



New data on spiders (Arachnida: Araneae) of Iraqi Kurdistan, with new species and records

ALIREZA ZAMANI^{1,7,*}, FARHAD A. KHUDHUR^{2,3,8} & YURI M. MARUSIK^{4,5,6,9}

¹Zoological Museum, Biodiversity Unit, FI-20014 University of Turku, Turku 20500, Finland

²University of Sulaimani, Sulaymaniyah, Kurdistan Region, Iraq

³University of Mendel, Brno, Czech Republic

⁴Institute for Biological Problems of the North FEB RAS, Magadan, Russia

⁵Altai State University, Barnaul, Russia

⁶Department of Zoology & Entomology, University of the Free State, Bloemfontein, South Africa

⁷✉ zamani.alireza5@gmail.com; <https://orcid.org/0000-0002-8084-9666>

⁸✉ qi.ude.lusvinu@ruhduhk.dahraf; <https://orcid.org/0000-0001-5267-6334>

⁹✉ yurmar@mail.ru; <https://orcid.org/0000-0002-4499-5148>

*Corresponding author

Abstract

Based on a series of specimens collected between 2021 and 2023, this study presents new data on spiders of Iraqi Kurdistan. Despite the small size of the collection (i.e., 74 specimens), the material was found to include five species new to science, which are described and illustrated in this paper: *Dysdera goyza* sp. n. (♂♀; Sulaymaniyah) [Dysderidae], *D. kurdistanica* sp. n. (♂; Sulaymaniyah) [Dysderidae], *Palpimanus garmiyanus* sp. n. (♂; Sulaymaniyah) [Palpimanidae], *Tegenaria sorani* sp. n. (♂; Erbil) [Agelenidae], and *Zelotes hazarmerdensis* sp. n. (♀; Sulaymaniyah) [Gnaphosidae]. Two families (Cheiracanthiidae; Zoropsidae), eleven genera (*Agalenatea* Archer, 1951 [Araneidae]; *Cheiracanthium* C.L. Koch, 1839 [Cheiracanthiidae]; *Drassodes* Westring, 1851 [Gnaphosidae]; *Gibbaranea* Archer, 1951 [Araneidae]; *Mesiotelus* Simon, 1897 [Liocranidae]; *Micrommata* Latreille, 1804 [Sparassidae]; *Porrhoclubiona* Lohmander, 1944 [Clubionidae]; *Rhysodromus* Schick, 1965 [Philodromidae]; *Steatoda* Sundevall, 1833 [Theridiidae]; *Trochosa* C.L. Koch, 1847 [Lycosidae]; *Zoropsis* Simon, 1878 [Zoropsidae]) and 18 species are recorded in Iraq for the first time, and five species are newly reported from the Kurdistan Region.

Key words: Erbil, Halabja, Mesopotamia, Sulaymaniyah

Introduction

With 107 species in 76 genera and 29 families, the spiders of Iraq remain poorly and inadequately studied, despite a recent growth in the number of arachnological papers dealing with the fauna of this country (Al-Khazali *et al.* 2023a, b; Al-Yacoub & Najim 2023). A particular region that has not been thoroughly investigated is Iraqi Kurdistan in northern Iraq, comprising the governorates of Duhok, Erbil, Halabja, and Sulaymaniyah.

So far, the spider fauna of Iraqi Kurdistan has been considered only in four publications (Ahmed & Ahmed 2012; Fomichev *et al.* 2018; Al-Khazali *et al.* 2021; Zamani & West 2023), with only one of them (Fomichev *et al.* 2018) contributing a substantial amount of new data (i.e., describing one species as new to science and reporting 20 species, 13 genera and six families as new to Iraq). A total of 25 species in 22 genera and 14 families have been recorded from this region, including five identified only to the genus-level (Al-Khazali *et al.* 2023b). Currently, 18 species are known from Duhok and six have been reported from Erbil. The only record from Sulaymaniyah belongs to an unidentified species of *Chaetopelma* Ausserer, 1871 (Theraphosidae) reported by Zamani & West (2023), possibly belonging to *Ch. persianum* Zamani & West, 2023. No species has so far been recorded from Halabja.

In this paper and on the basis of material recently collected in Iraqi Kurdistan, we aim to provide new data on the diversity and distribution of the spiders of this region.

Material and methods

This manuscript is based on a total of 74 specimens collected by F.A. Khudhur from several localities in Sulaymaniyah, Erbil, and Halabja governorates of Iraqi Kurdistan, between 2021 and 2023. The specimens were collected either by hand or from moth collecting light traps, and were subsequently preserved in 96% ethanol. Specimens were photographed using a Canon EOS 7D camera attached to an Olympus SZX16 stereomicroscope at the Zoological Museum of the University of Turku. Digital images were montaged using CombineZP and edited using CorelDraw. SEM images were obtained by A.A. Fomichev, using a Hitachi TM-1000 scanning microscope at the Institute of Systematics and Ecology of Animals, Novosibirsk, Russia. The map was prepared using SimpleMappr (Shorthouse 2010). Lengths of leg segments were measured on the dorsal side and are listed as: total length (femur, patella, tibia, metatarsus, tarsus). All measurements are in millimetres. The listed distributions of the species are modified after WSC (2024). The previous Iraqi records of the species are listed following Al-Khazali *et al.* (2023a, b) and Al-Yacoub & Najim (2023).

Abbreviations: Eyes: ALE—anterior lateral eye, AME—anterior median eye, PLE—posterior lateral eye, PME—posterior median eye. **Spination and leg segments:** d—dorsal, Fe—femur, Mt—metatarsus, Pa—patella, pl—prolateral, rl—retrolateral, Ta—tarsus, Ti—tibia, v—ventral.

Depository: ZMUT—Zoological Museum of the University of Turku, Turku, Finland (curator: V. Vahtera).

Taxonomy

Family Agelenidae C.L. Koch, 1837

Tegenaria sorani Zamani & Marusik, sp. n.

Figs 1A, 2A–D

Type material. Holotype ♂ (ZMUT), IRAQ: *Erbil Governorate*: Soran, Bradost Mt., Beston Cave, 36°42'29.8"N 44°23'32.5"E, 08.05.2023 (F.A. Khudhur). Paratypes: 2♂ (ZMUT), same as for the holotype.

Etymology. The specific epithet is a noun in apposition, referring to a dialect of the Kurdish language that is spoken in the most parts of Iraqi Kurdistan, as well as the Kurdistan Province, Kermanshah Province, and West Azerbaijan Province of western Iran.

Diagnosis. The new species is most similar to *T. domestica* (Clerck, 1757) and *T. alamto* Zamani, Marusik & Malek-Hosseini, 2018 in having two retrolateral apophyses, a relatively short conductor with only the retrolateral arm developed, and a short embolus. It can be distinguished by the total absence of the prolateral arm of the conductor (vs. a small extension present), a thin embolus originating at ca. 10 o'clock position (vs. the embolus in *T. domestica* thick, and in both species originating at 9 o'clock position), and the aspinose palpal tibia (vs. spinose) (cf. Fig. 2A and Cazanove *et al.* 2022: fig. 2A, D and Zamani *et al.* 2018: fig. 1).

Description. Male (Holotype). Habitus as in Fig. 1A. Total length 6.55. Carapace 3.75 long, 2.70 wide. Eye sizes: AME: 0.15, ALE: 0.20, PME: 0.18, PLE: 0.19. Carapace and sternum yellowish brown, carapace darker in pars cephalica, without any pattern. Labium, chelicerae, and maxillae brownish. Legs of same color as carapace and with faint annulations. Abdomen light beige, with scattered dark gray patches on dorsum and without any pattern ventrally. Spinnerets dark beige. Measurements of legs: I: 25.55 (6.90, 1.60, 7.07, 7.18, 2.80), Fe II: 6.74 (the rest of the segments missing), III: 20.62 (5.80, 1.35, 5.12, 6.40, 1.95), IV: 23.02+missing Ta (6.95, 1.50, 6.27, 8.30, missing).

Palp as in Fig. 2A–D; tibia 2 times longer than wide with 2 retrolateral apophyses, one rectangular heavily sclerotized (*Ts*) and another weakly sclerotized (*Tw*) as long as tibia wide; cymbium 1.9 times longer than wide, with tip equal to length of bulb; bulb almost as wide as long; tegular apophysis (*Ta*) located posteriorly, originating at ca. 6 o'clock position, bent at right angle, terminal part as long as basal; conductor (*Co*) wider than long, prolateral arm lacking, retrolateral arm (*Cr*) wide and not pointed; embolus short and thin, originated at ca. 10 o'clock position, forming ca. 180° loop.

Female. Unknown.

Distribution. Known only from the type locality in Erbil Governorate, Iraqi Kurdistan (Fig. 10).

