Contribution to the Knowledge of Harvestmen (Arachnida: Opiliones) from Iraq, with Updated Checklists for Iraq, Iran and Türkiye

Authors: Al-Khazali, Azhar Mohammed, and Kachel, Hamid Saeid

Source: Arachnologische Mitteilungen: Arachnology Letters, 67(1) : 4-12

Published By: Arachnologische Gesellschaft e.V.

URL: https://doi.org/10.30963/aramit6702

Contribution to the knowledge of harvestmen (Arachnida: Opiliones) from Iraq, with updated checklists for Iraq, Iran and Türkiye

Azhar Mohammed Al-Khazali & Hamid Saeid Kachel

doi: 10.30963/aramit6702

Abstract. Specimens of the genus *Phalangium* Linnaeus, 1758 (Phalangiidae Latreille, 1802) are reported from northern Iraq and were identified as *Phalangium punctipes* (L. Koch, 1878). These represent the first record of both, genus and species, for the Iraqi Opiliones fauna. The characteristic features of the species and illustrations of their habitat are presented. This record increases the number of known Opiliones in Iraq to six species, which is a very low number compared to the Opiliones checklists from two nearby countries, namely Iran with 28 species and Türkiye with 89 species and five subspecies. Nineteen species and two subspecies records from the Türkiye checklist are considered misidentifications and therefore omitted in our revised checklist.

Keywords: Distribution, Erbil, harvestman, new record, Northern Iraq

Zusammenfassung. Beitrag zur Kenntnis der Weberknechte (Arachnida: Opiliones) aus dem Irak, mit aktualisierten Checklisten für Irak, Iran und Türkei. Individuen aus der Gattung *Phalangium* Linnaeus, 1758 (Phalangiidae Latreille, 1802) werden aus dem nördlichen Irak gemeldet und konnten als *Phalangium punctipes* (L. Koch, 1878) identifiziert werden. Diese stellen den ersten Nachweis der Gattung wie auch der Art für die irakische Opilionidenfauna dar. Die typischen Merkmale der Art und Abbildungen des Habitats werden präsentiert. Dieser Nachweis erhöht die Anzahl der aus dem Irak bekannten Weberknechtarten auf sechs. Diese Zahl ist sehr niedrig im Vergleich zu Zahlen aus der Opilionidencheckliste des Irans mit 28 Arten und sowie der Türkei mit 89 Arten und fünf Unterarten, beides direkt benachbarte Länder. Neunzehn Arten und zwei Unterarten auf der türkischen Checkliste wurden als Fehlidentifikationen erkannt und daher von der revidierten Liste entfernt.

After mites and spiders, Opiliones with 6727 species worldwide are the third-largest order of arachnids (Kury et al. 2020). They live in a wide range of habitats, including disturbed areas and open grasslands (Mitov 2007, Kury 2012). Members of the family Phalangiidae Latreille, 1802, with more than 380 species, are characterized by thin legs, a poorly sclerotized body and a dull colour (Cokendolpher & Robert 2018). The genus *Phalangium* Linnaeus, 1758, represented by 21 valid species (Snegovaya 2014), is distributed in the Palearctic, especially in the Mediterranean Region, Central Asia and the Caucasus. *Phalangium opilio* Linnaeus, 1758, the most widely distributed species, has been imported to New Zealand (Snegovaya & Staręga 2009).

In Iraq, the opilionid fauna is poorly studied, as this group of arachnids has not received much attention from arachnologists. The first data on harvestmen in this country date back to the 1970s when Staręga (1970) described *Dicranolasma kurdistanum* Staręga, 1970, known only from the type locality in Erbil province, northern Iraq. Following the work of Staręga (1973), three more species of Opiliones were recorded in Iraq: *Rilaena hyrcana* (Thorell, 1876), *Rilaena gruberi* (Staręga, 1973) (Erbil Provinces) and *Opilio coxipunctus* (Sørenson, 1912) (Baghdad Province). From that time until 2020, no data on Opiliones from Iraq were published. Recently, Najim & Al-Fayyadh (2021) reported *Opilio kakunini* Snegovaya, Cokendolpher & Mozaffarian, 2018 from Dhi-Qar Province, southern Iraq. While studying arachnid material recently collected from Erbil, northern Iraq, several specimens of Opiliones belonging to the genus *Phalangium* were found and identified as *Phalangium punctipes* (L. Koch, 1878). This species and genus were not previously known from Iraq. Here we provide the first formal record of the genus and species from Iraq and an illustrated redescription of *Phalangium punctipes*. Additionally, we confirm the presence of six Opiliones species from Iraq and compare this list to the checklists of two nearby countries (Türkiye and Iran).

