdistances (Figure 4): AME 0.19 (0.27), ALE 0.39, PLE 0.29, PME 0.17, AME–AME 0.24 (0.11), ALE–AME 0.24 (0.20), ALE–PLE 0.16, PLE–PME 0.09, PME–PME 0.56. Cheliceral furrow with 7 pro- and 9 retromarginal teeth (Figure 8). Each maxilla with ca. 20–30 cuspules. Carapace, chelicerae, sternum, labium, maxillae, and leg coxae brown (Figure 10). Palps and legs brown on proximal segments, paler on distal segments. Abdomen dirty yellow, with indistinct grey dorsal pattern. Book-lung covers and spinnerets yellow. Spination of palp and legs: palp: Fe p1, Pa d1, Ti p3 v10, Ta p1 v2; leg I: Fe p1, Ti v4, Mt v6; leg II: Fe p1, Pa p1, Ti p2 v4, Mt p1 v7; leg III: Pa p3, Ti d1 p2 r1 v3, Mt d1 p7 r3 v9, Ta p5; leg IV: Ti r2 v4, Mt p2 r2 v15, Ta p5 v1. Measurements of palp and legs: palp: 12.65 (4.5, 2.4, 3.0, -, 2.75); leg I: 19.6 (6.2, 3.55, 4.05, 3.4, 2.4); leg II: 17.45 (5.4, 3.25, 3.45, 3.1, 2.25); leg III: 14.8 (4.45, 2.65, 2.5, 2.95, 2.25); leg IV: 20.25 (5.8, 3.0, 4.45, 4.3, 2.7). Spinnerets: PMS 0.75 long, 0.5 in diameter; PLS maximal diameter 1.13, length of basal, medial and apical segments 1.25, 0.63, 0.75, respectively (total length 2.63).

Spermathecae as in Figures 17–18; stalks stout, only slightly narrowing apically; heads broadly oval; pore glands present on both parts.

Habitat

Grassland on loess hills (Figure 45).

Distribution

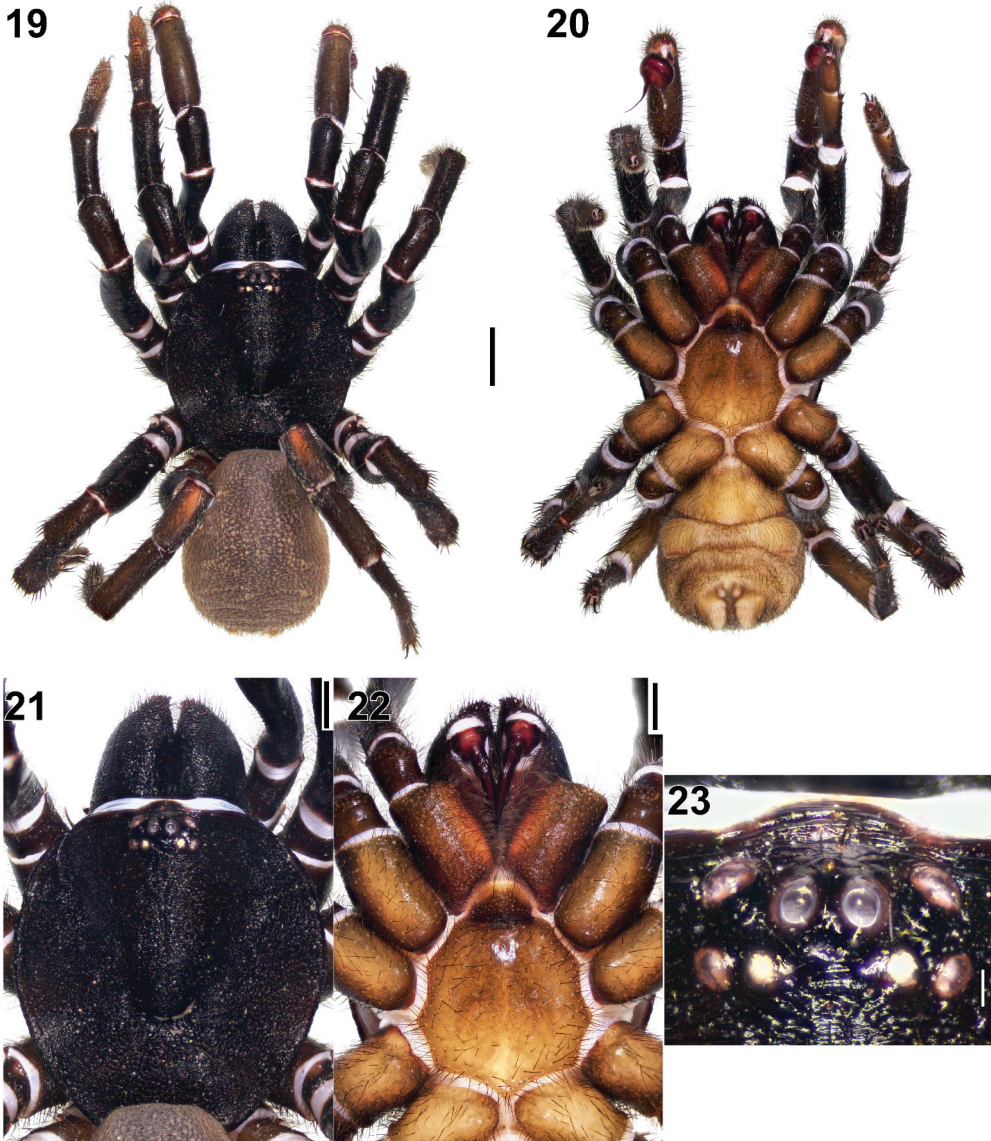
Known only from the type locality in the Khatlon Region of south-western Tajikistan (Figure 47).