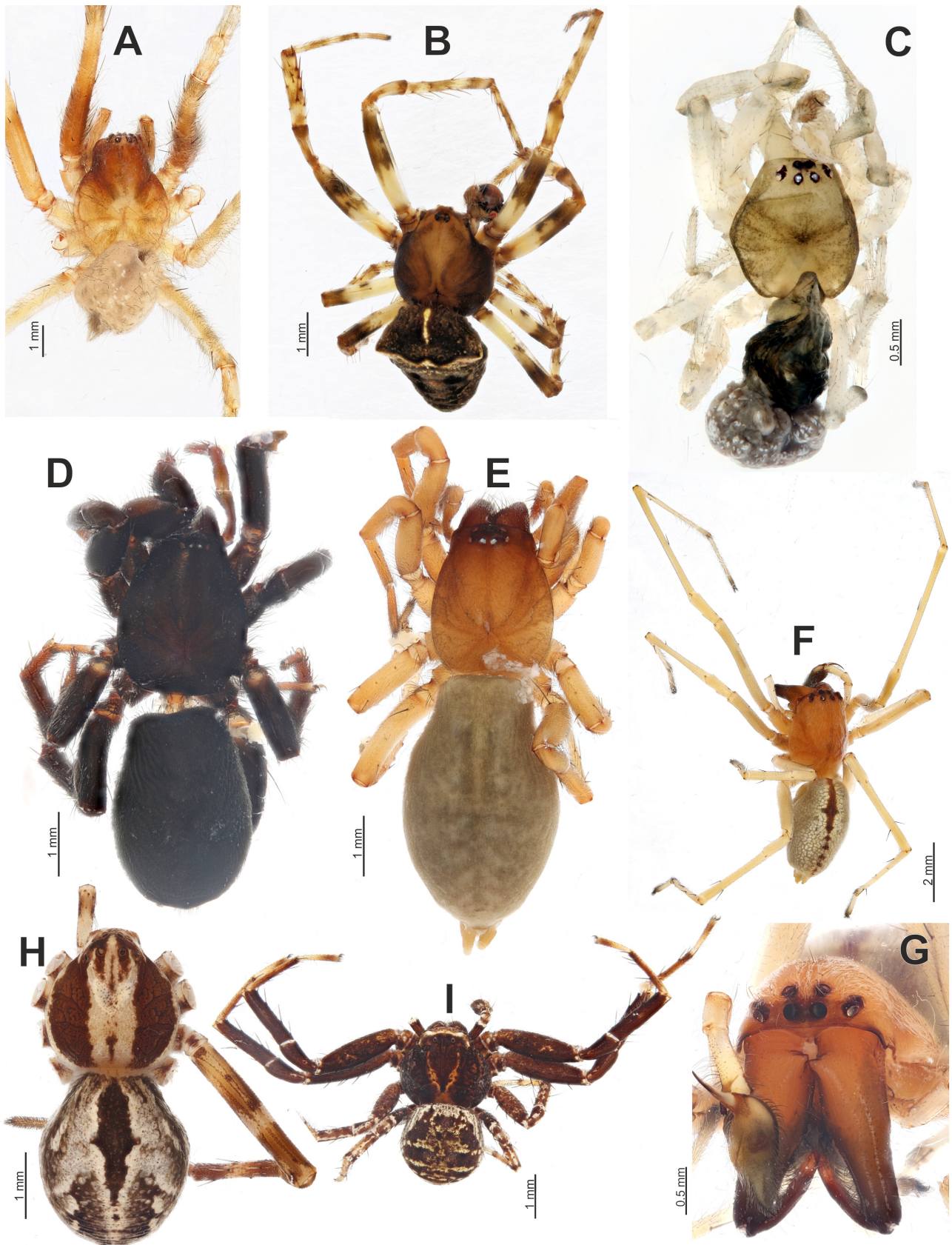


FIGURE 1. Habitus (A–F, H, I) and cephalothorax (G) of *Tegenaria sorani* sp. n. (A), *Gibbaranea bituberculata* (B), *Enoplognatha gemina* (C), *Zelotes hazarmerdensis* sp. n. (D), *Haplodrassus qashqai* (E), *Cheiracanthium montanum* (F, G), *Rhysoedromus rikhteri* (H) and *Xysticus acerbus* (I), dorsal (A–F, H, I) and frontal (G). A–C, F–G, I males; D, E, H females.



FIGURE 2. Male palp of *Tegenaria sorani* sp. n. (A–D) and *Cheiracanthium montanum* (E, F). A, E ventral; B prolateral; C, F retrolateral; D dorsal. Abbreviations: *Co*—conductor, *Cr*—retrolateral arm of conductor, *Ta*—tegular apophysis, *Ts*—heavily sclerotized retrolateral tibial apophysis, *Tw*—weakly sclerotized retrolateral tibial apophysis. Scale bars: 0.2 mm.

Family Araneidae Clerck, 1757

Aculepeira ceropegia (Walckenaer, 1802)

Material. IRAQ: *Sulaymaniyah Governorate*: 1♀ (ZMUT), Garmyan, Maydan, Gorgnosh Vil., 34°46'19.6"N 45°39'07.9"E, 01.05.2023.

Distribution. West Palaearctic. New species record for Iraq.

Agalenatea redii (Scopoli, 1763)

Material. IRAQ: *Sulaymaniyah Governorate*: 1♂1♀ (ZMUT), Bakrajo, Hazar Merd, 35°29'43.5"N 45°20'10.3"E, 02.04.2022; 1♂ (ZMUT), Gapilon, Balkhe Vil., 35°46'59.9"N 45°22'34.2"E, 21.04.2022.

Distribution. West Palaearctic. New genus and species records for Iraq.

Gibbaranea bituberculata (Walckenaer, 1802)

Figs 1B, 3A–C

Material. IRAQ: *Sulaymaniyah Governorate*: 1♂ (ZMUT), Chamy Razan valley, 35°46'48.0"N 44°58'43.7"E, 06.04.2022; 1♂ (ZMUT), Goyzha, Mt. Hawary Shar Park, 35°36'57.2"N 45°26'47.0"E, 30.03.2022.

Distribution. West Palaearctic. New genus and species records for Iraq.

Mangora acalypha (Walckenaer, 1802)

Material. IRAQ: *Halabja Governorate*: 1♀ (ZMUT), Hawar Vil., 35°09'39.9"N 46°06'59.3"E, 13.06.2021.

Records in Iraq. Salah Al-Din. New record for Iraqi Kurdistan.

Distribution. West Palaearctic, east to Xinjiang.

Family Cheiracanthiidae Wagner, 1887

Cheiracanthium montanum L. Koch, 1877

Figs 1F–G, 2E–F

Material. IRAQ: *Sulaymaniyah Governorate*: 1♂ (ZMUT), Chamy Razan valley, 35°46'48.0"N 44°58'43.7"E, 06.04.2022.

Distribution. Spain to Iran. New family, genus, and species records for Iraq.

Family Clubionidae Simon, 1878

Porrhoclubiona vegeta (Simon, 1918)

Material. IRAQ: *Sulaymaniyah Governorate*: 1♀ (ZMUT), Gapilon, Balkhe Vil., 35°46'59.9"N 45°22'34.2"E, 30.03.2023.

Distribution. Mediterranean to Iran. New genus and species records for Iraq.



FIGURE 3. Male palp of *Gibbaranea bituberculata*. A ventral; B prolateral; C retrolateral. Scale bars: 0.2 mm.

Family Dysderidae C.L. Koch, 1837

Genus *Dysdera* Latreille, 1804

Comment. *Dysdera* is one of the largest spider genera, with 326 named species (WSC 2024). Only one species, *D. crocata* C.L. Koch, 1838, has a global distribution due to anthropogenic dispersal. The vast majority of the species have very limited ranges. Almost all species known from neighboring Iran and Turkey are endemics or subendemics (Zamani *et al.* 2023; Danişman *et al.* 2024). Therefore, for the two new species described here, we have only compared them with species from nearby regions.

Dysdera gozsha Zamani & Marusik, sp. n.

Figs 4A–B, 5A–D, 6D

Type material. Holotype ♂ (ZMUT), IRAQ: *Sulaymaniyah Governorate*: Goyzha Mt., Hawary Shar Park, 35°37'27.1"N 45°27'28.8"E, 08.03.2022 (F.A. Khudhur). Paratypes: 1♂ 2♀ (ZMUT), same as for the holotype.

Etymology. The specific epithet is a noun in apposition, referring to the type locality of the new species.