Azhar Mohammed AL-KHAZALI, Department of Science, College of Basic Education, University of Sumer, Dhi Qar, Iraq; E-mail: azhararach@gmail.com; https://orcid.org/0000-0001-7268-696X
Hamid Saeid KACHEL, Departments of Biology, Faculty of Science, University of Zakho, Zakho, Iraq;
E-mail: hamid.kachel@uoz.edu.krd; https://orcid.org/0000-0002-7231-8267

Academic editor: Petr Dolejš

submitted 14.8.2023, accepted 11.4.2024, online 14.6.2024

Material and methods

Specimens were collected by hand by the authors in the Kazanzan and Khalifan districts in Erbil province, northern Iraq (Fig. 1). Specimens are deposited in 75% ethanol at the Invertebrates Lab, College of Basic Education, University of Sumer, Dhi Qar province, southern Iraq (CBEUS). The specimens were studied and photographed using a Nikon camera connected to a stereomicroscope. All joints of the legs were measured. All dimensions are given in millimeters. The maps (Fig. 1) were made with Marble (https://marble.kde.org; software version: 0.8) or (Fig. 6) obtained from the website d-maps (https://d-maps.com/infos.php?lang=en) with slight modification.

Additionally, we reviewed the first data concerning Opiliones in Iraq, which can be found in the publications of Staręga (1970, 1973) and Najim & Al-Fayyadh (2021), comparing this with the checklists and recent papers published after those lists from Türkiye: Kurt (2014a, 2014b, 2015a, 2015b, 2015c, 2015d, 2018, 2022), Snegovaya et al. (2016), Çorak et al. (2017), Kurt et al. (2008a 2008b, 2015a, 2015b, 2023), Kurt & Koç (2021), Kurt & Erman (2015); and the most recent list for Iran by Snegovaya et al. (2021).

Abbreviations of specimen repositories

CBEUS: College of Basic Education, University of Sumer, Dhi Qar, Iraq.

Results

***Phalangium punctipes* (L. Koch, 1878)** Figs 2-5

Material examined. IRAQ: Erbil Province Kazanzan District, 36.217387°N, 44.177476°E, 920 m a.s.l.; 12. Mar. 2020, AMA leg., 3 ♀♀, 2 ♂♂, 2 juv. KMNH (Figs 1-2); Khalifan Dis-