Family HALONOPROCTIDAE Pocock, 1901

Genus *Ummidia* Thorell, 1875

Comments

This genus currently comprises 58 species and has a highly disjunct distribution pattern: 50 species are known from the New World, four are known from the Mediterranean Region, and three are known from Central Asia. The type locality of one species, *Ummidia armata* (Ausserer, 1875), remains unknown (World Spider Catalog 2025).



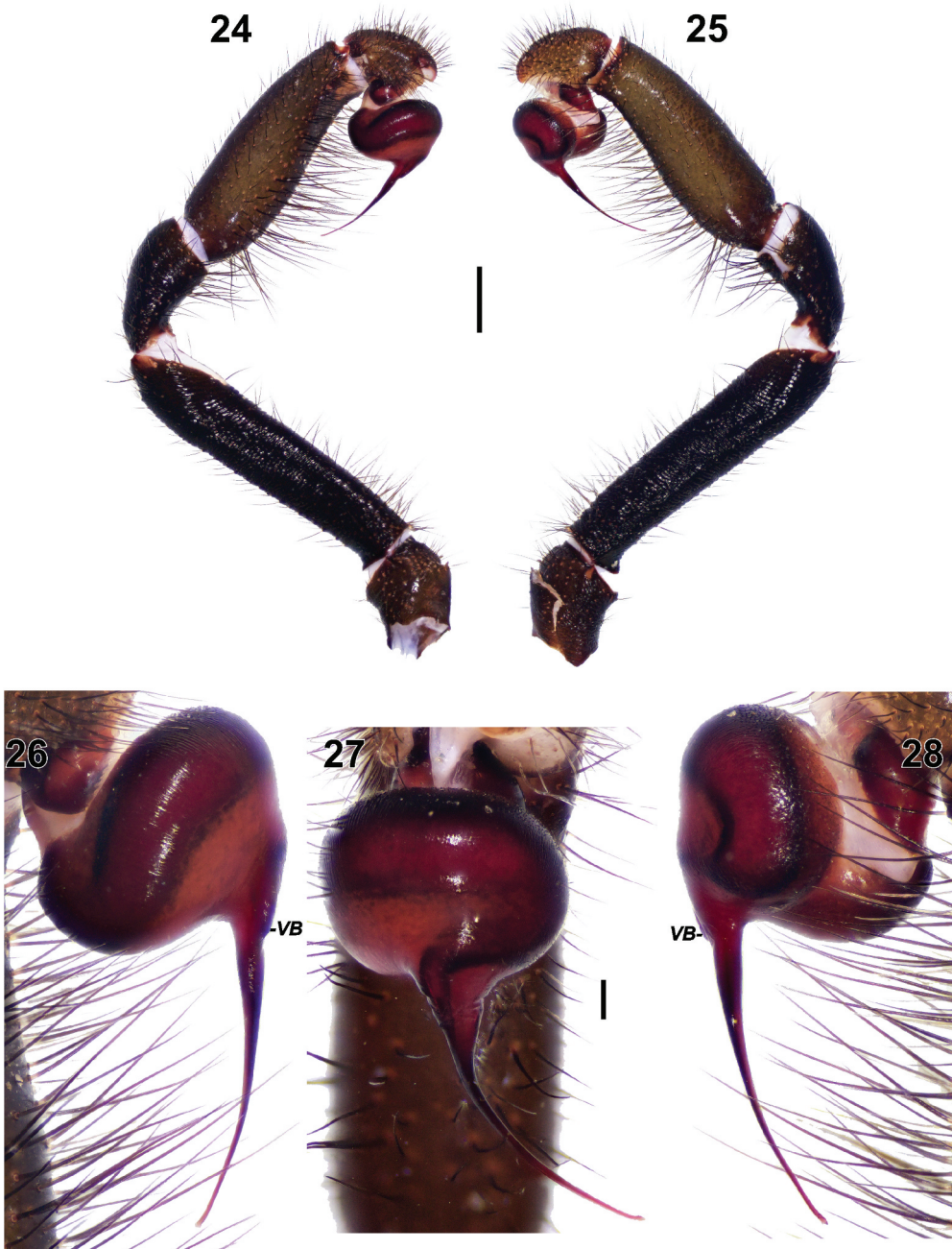
Figures 19–23. Habitus (19–20), cephalothorax (21–22), and eye tubercle (23) of male of *Ummidia dudkoi* **sp. n.**; 19, 21, 23 = dorsal view; 20, 22 = ventral view. Scale bars: 19–20 = 2 mm; 21–22 = 1 mm; 23 = 0.2 mm.