Diagnosis. The male of the new species is somewhat similar to that of *D. tapuria* Zamani, Marusik & Szűts, 2023 from Iran, in having a low, poorly sclerotized crest (C), but it differs by the lack of a stylus (cf. Fig. 5A and Zamani *et al.* 2023: fig. 30A). *Dysdera gozsha* sp. n. differs from all congeners in having a large retrolateral lamina (Rl) forming a claw- or bill-like shape in dorsal and ventral views (Fig. 5C, D). The female of the new species differs from all congeners by having a ragged anterior surface of the receptacle (Re; Fig. 6D).

Description. Male (Holotype). Habitus as in Fig. 4B. Total length 10.83. Carapace 4.00 long, 3.20 wide. Eye diameters: AME 0.22, PME 0.16, PLE 0.18. Carapace, sternum, chelicerae, labium, and maxillae light reddish brown. Legs light orange. Abdomen beige, without any pattern. Spinnerets uniformly beige. Measurements of legs: I: 14.47 (4.00, 2.44, 3.50, 3.62, 0.91), II: 13.44 (3.78, 2.17, 3.21, 3.40, 0.88), III: 10.31 (2.95, 1.63, 2.10, 2.83, 0.80), IV: 12.90+missing Ta (4.11, 2.06, 2.95, 3.78, missing). Spination: I: Fe: 4pl. II: Fe: 3pl. III: Fe: 2(3)d, 2pl; Ti: 1d, 2pl, 1rl, 6v; Mt: 3pl, 2rl, 4v. IV: Fe: 9d; Ti: 1d, 3pl, 3rl, 9v; Mt: 3pl, 5rl, 5v.

Palp as in Fig. 5A–D; cymbium long, 3.5 times longer than wide; bulb attached to cymbium in proximal half; bulb ca. 1.6 times longer than cymbium, and 3.3 times longer than wide; tegular part 1.2 times longer than wide; psemboles longer than tegulum, with weakly sclerotized and low crest (C) and large retrolateral lamina (Rl), proximal part of lamina bent toward cymbium.

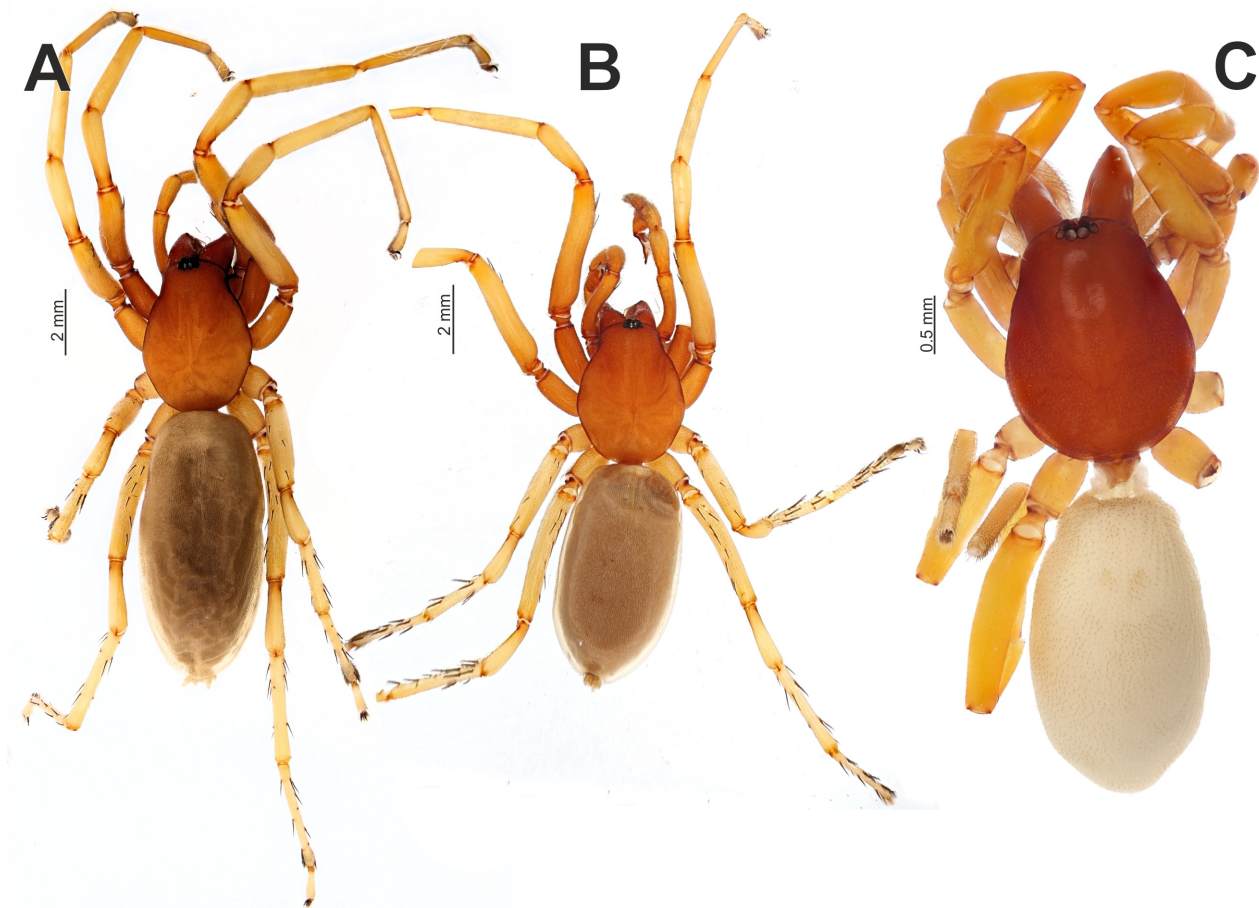


FIGURE 4. Habitus of *Dysdera goyza* sp. n. (A, B) and *Dysdera kurdistanica* sp. n. (C), dorsal. A female; B, C males.

Female. Habitus as in Fig. 4A. Total length 12.63. Carapace 4.65 long, 3.32 wide. Eye diameters: AME 0.22, PME 0.17, PLE 0.19. Coloration as in male. Measurements of legs: I: 15.15 (4.24, 2.82, 3.55, 3.49, 1.05), II: 14.75 (4.20, 2.45, 3.43, 3.62, 1.05), III: 11.31 (3.32, 1.80, 2.26, 2.98, 0.95), IV: 15.45 (4.54, 2.27, 3.30, 4.27, 1.07). Spination: I: Fe: 4pl. II: Fe: 3(4)pl. III: Fe: 2(5)d, 1(0)pl; Ti: 1d, 2pl, 2rl, 6v; Mt: 3pl, 2rl, 4v. IV: Fe: 7(9)d; Ti: 1d, 3pl, 3rl, 9v; Mt: 3pl, 5rl, 5v.

Endogyne as in Fig. 6D; receptacle (*Re*) straight with ragged anterior margin; dorsal arch of anterior diverticulum (*Da*) semiround, 2 times wider than long; transversal bar (*Tb*) long and thin, 1.5 times longer than receptacle.

Distribution. Known only from the type locality in Sulaymaniyah Governorate, Iraqi Kurdistan (Fig. 10).

Dysdera kurdistanica Zamani & Marusik, sp. n.

Figs 4C, 5E–H

Type material. Holotype ♂ (ZMUT), IRAQ: *Sulaymaniyah Governorate*: Bakrajo, Hazar Merd, Dekon Vil., 35°30'03.2"N 45°18'55.0"E, 15.04.2023 (F.A. Khudhur).

Etymology. The specific epithet refers to the distribution of the species in the Kurdistan Region.

Diagnosis. The new species differs from all congeners by having a strongly bent posterior apophysis (*P*), a long stylus longer than the crest (*C*), and a unique shape of the spermophor (*Sp*), forming some loops, but not spirally coiled like in other species of *Dysdera*.

Description. Male. Habitus as in Fig. 4C. Total length 4.87. Carapace 2.03 long, 1.54 wide. Eye diameters: AME 0.12, PME 0.10, PLE 0.09. Carapace, sternum, chelicerae, labium, and maxillae light reddish brown. Legs yellowish. Abdomen light beige, without any pattern. Spinnerets uniformly light beige. Measurements of legs: I: 5.61 (1.48, 1.01, 1.26, 1.32, 0.54), II: 5.03 (1.34, 0.86, 1.09, 1.25, 0.49), III: 4.04 (1.15, 0.73, 0.76, 0.96, 0.44), IV: 4.86+missing Ta (1.56, 0.88, 1.14, 1.28, missing). Spination: III: Ti: 1v; Mt: 2v. IV: Ti: 1v; Mt: 2v.