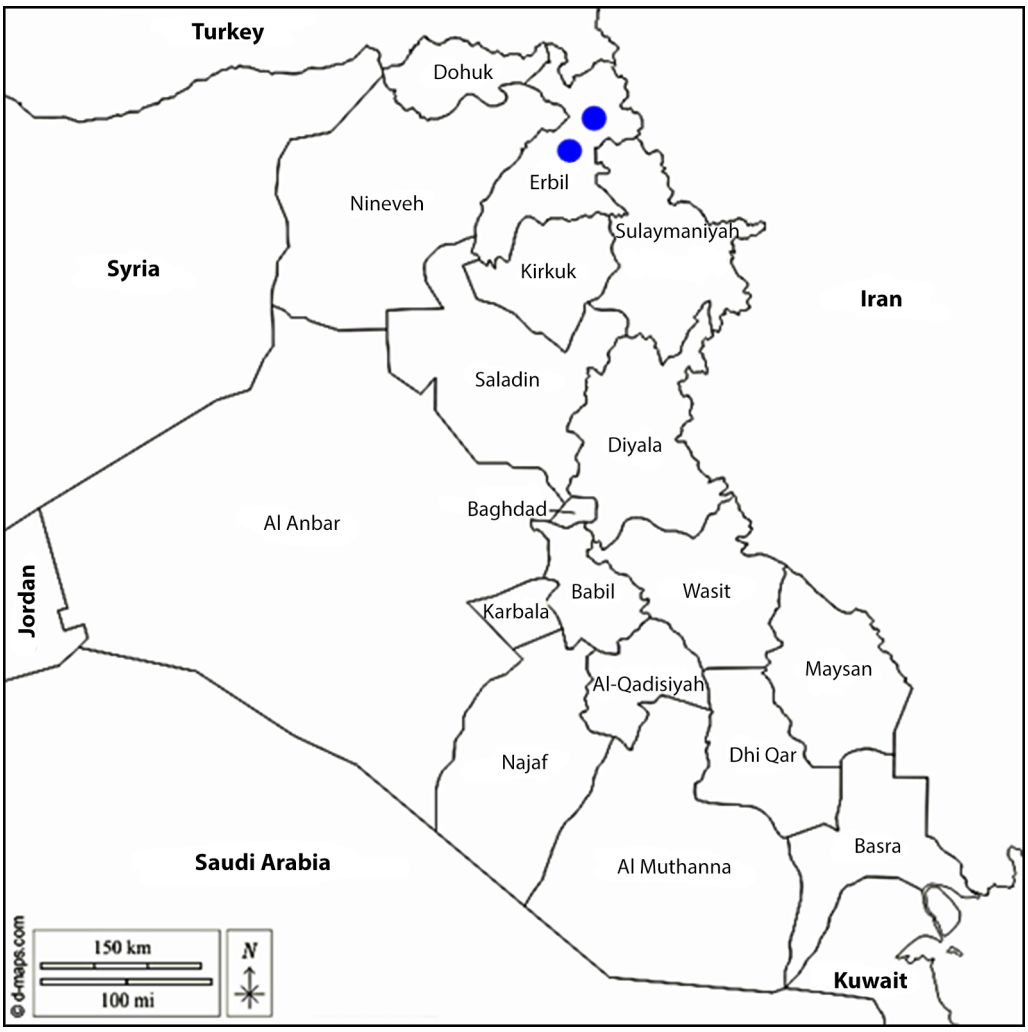

Fig. 1: Map of Iraq showing the collecting locality (circle) in Erbil province northern Iraq

trict, 36.599847°N, 44.373476°E, 920 m a.s.l., 13. Mar. 2020, AMA leg., 3 ♀♀, 1 ♂, KMNH (Fig. 3). The Kazanzan individuals were found at noon in the hills and valleys region near the Erbil Zoo, specifically on the left side of the main road linking Erbil, Koysanjak and Sulaymaniyah Provinces. Khalifan individuals were captured in the morning at the foot of a mountain located on the right side of the main road between the regions of Khalifan and Kalakin (closer to Khalifan).

Identification. *Phalangium punctipes* is a large-sized harvestman that can easily be identified by the structure of the chelicerae, which are large and solid, with a distal segment without an apophysis and fingers not curved, while the distal segment of the chelicerae in other species of the same genus is prominent and long. The species was identified based on the procedure described by Chemeris & Kovblyuk (2005) and Snegovaya (2014).

Description. Male. General appearance as in Fig. 4a-c. Measurements: Body length 7.93; width 4.84; Ocularium width 0.9; clypeus: 0.67; Prosoma length: 3.21; Chelicera, basal segment: 1.66, distal segment: 2.93; Penis, length: 3.19; width of base: 0.47. Legs: I 22.68 (5.64, 1.72, 4.36, 4.96, 6.0); II 31.89 (6.13, 1.70, 5.73, 6.62, 11.71); III 22.79 (5.51, 1.11, 3.70, 5.38, 7.09); IV 31.99 (6.05, 1.72, 4.62, 8.32, 11.28). Palps: femur 5.29; patella 1.48; tibia 2.51; tarsus 1.28. Femur long, dorsally with sparse denticles (Fig. 4d, e). Palp notably long (Fig. 4f, g). Chelicera is large and robust, yellowish with blackish–brown (zebra-like) stripes in the distal segment, and has a black finger (Fig. 4h, i). Penis as in Fig. 4j, k. **Female.** The general appearance is similar to that of the male, but the body is more elongated (Fig. 5a-c). Body length 8.2, width 4. Prosoma length 3.8. Ocularium (Fig. 5i) width 0.7. Chelicera (Fig. 5d-f): basal segment 0.92; distal segment 2; Legs, I 19.4 (4.3, 3.6, 0.9, 1.9, 8.7); II 28.85 (7.8, 4.3, 1.25, 4, 11.5); III 26.3 (6.6, 3. 4.8, 2, 9.9); IV 32.25 (5.6, 4.85, 1.1, 3.2, 17.5). Palp (Fig. 5g, h): trochanter 0.6 femur 1.7; patella 0.95; tibia 1; tarsus 1.7. In general, the colour pattern of the specimens presented here is completely identical to the specimens from Azerbaijan presented by Snegovaya (2014). For more details about the morphology of this species see Chemeris & Kovblyuk (2005).