Ummidia dudkoi **Zamani and Fomichev sp. n.**

(Figures 19–28, 43–44, 47–48)

Types

♂ holotype (ISEA, 001.9168) and 1♂ paratype (ISEA, 001.9169); **TAJIKISTAN:** Khatlon Region, Panj Karatau Mt. Range, between Panj Village and Farkhor Village, 37.2754°N, 69.2469°E, 600–700 m, 29–30 April 2024, leg. A.A. Fomichev.



Figures 24–28. Left palp (24–25) and palpal organ (26–28) of *Ummidia dudkoi* **sp. n.**; 24, 26 = prolateral view; 25, 28 = retrolateral view; 27 = anterior view. Scale bars: 24–25 = 1 mm; 26–28 = 0.2 mm. Abbreviation: VB: ventral bulge.

Etymology

The specific epithet, a noun in the genitive case, is in honour of Roman V. Dudko (ISEA), a friend of the second author and a well-known Russian coleopterologist, who assisted in organising an expedition to the Khatlon Region of Tajikistan during which the types of this new species were collected.

Diagnosis

Besides *Ummidia ferghanensis* (Kroneberg, 1875), which is known only from a juvenile type specimen (World Spider Catalog 2025), the new species can be distinguished from other congeneric Asian species, ie *U. gandjinoi* (Andreeva, 1968) (Tajikistan) and *U. mischi* Zonstein, 2014 (Afghanistan), by a smaller number of labial cuspules, by spinose femora II–III, by a less strongly curved embolus, and by the bulbal part of the palpal organ having a distinct ventral bulge (VB) (Figure 28, cf. Zonstein 2018a, figs 7, 9). For a list of differences between Asian species of *Ummidia* see Table 1.

Description

Male (holotype). Habitus as in Figures 19–20. Total length 15.0. Carapace 7.2 long, 6.6 wide. Sternum 4.0 long, 3.75 wide. Labium 1.0 long, 1.4 wide. Eye sizes and interdistances: AME 0.20 (0.33), ALE 0.31, PLE 0.26, PME 0.19, AME–AME 0.16 (0.10), ALE–AME 0.16 (0.11), ALE–PLE 0.24, PLE–PME 0.10, PME–PME 0.60. Cheliceral rastellum consisting of ca. 20 conical thorns, most of them on a common process. Cheliceral furrow with 5 pro- and 5 retromarginal teeth. Labium with 5 conical cuspules. Each maxilla with ca. 20 conical cuspules. Carapace and chelicerae black. Sternum mostly brown, darker anteriorly. Labium and maxillae dark brown. Leg coxae light brown. Coxae I–II darker than III–IV. Palp: Fe–Pa black; Ti–Ta dark brown. Legs I–II: Fe–Ti black, Mt–Ta brown. Legs III–IV dark brown, Mt–Ta lighter than other segments. Dorsal side of abdomen grey. Lateral and ventral sides of abdomen, book-lung covers and spinnerets yellow. Sternal sigilla confluent, indistinctly outlined. Palp aspinose. Spination of legs: I: Fe d1, Pa p8 r2 v3, Ti p10, r1 v13, Mt p1 r2 v6; II: Fe d2, Pa p8, Ti p3 v9, Mt p1 r3 v5, Ta v5; III: Fe d1, Pa d3 p7 r1, Ti d6 p5 r4 v 2, Mt d5 p2 r1 v9, Ta v14; IV: Mt p6 v8, Ta v8. Ta and Mt I–II with entire, short, and dense scopula. Clavate dorsal trichobothria on Ta of palp (5), leg I (9), leg II (8), leg III (6), and leg IV (5). Paired tarsal claws I–IV with 1 large and acute proximal tooth; unpaired tarsal claws strongly curved, bare. Measurements of palp and legs: palp: 12.45 (4.95, 2.3, 3.6, -, 1.6); leg I: 15.95 (5.8, 2.7, 3.5, 2.7, 1.25); leg II: 14.15 (4.9,

Table 1. Differences between the males of Asian species of *Ummidia*. Characteristics of *U. gandjinoi* and *U. mischi* are taken from descriptions provided by Zonstein (2014, 2018a).