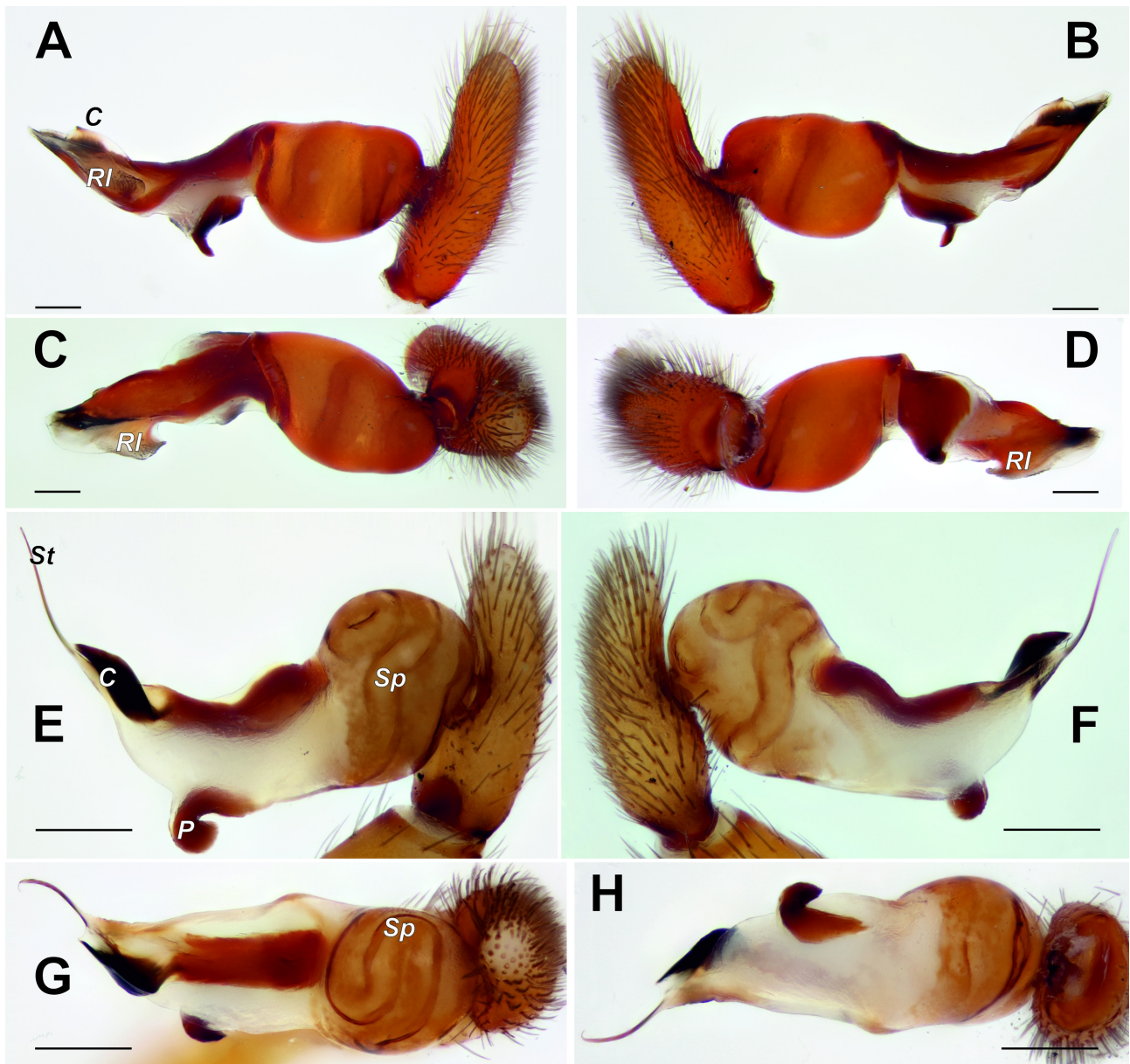


FIGURE 5. Male palp of *Dysdera goyza* sp. n. (A–D) and *Dysdera kurdistanica* sp. n. (E–H). A, E retrolateral; B, F prolateral; C, G distal; D, H proximal. Abbreviations: C—crest, P—posterior apophysis, RI—retrolateral lamina, Sp—spermophor, St—stylus. Scale bars: 0.2 mm.

Palp as in Fig. 5E–H; cymbium relatively short, 2.7 times longer than wide, gradually tapering in distal half; bulb attached to cymbium in middle part of cymbium; bulb ca. 1.4 times longer than cymbium; tegular part very short, ca. 1/3 of bulb length, in anterior view as long as wide; spermophor (*Sp*) not spirally coiled, but bent forming several loops, in anterior view forming S-shaped figure; posterior apophysis (*P*) strongly bent, hook-like; crest (*C*) well sclerotized, bill-shaped, 4 times longer than wide; stylus very long, as long as tegulum wide, bent anteriorly at ca. 75° angle.

Female. Unknown.

Distribution. Known only from the type locality in Sulaymaniyah Governorate, Iraqi Kurdistan (Fig. 10).

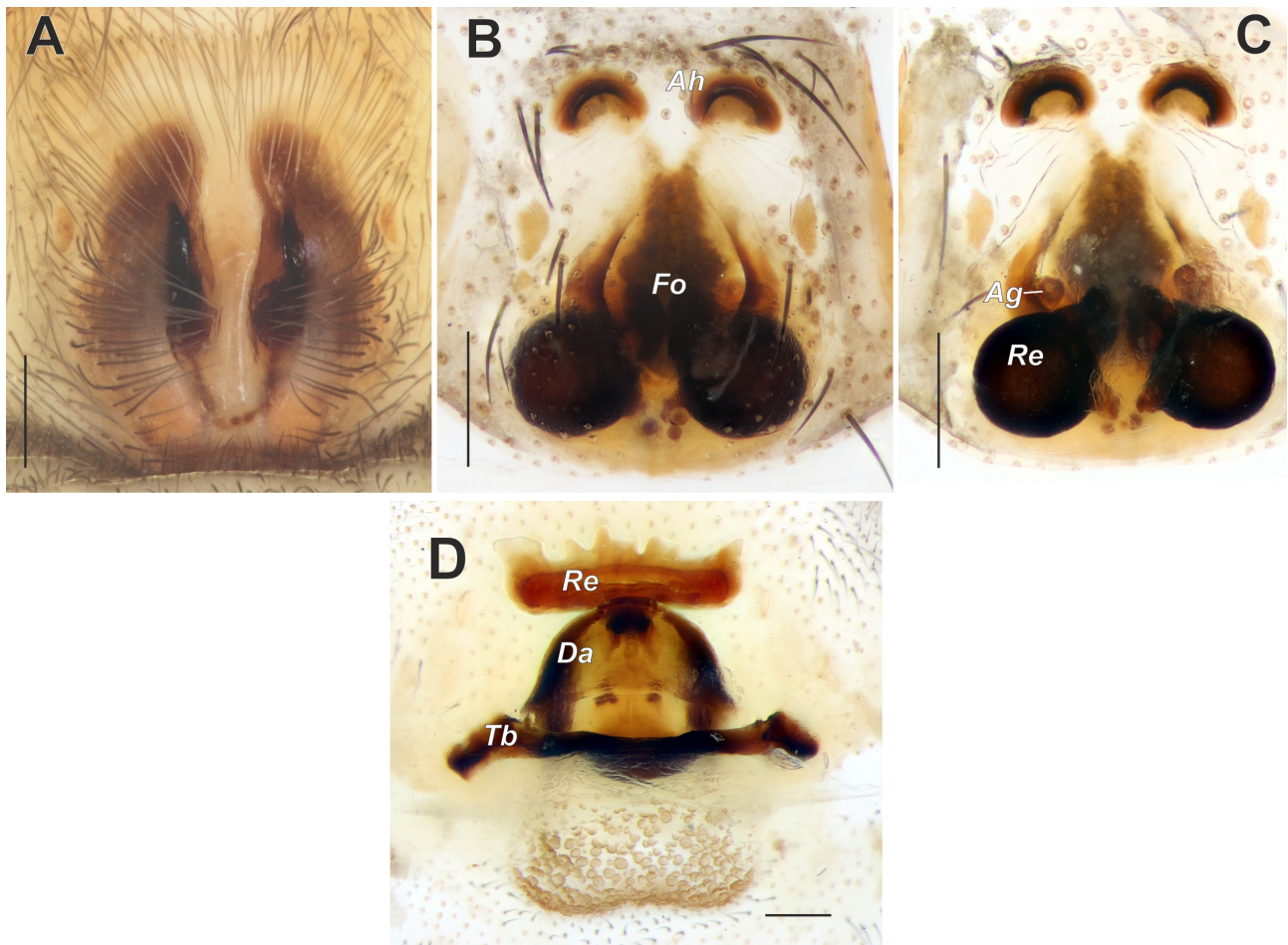


FIGURE 6. Female copulatory organs of *Haplodrassus qashqai* (A), *Zelotes hazarmerdensis* sp. n. (B, C) and *Dysdera goyza* sp. n. (D). A intact, ventral; B macerated, ventral; C, D macerated, dorsal. Abbreviations: *Ah*—anterior hood, *Ag*—accessorial gland, *Da*—dorsal arch, *Fo*—fovea, *Re*—receptacle, *Tb*—transversal bar. Scale bars: 0.2 mm.