Distribution. According to the available literature, this species was recorded from Ukraine (Roewer 1911, 1912, Staręga 1973, Chevrizov 1979, Chemeris & Kovblyk 2005), Russia (Staręga 1973), Azerbaijan (Staręga 1973, Snegovaya 2014), Armenia, Georgia (Staręga 1966, 1973), Ciscaucasia (Chevrizov 1979), Cyprus, Türkiye (Roewer 1911, 1912), Israel (Staręga 1973) and Iraq (this study) (Fig. 6). According to Roewer (1911), two specimens (male and female) were collected from Haifa [Syrian: 'Kaifa'], when the Syrian territories were included in Jordan, Lebanon and Palestine, but now Haifa does not belong to Syria. Therefore, we exclude Syria from the global distribution of *Phalangium punctipes*.

Fig. 2: Habitat of *Phalangium punctipes* (L. Koch, 1878) in Kazanzan District, Erbil Province, northern Iraq, 12. Mar. 2021. **a.** hills and grasslands with pine bushes about 7 km from Erbil Zoo; **b.** sampling the specimens from above the grass; **c.** live specimen (male). Photographs by A. M. Al-Khazali

Fig. 3: Habitat of *Phalangium punctipes* (L. Koch, 1878) in Khalifan District, Erbil Province, northern Iraq, 12. Mar. 2021. **a.** mountainside, on the right side of the main road between Khalifan and Kalakin; **b.** sampling the specimens from among the rocks; **c.** live specimen (female). Scale bars = 1 mm. Photographs by A. M. Al-Khazali