Character	<i>U. gandjinoi</i>	<i>U. mischi</i>	<i>U. dudkoi</i> sp. n.
Number of thorns on cheliceral rastellum	ca. 30	40–45	ca. 20–30
Number of labial cuspules	10	9	5–6
Number of maxillary cuspules	30	9–10	16–21
Spination of femora II and III	Aspinose	Aspinose	Spinose
Embolus in lateral view	Strongly curved	Strongly curved	Slightly curved
Ratio of embolus length to length of tegular part of palpal organ (measured in ventral view)	1.5	2.3	1.8

2.5, 2.8, 2.6, 1.3); leg III: 13.55 (4.45, 2.35, 2.45, 2.7, 1.6); leg IV: 17.5 (5.6, 2.6, 3.35, 4.0, 1.95). Spinnerets: PMS 0.45 long, 0.25 in diameter; PLS maximal diameter 1.0, length of basal, medial and apical segments 0.68, 0.28, 0.25, respectively (total length 1.21); apical segment domed.

Palp as in [Figures 24–28](#); bulbal part of palpal organ oval, with a ventral bulge (VB) in lateral view; embolus long, tapering, slightly curved, arrow-shaped terminally.

Female. Unknown.

Variation

Paratype male. Total length 16.3. Carapace 7.0 long, 6.8 wide. Sternum 4.0 long, 3.75 wide. Labium 1.13 long, 1.43 wide. Cheliceral rastellum consisting of ca. 25–30 thorns. Labium with 6 cuspules.

Habitat

Loess hills with rocky outcrops and pistachio (*Pistacea vera*) woodland ([Figure 44](#)).

Distribution

Known only from the type locality in the Khatlon Region of south-western Tajikistan ([Figure 47](#)).

Family NEMESIIDAE Simon, 1889

Genus *Raveniola* Zonstein, 1987

Comments

This genus currently comprises 68 species distributed from western Anatolia to eastern China; 28 species in four groups occur in Central Asia (Zonstein 2024).

Raveniola farkhor **Zamani and Fomichev sp. n.**
([Figures 29–35, 44, 47–48](#))