Family Gnaphosidae Banks, 1892

Drassodes lapidosus (Walckenaer, 1802)

Material. IRAQ: *Erbil Governorate*: 3♂ (ZMUT), Choman, Weze Vil., 36°34'57.9"N 44°59'28.5"E, 07.05.2023.

Distribution. Trans-Palaeartic. New genus and species records for Iraq.

Haplodrassus qashqai Zamani, Chatzaki, Esyunin & Marusik, 2021

Figs 1E, 6A

Material. IRAQ: *Sulaymaniyah Governorate*: 1♀ (ZMUT), Garmyan, Maydan, Gorgnosh Vil., 34°46'19.6"N 45°39'07.9"E, 01.05.2023.

Distribution. Previously known only from Iran. New species record for Iraq, with the current material representing the northwesternmost record of the species across the whole known range.

Haplodrassus signifer (C.L. Koch, 1839)

Material. IRAQ: *Sulaymaniyah Governorate*: 1♂ (ZMUT), Sangaw, Zhallay Darband Vil., nr. Basarah bridge, 35°25'45.3"N 45°06'39.2"E, 19.03.2023.

Distribution. Circum-Holarctic. New species record for Iraq.

Marinarozelotes jaxartensis (Kroneberg, 1875)

Material. IRAQ: *Sulaymaniyah Governorate*: 1♀ (ZMUT), Bakrajo, Hazar Merd, Dekon Vil., 35°30'03.2"N 45°18'55"E, 15.04.2023.

Records in Iraq. Baghdad and Dhi Qar. New record for Iraqi Kurdistan.

Distribution. Northern Africa to Caucasus, Russia (Europe) to Central Asia, and Middle East. Introduced to Hawaii, USA, Mexico, South Africa, India, China, and Japan.

Pterotricha strandi Spassky, 1936

Material. IRAQ: *Sulaymaniyah Governorate*: 1♂ (ZMUT), Sangaw, Zhallay Darband Vil., Basarah bridge, 35°25'45.3"N 45°06'39.2"E, 19.03.2023.

Distribution. Previously known from Iran, Turkmenistan, Afghanistan, and India. New species record for Iraq, with the current material representing the westernmost record of the species across the whole known range.

Zelotes hazarmerdensis Zamani & Marusik, sp. n.

Figs 1D, 6B–C

Type material. Holotype ♀ (ZMUT), IRAQ: *Sulaymaniyah Governorate*: Bakrajo, Hazar Merd, Dekon Vill., 35°29'52.4"N 45°18'56.2"E, 28.03.2022 (F.A. Khudhur).

Etymology. The specific epithet refers to Hazar Merd ancient archeological cave within Baranan mountain chain in Sulaymaniyah Governorate, near which the type locality of this species is situated.

Diagnosis. The new species is similar to *Z. helicoides* Chatzaki, 2010 from Greece by having large anterior hoods, but can be distinguished by the relatively larger receptacles and converging lateral margins of the epigynal fovea (vs. subparallel), as well as by the receptacle span being wider than the anterior pockets (vs. subequal) (cf. Fig. 6B–C and Chatzaki 2010: figs 22, 23).

Description. Female. Habitus as in Fig. 1D. Total length 5.70. Carapace 2.44 long, 1.95 wide. Eye sizes: AME: 0.08, ALE: 0.12, PME: 0.09, PLE: 0.08. Carapace, chelicerae, maxillae, labium and sternum black. Legs proximally black and distally light brown, without annulations. Abdomen dark gray, without any pattern. Spinnerets slightly darker than abdomen, uniform in color. Measurements of legs: I: Fe: 1.63, Pa: 1.04 (rest of segments missing), II: 4.65 (1.37, 0.86, 0.95, 0.80, 0.67), III: 4.44 (1.26, 0.76, 0.79, 0.99, 0.64), IV: 6.09 (1.73, 0.94, 1.22, 1.47, 0.73).

Epigyne as in Fig. 6B–C; epigynal plate ca. 1.3 times longer than wide; fovea (*Fo*) ovate, ca. 1.4 times longer than wide; anterior hoods (*Ah*) broad, subequal to half width of fovea, spaced by less than their width; receptacles (*Re*) large, globular, their diameters equal to width of fovea, spaced by less than one radius; accessorial glands (*Ag*) globular.

Male. Unknown.

Distribution. Known only from the type locality in Sulaymaniyah Governorate, Iraqi Kurdistan (Fig. 10).

Family Liocranidae Simon, 1897

Mesiotelus caucasicus Zamani & Marusik, 2021

Material. IRAQ: *Sulaymaniyah Governorate*: 1♀ (ZMUT), Delezha, Chapachnara, 35°27'02.5"N 45°10'55.3"E, 14.03.2022.

Distribution. Previously known from Turkey, Caucasus, and northern Iran. New genus and species records for Iraq.

Family Lycosidae Sundevall, 1833

Alopecosa albofasciata (Brullé, 1832)

Material. IRAQ: *Sulaymaniyah Governorate*: 1♀ (ZMUT), Bakrajo, Hazar Merd, 35°29'43.5"N 45°20'10.3"E, 02.04.2022; 2♂2♀ (ZMUT), Goyzha Mt., Hawary Shar Park, 35°37'27.1"N 45°27'28.8"E, 08.03.2022.

Records in Iraq. Basrah, Dhi Qar, and Duhok. New record for Sulaymaniyah.

Distribution. Mediterranean to Central Asia.

Arctosa tbilisiensis Mcheidze, 1946

Material. IRAQ: *Erbil Governorate*: 1♀ (ZMUT), Choman Nawanda Vil., 36°41'49.5"N 44°52'13.6"E, 17.05.2023.

Records in Iraq. Basrah, Dhi Qar, and Duhok. New record for Erbil.

Distribution. Greece to Afghanistan.

Pardosa aenigmatica Tongiorgi, 1966

Material. IRAQ: *Sulaymaniyah Governorate*: 1♂ (ZMUT), Qara Dag, Telzait, 35°21'32.7"N 45°28'27.8"E, 24.03.2022.

Records in Iraq. Erbil. New record for Sulaymaniyah.

Distribution. Italy to Iran.

Trochosa urbana O. Pickard-Cambridge, 1876

Material. IRAQ: *Sulaymaniyah Governorate*: 1♂ (ZMUT), Garmyan, Maydan, Horen Vil., Hawasan stream, 34°53'36.6"N 45°39'50.0"E, 25.03.2023.

Distribution. Previously known from North Africa, Ethiopia to Seychelles, Madagascar (Nosy Be), Israel, and Iran. New genus and species records for Iraq.

Family Oxyopidae Thorell, 1869

Oxyopes lineatus Latreille, 1806

Material. IRAQ: *Halabja Governorate*: 1♂ (ZMUT), Hawar Vil., 35°09'39.9"N 46°06'59.3"E, 13.06.2021.

Records in Iraq. Baghdad and Dohuk. New record for Halabja.

Distribution. West Palaearctic.

Family Palpimanidae Thorell, 1869

Palpimanus garmiyanus Zamani & Marusik, sp. n.

Figs 7A–G, 8A–F

Type material. Holotype ♂ (ZMUT), IRAQ: *Sulaymaniyah Governorate*: Sangaw, Hanara Vil., Sagrama Mt., 35°18'42.6"N 45°14'58.8"E, 24.03.2022 (F.A. Khudhur).

Etymology. The specific epithet refers to Garmiyan, a great warm land plain extending beyond the southwestern side of Qara Dag mountain chain in Sulaymaniyah Governorate.