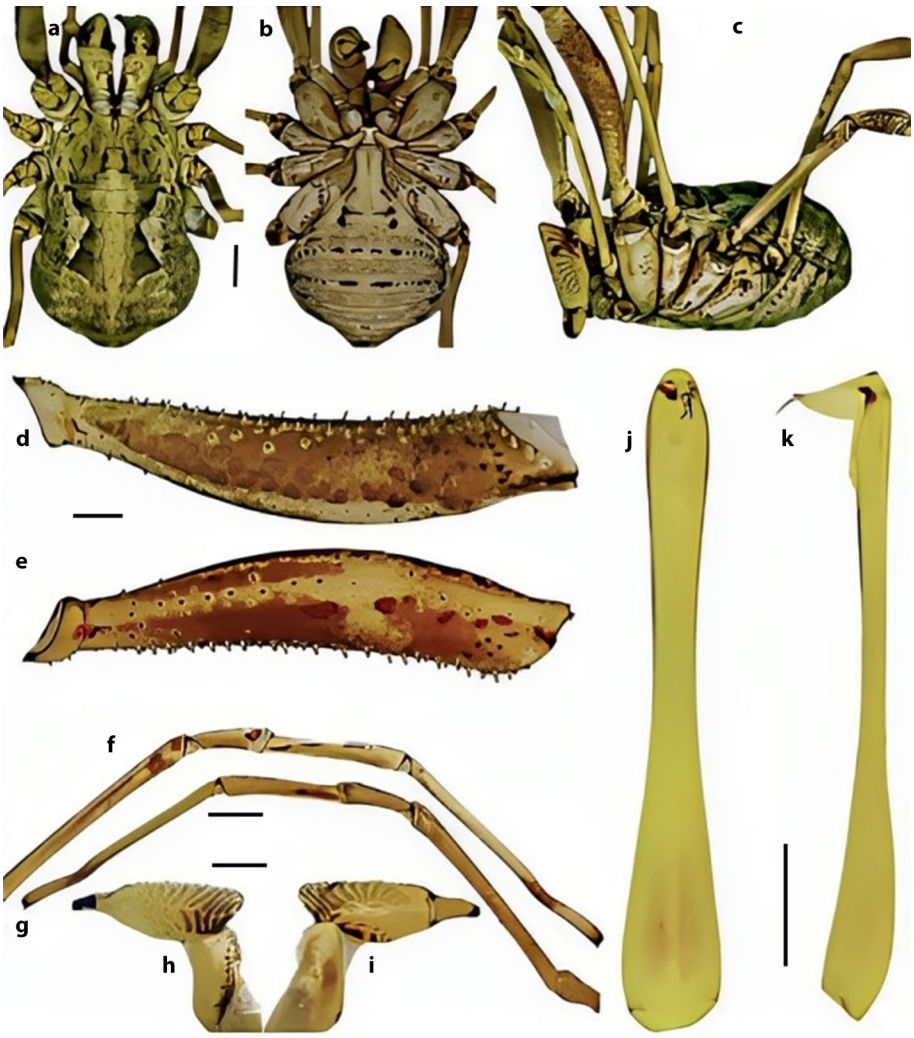

Fig. 4: Male of *Phalangium punctipes* (L. Koch, 1878). **a.** habitus, dorsal view; **b.** ventral view; **c.** lateral view; **d.** femur I prolateral view; **e.** retrolateral view; **f, g.** pedipalp, lateral view; **h, i.** chelicerae, lateral view; **j.** penis, dorsal view; **k.** penis, lateral view. Scale bars = 1 mm. Photographs by A. M. Al-Khazali

Habitat. At the first location, a valley in the Kaznazan district, the specimens were collected from among stones and above the grass. At the time of sampling, the highlands (hills) were thriving with *Pinus brutia* and *Eucalyptus* sp. trees, while the lowlands (plains) were characterized by an abundance of seasonal weeds (Figs 2, 3). Samples were collected at the second location, which is at the foot of a mountain on the sides of the main road connecting the Khalifan and Shaqlawa regions, during the rainy season. At the time of sampling, this ecosystem was characterized by its abundance of grass, boulders and stones. While it was raining, the samples were taken in the middle of the day. We discovered the species under the rocks and on trees. Based on our sampling, it seems that this species prefers open areas, such as arable lands and meadows.

The revised Opiliones checklist of two neighboring countries, Iran and Türkiye

The first checklist of the fauna of Turkish harvestmen was published by Bayram et al. (2010) and included a list of 50 species from eight genera and six families. In the same year, Kurt et al. (2010) added to that checklist 11 species and three subspecies, belonging to eight genera. The checklist was then updated by Kurt (2014a), who added 27 species and 7 subspecies. According to the published literature, only 17 species have been reported between that period and the present, nine of which were new to science, namely: *Graecophalangium anatolicum* Kurt, 2022 (Kurt 2022); *Homolophus snegovayae* Kurt, 2015 (Kurt 2015a); *Mediostoma izmirica*, Snegovaya, Yağmur & Kurt, 2016 (Snegovaya et al. 2016); *Microliobunum erseni* Kurt, 2018 (Kurt 2018); *Paranemastoma karolianus* Çorak, Bayram, Yiğit & Sancak, 2017 (Çorak et al. 2017); *Rafalskia azizsancari* Kurt, Yağmur & Tezcan, 2019 (Kurt et al. 2019); *Rilaena artvinensis* Kurt, 2015 and *Rilaena ermani* Kurt, 2015 (Kurt 2015b, 2015c); *Zachaeus seyyari* Kurt, Koç and Yağmur, 2015 (Kurt et al. 2015a), and eight recorded for the first time in this country: *Homolophus nakhichevanicus* Snegovaya, 2012 (Kurt 2014); *Lacinius insularis* Roewer, 1923 (Kurt & Yağmur 2019); *Mediostoma haasi* (Roewer, 1953) and *Phalangium armatum* Snegovaya, 2005 (Kurt et al. 2015b); *Opilio silvestris* Snegovaya, 2010 (Kurt & Koç 2021); *Rilaena triangularis* (Herbst, 1799) (Kurt & Erman 2021); *Rilaena zakatalica* Snegovaya & Chemeris, 2005 (Kurt 2015c); *Vestiferum funebre* (Redikortsev, 1936) (Kurt 2015d). It should be noted that despite the short time (four years) between the first reference list and its update by Kurt (2014), almost half of the previously known species from Türkiye (27 species) were added. In contrast, we only included less than half of the species number added to the updated list (17 species), even though it's been nine years since the last update.