Type

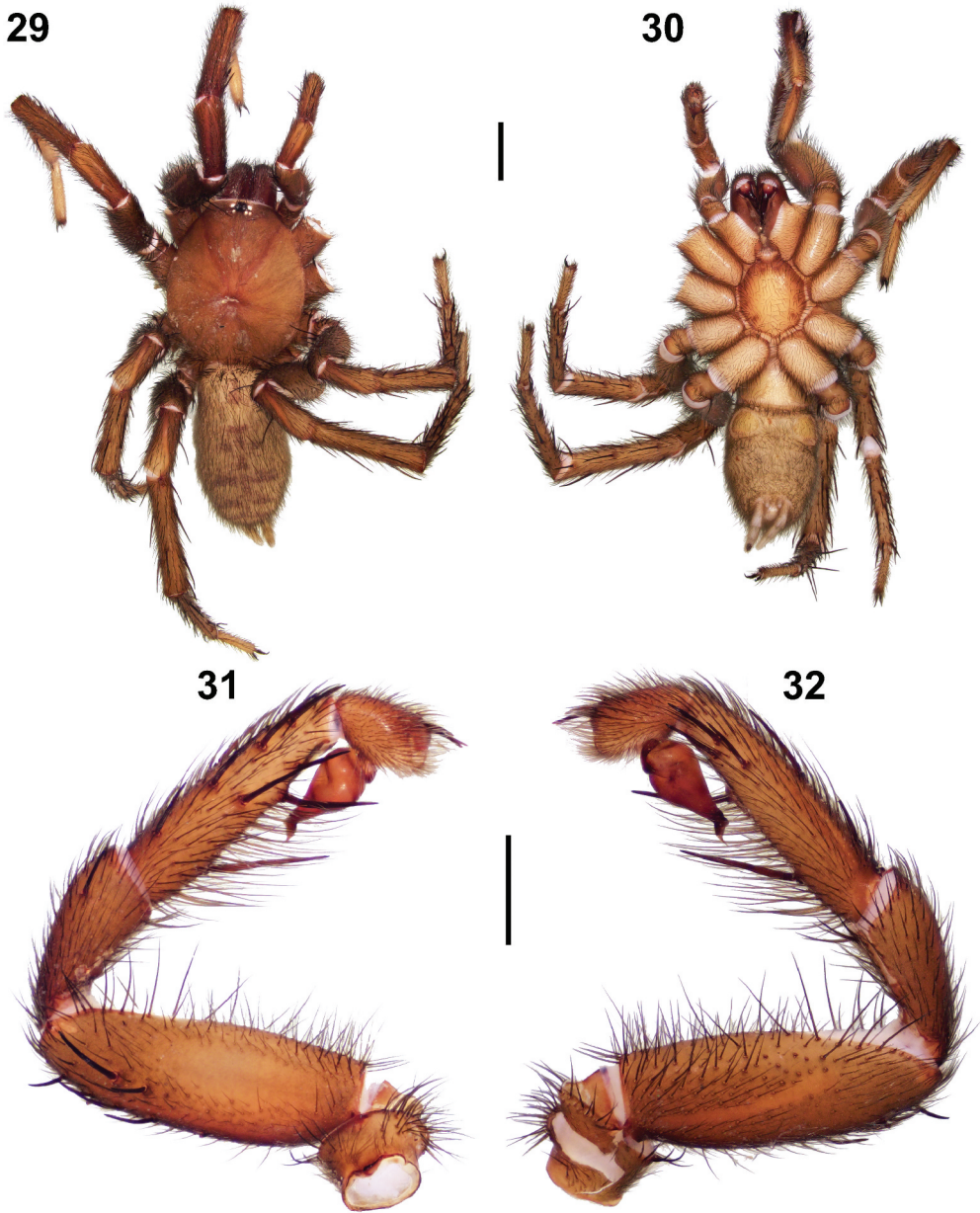
♂ holotype (ISEA, 001.9170); **TAJIKISTAN: Khatlon** Region, Panj Karatau Mt. Range, between Panj Village and Farkhor Village, 37.2754°N, 69.2469°E, 600–700 m, 29–30 April 2024, leg. A.A. Fomichev.

Etymology

The specific epithet, a noun in apposition, refers to the type locality of the species.

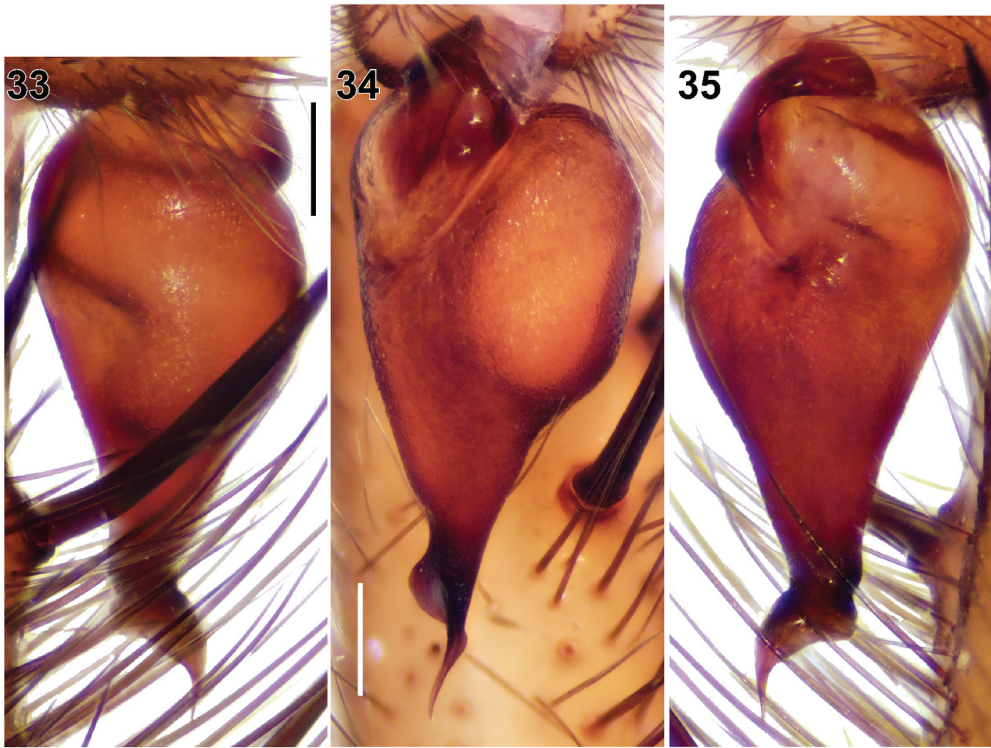
Diagnosis

The new species belongs to the *caudata* group *sensu* Zonstein (2024). It differs from the three other species in this group in having a notably longer embolic tip ([Figure 35](#), cf. Zonstein 2024, figs 379, 381, 383), in the shape of the subapical keel ([Figure 34](#), cf. Zonstein 2024, figs 380, 382, 384), and in the distal part of the bulb having a distinct