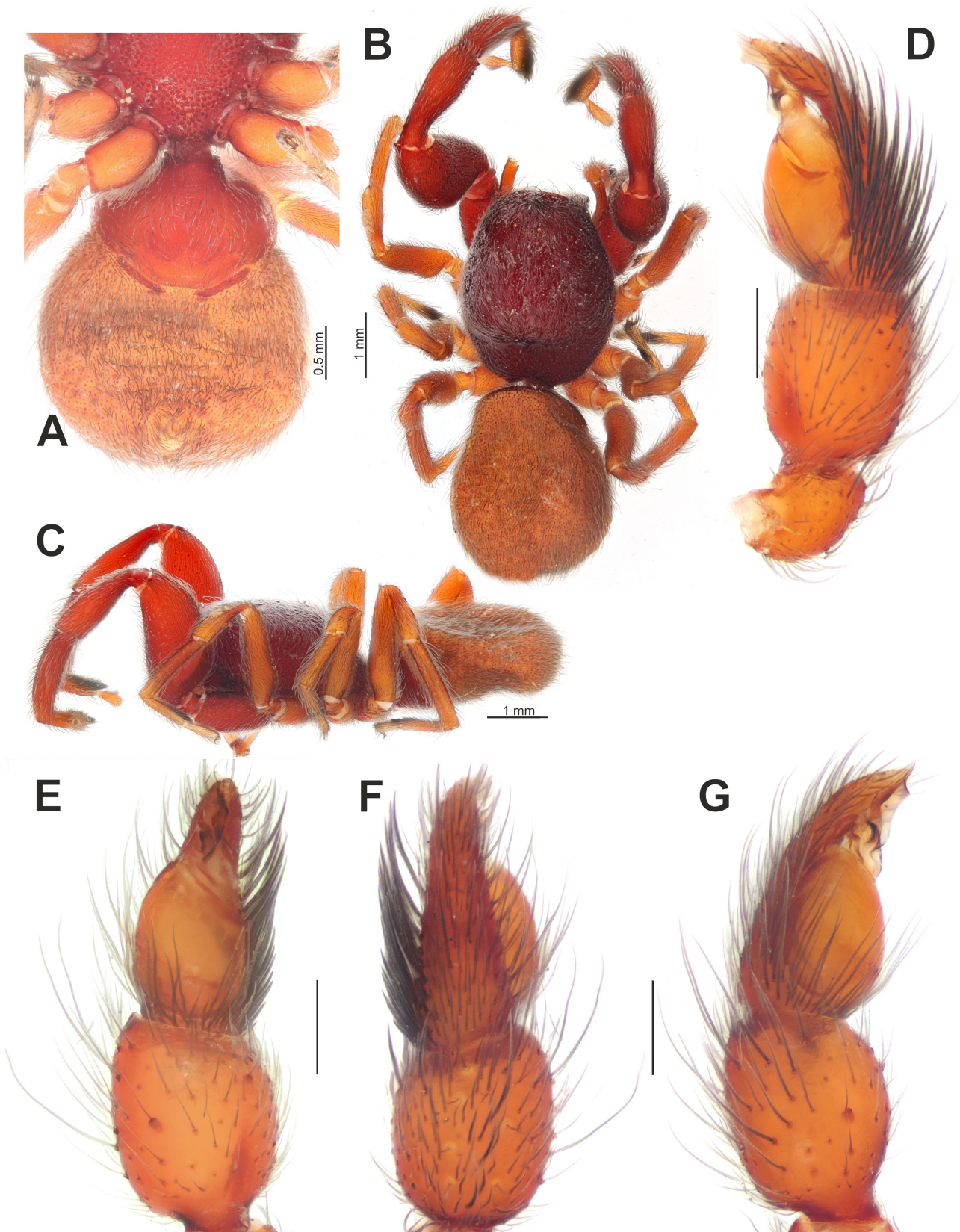


FIGURE 7. Habitus (B–C), abdomen and posterior half of cephalothorax (A) and palp (D–G) of the male of *Palpimanus garmiyanus* sp. n. A, E ventral; B, F dorsal; C lateral; D retrolateral; G prolateral. Scale bars: 0.2 mm, unless stated otherwise.

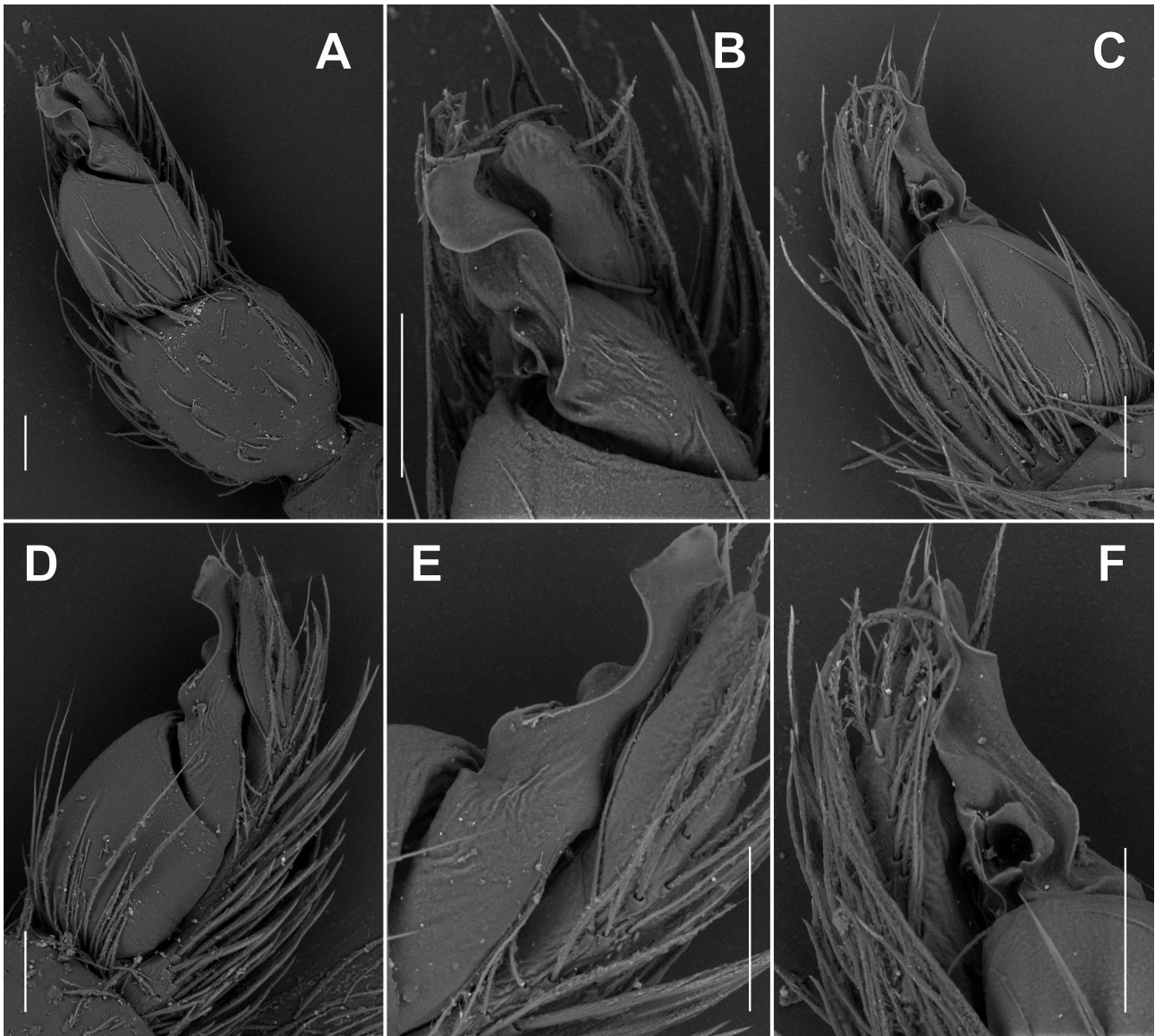


FIGURE 8. SEM images of the male palp of *Palpimanus garmiyanus* sp. n. A, C, D distal part, ventral, prolateral and retrolateral; B, E, F embolic complex, ventral, retrolateral and prolateral. Scale bars: 0.1 mm. Courtesy of A.A. Fomichev.

Diagnosis. The new species differs from the congeners by lacking a tegular apophysis or membranous outgrowth and possessing an unbranched lamella-shaped embolus complex.

Description. Male. Habitus as in Fig. 7B–C. Total length 5.80. Carapace 2.80 long, 2.30 wide. Eye sizes: AME: 0.13, ALE: 0.08, PME: 0.06, PLE: 0.08. Carapace, labium, chelicerae, maxillae and sternum dark reddish, coated with white setae. Leg I red, legs II–IV yellowish-brown, without annulations. All metatarsi and tarsi II–IV with distinct ventral hair tufts. Abdomen dark beige, with scattered long dark setae and a ventral scutum, 2 long diagonal and 2 dot-like scutula (Fig. 7A). Spinnerets dark beige. Measurements of legs: I: 6.46 (2.04, 1.76, 1.45, 0.61, 0.60), II: 5.49 (1.65, 1.06, 1.27, 0.95, 0.56), III: 4.53 (1.38, 0.86, 1.01, 0.83, 0.45), IV: 6.24 (1.81, 1.11, 1.48, 1.30, 0.54).

Palp as in Figs 7D–G, 8A–F; tibia slightly swollen, ca. 1.3 times longer than wide, 1.6 times shorter than cymbium; cymbium almost triangular in dorsal view, 2.6 times longer than wide; tegulum ovate, 1.6 times longer than wide, lacking any outgrowth; embolic complex an almost flat lamina, lacking any prongs, as long as tegulum, with a sinusoidal bend.

Female. Unknown.

Note. Previously, the family Palpimanidae was known from Iraq only by a single record of an unidentified species of *Palpimanus* Dufour, 1820 from Duhok (Fomichev *et al.* 2018). Most likely, the new species described here

should be placed in a separate genus. However, due to the lack of a generic revision and the uncertain conformation of the male palp in the type species, *Palpimanus gibbulus* Dufour, 1820, we are unable to establish a new genus at this time.

Distribution. Known only from the type locality in Sulaymaniyah Governorate, Iraqi Kurdistan (Fig. 10).

Family Philodromidae Thorell, 1869

Rhysodromus rikhteri (Logunov & Huseynov, 2008)

Figs 1H, 9D

Material. IRAQ: *Erbil Governorate*: 1 ♀ (ZMUT), Choman, Weze Vil., 36°34'57.9"N 44°59'28.5"E, 17.05.2022.

Distribution. Previously known only from Armenia and Azerbaijan. New genus and species records for Iraq.

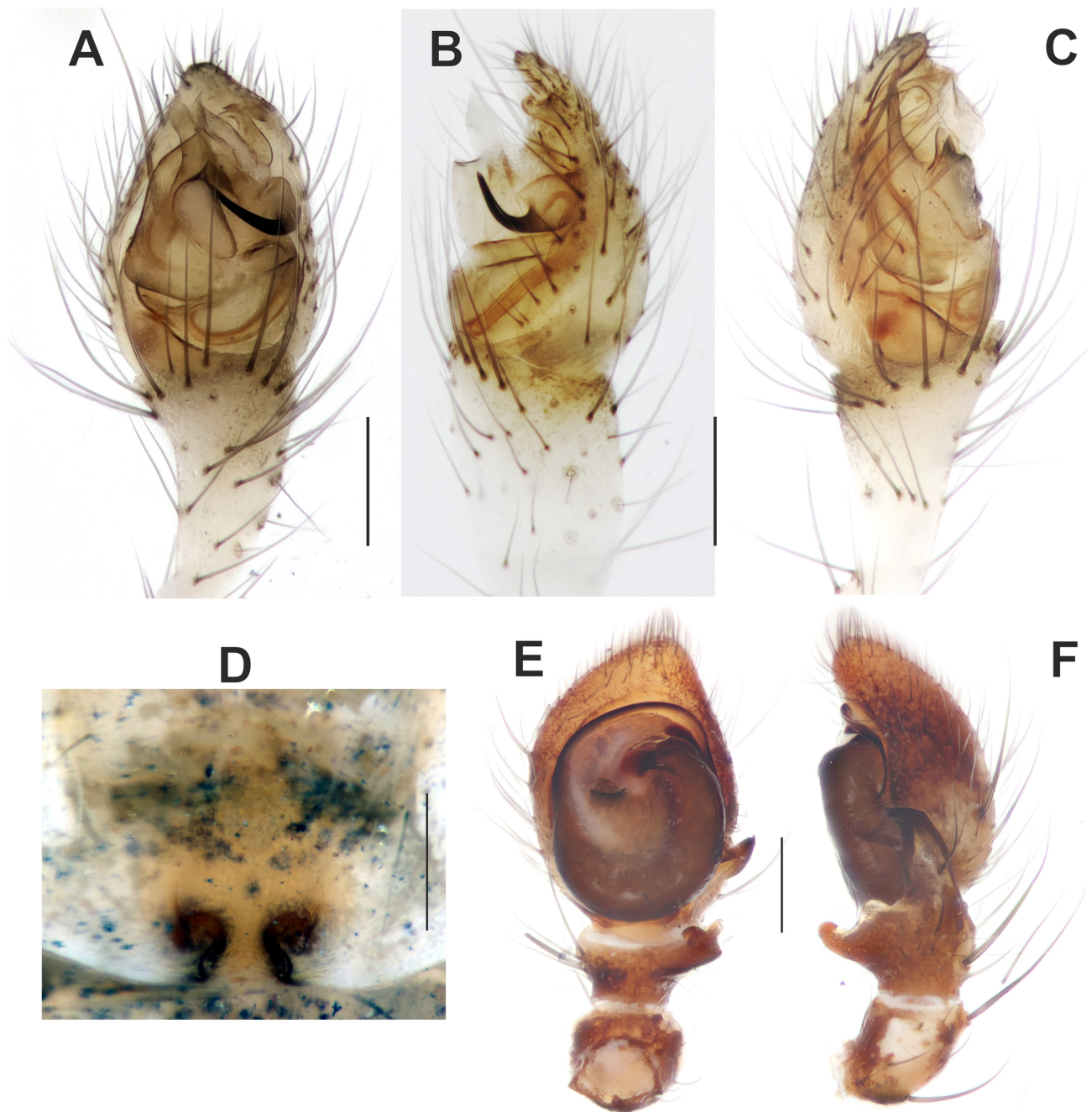


FIGURE 9. Male palp of *Enoplognatha gemina* (A–C) and *Xysticus acerbus* (E–F), and intact epigyne of *Rhysodromus rikhteri* (D). A, D, E ventral; B, F retrolateral; C prolateral. Scale bars: 0.2 mm.

Family Pisauridae Simon, 1890

Pisaura mirabilis (Clerck, 1757)

Material. IRAQ: *Erbil Governorate*: 1♂1♀ (ZMUT), Choman Nawanda Vil., 36°41'49.5"N 44°52'13.6"E, 17.05.2023; 1♂ (ZMUT), Choman, Weze Vil., 36°34'57.9"N 44°59'28.5"E, 07.05.2023; *Sulaymaniyah Governorate*: 5♂ (ZMUT), Gapilon, Balkhe Vil., Qulla Chakh, 35°46'52.2"N 45°22'28.7"E, 13.05.2023; 2♂ (ZMUT), Chamy Razan valley, 35°46'48.0"N 44°58'43.7"E, 06.04.2022.

Records in Iraq. Duhok. New records for Erbil and Sulaymaniyah.

Distribution. Trans-Palaeartic.

Family Salticidae Blackwall, 1841

Evarcha insularis (Metzner, 1999)

Material. IRAQ: *Sulaymaniyah Governorate*: 1♂ (ZMUT) Dukan, Piramagroon Mt., Zewe Vil., 35°45'52.6"N 45°14'24.0"E, 04.05.2021; 1♂1♀ (ZMUT), Gapilon, Balkhe Vil., Qulla Chakh, 35°46'52.2"N 45°22'28.7"E, 21.04.2022.

Records in Iraq. Duhok. New record for Sulaymaniyah.

Distribution. Greece to Iran.

Philaeus chrysops (Poda, 1761)

Material. IRAQ: *Sulaymaniyah Governorate*: 2♂ (ZMUT), Dukan, Piramagroon Mt., Zewe Vil., 35°45'52.6"N 45°14'24.0"E, 04.05.2021.

Records in Iraq. Erbil. New record for Sulaymaniyah.

Distribution. Circum-Palaeartic.

Plexippoides gestroi (Dalmás, 1920)

Material. IRAQ: *Sulaymaniyah Governorate*: 1♀ (ZMUT), Bakrajo, Hazar Merd, 35°29'43.5"N 45°20'10.3"E, 02.04.2022.

Records in Iraq. Duhok. New record for Sulaymaniyah.

Distribution. Greece to Iran.

Plexippus paykulli (Audouin, 1826)

Material. IRAQ: *Sulaymaniyah Governorate*: 1♂ (ZMUT), Goyzha Mt., Hawary Shar Park, 35°37'06.7"N 45°27'01.9"E, 07.04.2023.

Records in Iraq. Baghdad, Basrah, and Diyala. New record for Iraqi Kurdistan.

Distribution. Africa. Introduced to both Americas, Europe, Middle East, Nepal, southern Asia, Australia, and Pacific Is.

Family Sparassidae Bertkau, 1872

Eusparassus mesopotamicus Moradmand & Jäger, 2012

Material. IRAQ: *Sulaymaniyah Governorate*: 1♂ (ZMUT), Chwarta, Kanaru Town, 35°47'32.8"N 45°34'47.6"E, 06.10.2022.

Records in Iraq. Dhi Qar and Najaf. New record for Iraqi Kurdistan.

Distribution. Iraq, Iran, and probably Turkey.

Micrommata biggi Jäger, 2023

Material. IRAQ: *Sulaymaniyah Governorate*: 1♂ (ZMUT), Goyzha Mt., Hawary Shar Park, 35°37'06.7"N 45°27'01.9"E, 19.03.2022; 1♂ (ZMUT), Goyzha Mt., Hawary Shar Park, 35°36'57.2"N 45°26'47.0"E, 30.3.2022; 2♂ (ZMUT), Gapilon, Balkhe Vil., Qulla Chakh, 35°46'59.2"N 45°22'32.2"E, 16.04.2022; 1♂ (ZMUT), Qara Dagħ, Telzait, 35°21'32.7"N 45°28'27.8"E, 24.03.2022.