Figures 29–32. Habitus (29–30) and left palp (31–32) of male of *Raveniola farkhor* sp. n.; 29 = dorsal view; 30 = ventral view; 31 = prolateral view; 32 = retrolateral view. Scale bars: 29–30 = 2 mm; 31–32 = 1 mm.

invagination at the dorsal surface in lateral view (with a smooth transition in other species of the *caudata* group; [Figure 35](#), cf. [Zonstein 2024](#), figs 379, 381, 383).



Figures 33–35. Left palpal organ of *Raveniola farkhor* **sp. n.**; 33 = prolateral view; 34 = anterior view; 35 = retrolateral view. Scale bar = 0.2 mm.

Description

Male (holotype). Habitus as in **Figures 29–30**. Total length 12.5. Carapace 5.75 long, 4.9 wide. Sternum 2.8 long, 2.35 wide. Eye sizes: AME 0.14, ALE 0.19, PME 0.10, PLE 0.11. Each chelicera with 9–10 promarginal teeth and 2 mesobasal denticles. Each maxilla with 15–19 cuspules. Carapace, sternum, labium, and maxillae light brown. Chelicerae brown. Leg coxae light brown. Palps and legs brown, lighter distally. Dorsal side of abdomen yellow-grey, ventral side lighter. Book-lung covers yellow-brown. Spinnerets yellow. Spination of palp and legs: palp: Fe d5 p2 r1, Pa p1, Ti d2 p5 r3 v3; leg I: Fe d3 p3 r2, Ti p3 v6, Mt v2; leg II: Fe d3 p3, Pa p1, Ti p4 v7, Mt p1 v6; leg III: Fe d4 p3 r2, Pa p2 r1, Ti d2 p5 r3 v7, Mt d4 p4 r2 v8; leg IV: Fe d4 p3 r2, Pa p2 r1, Ti d2 p3 r4 v8, Mt d5 p5 r3 v8. Measurements of palp and legs: palp: 8.15 (2.95, 1.85, 2.40, -, 0.95); leg I: 17.20 (4.60, 2.90, 3.85, 3.70, 2.15); leg II: 16.30 (4.40, 2.55, 3.70, 3.55, 2.10); leg III: 15.10 (4.00, 2.15, 3.00, 4.05, 1.90); leg IV: 19.55 (4.70, 2.50, 4.20, 5.75, 2.40).

Palp as in **Figures 31–35**; bulbous part of palpal organ oval; conical part of embolus short, subapical part with distinct semicircular keel, apical part pointed, straight, and distad-directed in lateral view.

Female. Unknown.

Habitat

Loess hills with rocky outcrops and pistachio (*Pistacea vera*) woodland (Figure 44).

Distribution

Known only from the type locality in the Khatlon Region of south-western Tajikistan (Figure 47).

Raveniola zonsteini **Zamani and Fomichev sp. n.** (Figures 36–42, 46–48)

Type

♂ holotype (ZMUT); **AFGHANISTAN: Nuristan Province**, south-east of Kamdesh, 35.3952°N, 71.3703°E, 2400–2700 m, 29 May to 1 June 2022, leg. C. Reuter.

Etymology

The specific epithet, a noun in the genitive case, is in honour of our colleague Sergei L. Zonstein, in recognition of his fundamental contributions to our knowledge of Central Asian Mygalomorphae.

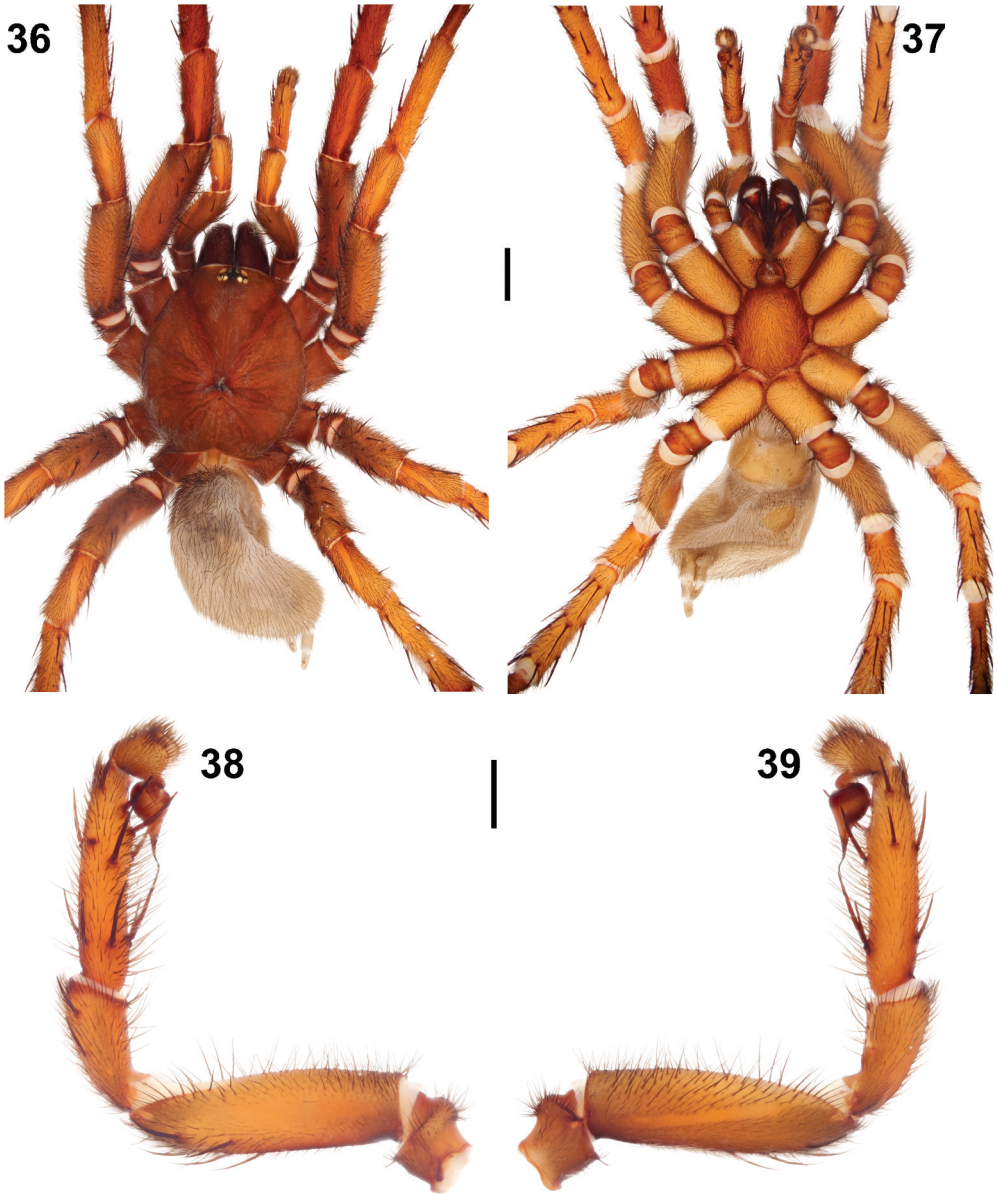
Diagnosis

The new species belongs to the *concolor* group *sensu* Zonstein (2024). It closely resembles *R. ornatula* Zonstein, 2024 from Tajikistan in the shape of the palpal organ. In the new species, it differs from that of *R. ornatula* in the ectal margin of the bulbal part and the conical part of the embolus forming an almost straight continuous line in lateral view (in *R. ornatula* bulbal part with slightly bulging ectal margin in lateral view; Figure 42, cf. Zonstein 2024, fig. 417), in the subapical part of the embolus being noticeably wider (in *R. ornatula* thinner), and in a shorter conical part of the embolus (in *R. ornatula* longer; Figure 42, cf. Zonstein 2024, figs 415, 416).

Description

Male (holotype). Habitus as in Figures 36–37. Total length 16.50. Carapace 6.80 long, 6.03 wide. Sternum 3.55 long, 2.85 wide. Eye sizes: AME: 0.21, ALE: 0.33, PME: 0.21, PLE: 0.19. Each chelicera with 9 promarginal teeth and 7 mesobasal denticles. Each maxilla with ca. 43 cuspules. Carapace reddish chestnut-brown; chelicerae dark chestnut-brown; sternum, labium, maxillae, palps, and legs yellowish brown. Abdomen pale beige, spinnerets slightly paler. Spination of palp and legs: palp: Fe d6, Pa d2, Ti p6 d4 r3 v4; leg I: Fe d10, Pa p1, Ti p2 r1 v6; leg II: Fe p4 d2, Pa p1, Ti p3 v8, Mt r1 v5; leg III: Fe d8, Pa p2 r1, Ti p3 d3 r3 6 v, Mt p6 d1 r3 v4; leg IV: Fe p3 d3 r3, Pa p2 r1, Ti p3 d2 r4 v8, Mt p3 d4 r4 v9. Measurements of palp and legs: palp: 10.12 (4.00, 2.15, 3.12, -, 0.85); leg I: 22.37 (6.25, 3.78, 4.70, 4.89, 2.75); leg II: 20.92 (5.89, 3.21, 4.48, 4.61, 2.73); leg III: 18.41 (4.96, 2.63, 3.72, 4.74, 2.36); leg IV: 23.40 (6.08, 3.04, 4.86, 6.39, 3.03).