Distribution. Turkey to Turkmenistan. New genus and species records for Iraq.

Family Theridiidae Sundevall, 1833

Enoplognatha gemina Bosmans & Van Keer, 1999

Figs 1C, 9A–C

Material. IRAQ: *Sulaymaniyah Governorate*: 1♂ (ZMUT), Bakrajo, Hazar Merd, 35°29'52.4"N 45°18'56.2"E, 28.03.2022.

Distribution. Mediterranean to Azerbaijan. New species record for Iraq.

Steatoda triangulosa (Walckenaer, 1802)

Material. IRAQ: *Sulaymaniyah Governorate*: 7♀ (ZMUT), Garmyan, Maydan, Sherwal Dirreh Mt., Manga-wakall cave, 34°29'22.3"N 45°41'10.7"E, 02.05.2023.

Distribution. Trans-Palaearctic. Introduced to Canada, USA, Argentina, Canary Is., and South Africa. New genus and species records for Iraq.

Family Thomisidae Sundevall, 1833

Bassaniodes loeffleri (Roewer, 1955)

Material. IRAQ: *Sulaymaniyah Governorate*: 1♀ (ZMUT), Bakrajo, Hazar Merd, Dekon Vil., 35°30'03.2"N 45°18'55"E, 15.04.2023.

Distribution. Greece to Central Asia. New species record for Iraq.

Monaeses israeliensis Levy, 1973

Material. IRAQ: *Erbil Governorate*: 2♂ (ZMUT), Choman, Weze Vil., 36°34'57.9"N 44°59'28.5"E, 07.05.2023.

Records in Iraq. Basrah. New record for Iraqi Kurdistan.

Distribution. Greece to China.

Xysticus acerbus Thorell, 1872

Figs 1I, 9E–F

Material. IRAQ: *Sulaymaniyah Governorate*: 1♂ (ZMUT), Qara Dagħ, Telzait, 35°21'32.7"N 45°28'27.8"E, 24.03.2022.

Distribution. Europe to Central Asia, and Russia (Europe to Far East). New species record for Iraq.

Xysticus edax (O. Pickard-Cambridge, 1872)

Material. IRAQ: *Sulaymaniyah Governorate*: 2♀ (ZMUT), Goyzha Mt., Hawary Shar Park, 35°37'06.7"N 45°27'01.9"E, 07.04.2023.

Records in Iraq. Duhok. New record for Sulaymaniyah.

Distribution. Turkey, Israel, Iraq, and Iran.

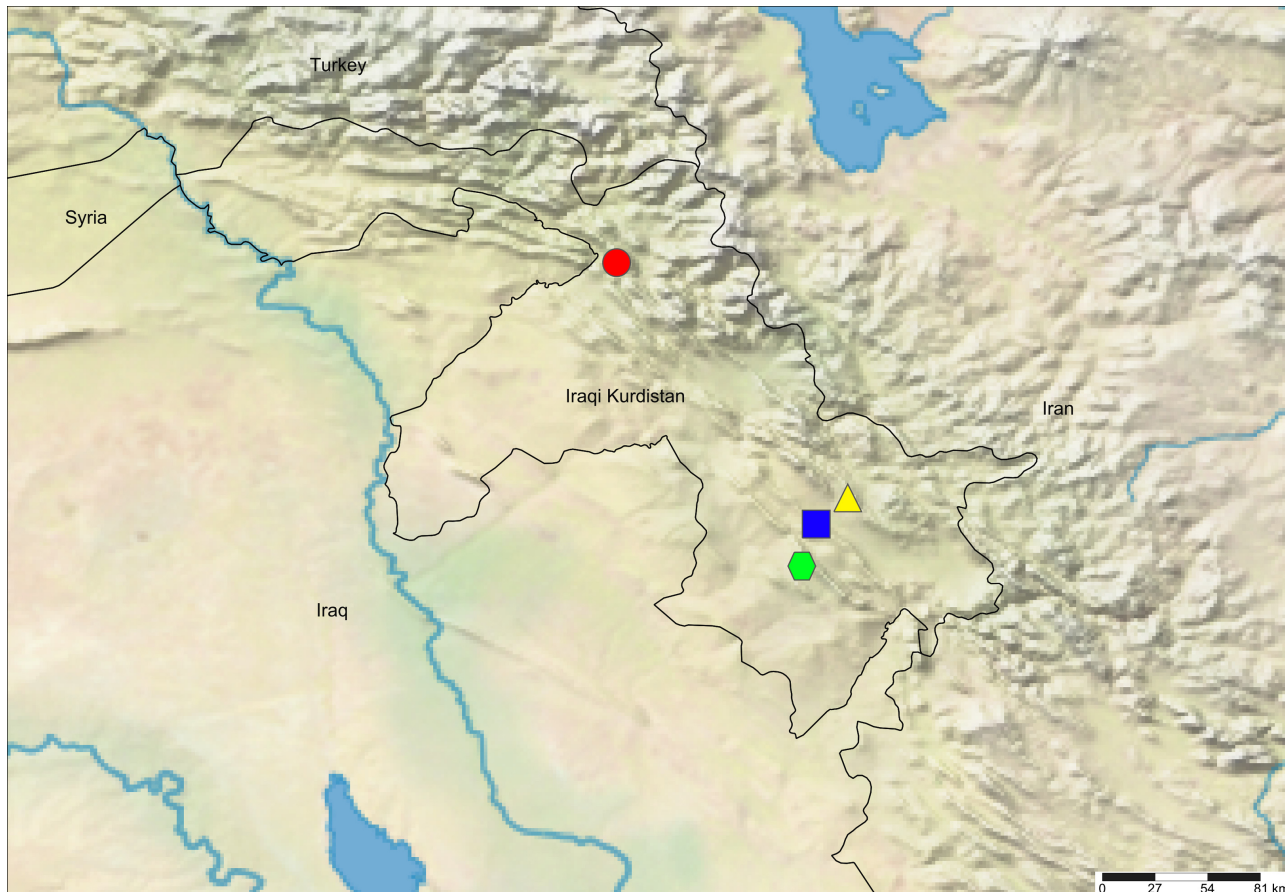


FIGURE 10. Collection localities of the new species described in this paper in Iraqi Kurdistan: *Tegenaria sorani* sp. n. (circle), *Dysdera goyza* sp. n. (triangle), *Dysdera kurdistanica* sp. n. and *Zelotes hazarmerdensis* sp. n. (square), and *Palpimanus garmiyanus* sp. n. (hexagon).

Family Zoropsidae Bertkau, 1882

Zoropsis lutea (Thorell, 1875)

Material. IRAQ: *Sulaymaniyah Governorate*: 1♀ (ZMUT), Sangaw, Zhallay Darband Vil., nr. Basarah bridge, 35°25'45.3"N 45°06'39.2"E, 25.06.2022.

Distribution. Croatia to Iran. New family, genus, and species records for Iraq.

Discussion

Considering the results of this paper, there are 131 species in 87 genera and 31 families of spiders known from Iraq, with the number of spiders reported from Iraqi Kurdistan increased to 53. Despite the small size of the collection (only 74 identifiable specimens), the material yielded five species new to science, two families, 11 genera and 18 species new to Iraq, five species new to Iraqi Kurdistan, and 10 new provincial records. The new records of *Haplodrassus qashqai* and *Pterotricha strandi* reported in this study represent the northwesternmost and the westernmost records in the respective ranges of these two species.

Iraq has been categorically divided into four regions based on geographical, climatic, and habitat landscape characteristics (Al-Khazali *et al.* 2023b). Iraqi Kurdistan corresponds to the Mountainous region, which is characterized by its mountainous areas with vegetation consisted of shrublands and woodlands, and particularly dominated by Oak trees (Mohammad *et al.* 2017). This area encompasses diverse ecoregions, including the Zagros Mountains forest-steppe, East Anatolian forest-steppe, Middle-East steppe, and Mesopotamian shrub-desert, with the Zagros Mountains forest-steppe being the dominant ecoregion (Anderson 1968; Alhumaima & Abdul Laev 2020). This ecoregion is located within the Irano-Anatolian biodiversity hotspot, an area globally significant for biological diversity due to its high rate of endemism.

Despite a high potential for species discovery due to diversity in its topography and ecosystems, Iraqi Kurdistan remains poorly investigated primarily due to political instability and the general scarcity of material collected from this area in foreign institutes. Future research efforts, whether conducted independently by local researchers or in collaboration with foreign experts, will be instrumental in accelerating the process of documenting the interesting spider diversity of Iraqi Kurdistan.

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