Palp as in Figures 38–42; bulbal part of palpal organ semicircular in lateral view, globular in ventral view; conical part of embolus short, subapical and apical parts gently winding.



Figures 36–39. Habitus (36–37) and left palp (38–39) of male of *Raveniola zonsteini* **sp. n.**; 36 = dorsal view; 37 = ventral view; 38 = prolateral view; 39 = retrolateral view. Scale bars: 36–37 = 2 mm; 38–39 = 1 mm.



Figures 40–42. Distal part of left palp of male of *Raveniola zonsteini* sp. n.; 40 = prolateral view; 41 = ventral view; 42 = retrolateral view. Scale bar: 0.2 mm.



Figures 43–46. Living male of *Ummidia dudkoi* sp. n. (43), and habitat at type localities of *Raveniola farkhor* sp. n. and *U. dudkoi* sp. n. (44), of *Anemesia gidzhovak* sp. n. (45), and of *Raveniola zonsteini* sp. n. (46). Photographs: A.A. Fomichev (43–45) and C. Reuter (46).



Figures 47, 48. Type localities of the new mygalomorph species. Diamond = *Anemesia gidzhovak* **sp. n.**; triangle = *Raveniola zonsteini* **sp. n.**; square = *Raveniola farkhor* **sp. n.** and *Ummidia dudkoi* **sp. n.** Figure 47 corresponds to the inside of the frame in Figure 48. National borders are shown in black, rivers and lakes are shown in blue.

Female. Unknown.

Habitat

Pine forest (Figure 46).

Comment

Recently, Zonstein (2024) described *Raveniola afghana* Zonstein, 2024, which also belongs to the *concolor* group, from female specimens collected in Bamiyan Province and Wardak Province of central Afghanistan. It is possible that the male specimen described here is conspecific with these females, although it is unlikely because there is approximately 400 km of aerial distance between their collection sites. Collecting additional material of both sexes at these localities is necessary to confirm that two distinct species are present.

Distribution

Known only from the type locality in Nuristan Province of eastern Afghanistan (Figure 47).

Discussion

In Central Asia, defined here geographically to include Afghanistan, Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan, and Uzbekistan, there is a relatively high diversity of mygalomorph spiders. This is currently known to include five families, each with a single genus. At present, 52 species of Mygalomorphae are known from Central Asia: *Raveniola* (Nemesiidae) is represented by 30 species, *Anemesia* (Cyrtoucheniidae) by 15 species, *Ummidia* (Halonoproctidae) by four species, *Phyxioschema* (Euagridae) by two species, and *Atypus* (Atypidae) by a single species. The highest number of species in this region is recorded from Tajikistan (31 species), followed by Uzbekistan (12 species), Kyrgyzstan and Turkmenistan (7 species each), Afghanistan (5 species), and Kazakhstan (4 species). The vast majority of these species (34) are known from both sexes, while 13 species are known only from males, four only from females, and one only from a juvenile specimen. Most Central Asian mygalomorphs have small biogeographical ranges, with

many species known from only a single locality or from a few locations near each other. Exceptions to this are *Atypus muralis* Bertkau, 1890, which ranges from Central Europe to Turkmenistan, and *Phyxioschema raddei* Simon, 1889, which is distributed from north-western Iran to the Tian Shan, Pamir, and Karakorum mountain ranges (Schwendinger and Zonstein 2011).

The high number of species known from Tajikistan is not surprising, given the country's topographic diversity, which consists almost entirely of mountainous regions. Nearly all mygalomorphs known from Tajikistan were found in its western and central regions (see Zonstein 2018b, fig. 368 and Zonstein 2024, fig. 747). The eastern region of Tajikistan, encompassing the Pamir Mountains, is characterised by a cold, arid high-altitude landscape. Despite the second author's extensive collection efforts in this area over the course of a month, no mygalomorph spiders were found. Thus, the lack of records of mygalomorphs in eastern Tajikistan may not be due to insufficient collection efforts but may instead reflect genuinely low diversity or even the complete absence of these spiders in such unsuitable habitats.

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