Harvestmen species in Iran represent only a quarter of the number known from Türkiye. The first comprehensive information on the detailed number of this group of arachnids in Iran goes back to studies by Snegovaya et al. (2018) and Cokendolpher et al. (2019), in which 22 species and nine

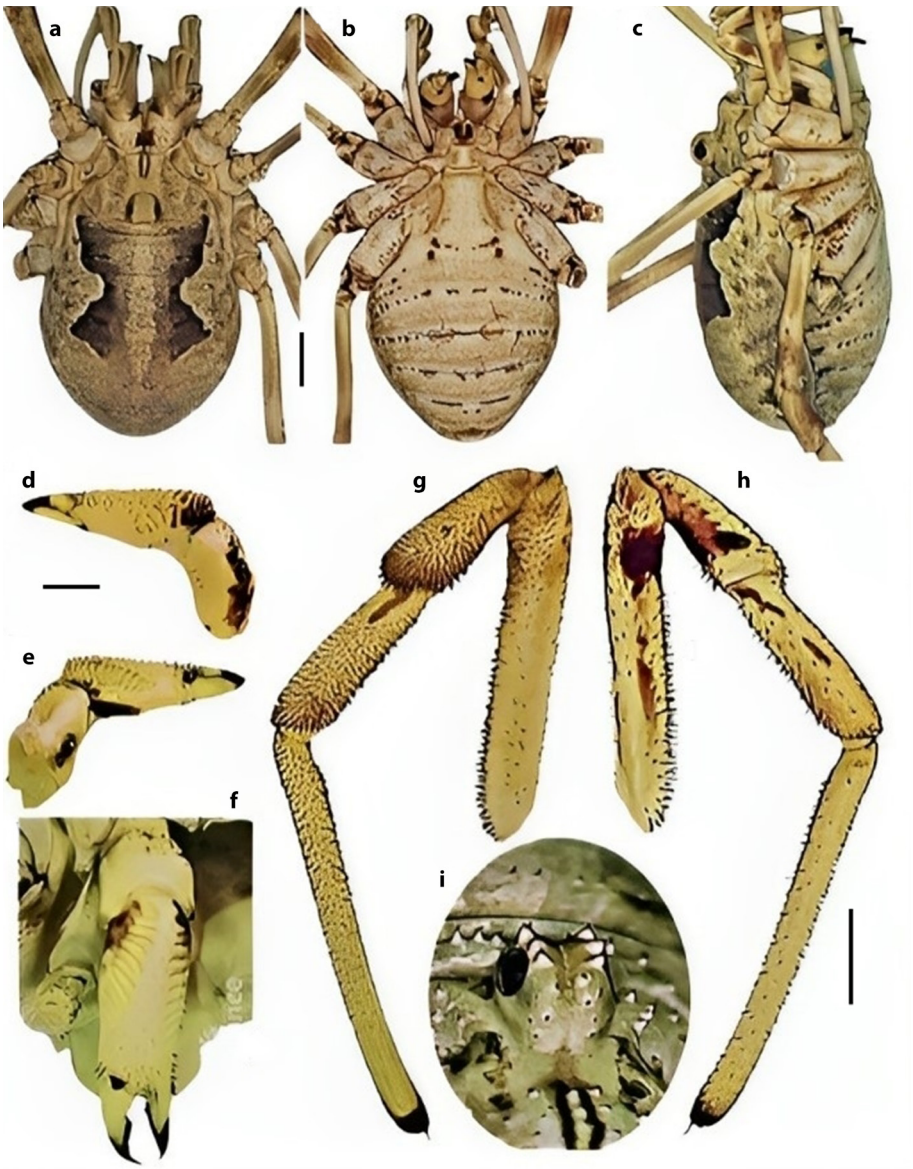

Fig. 5: Female of *Phalangium punctipes* (L. Koch, 1878). **a.** habitus, dorsal view; **b.** ventral view; **c.** lateral view; **d, e, f.** chelicerae, lateral view, dorsal view; **g, h.** pedipalp, lateral view; **i.** ocularium, front view. Photographs by A. M. Al-Khazali

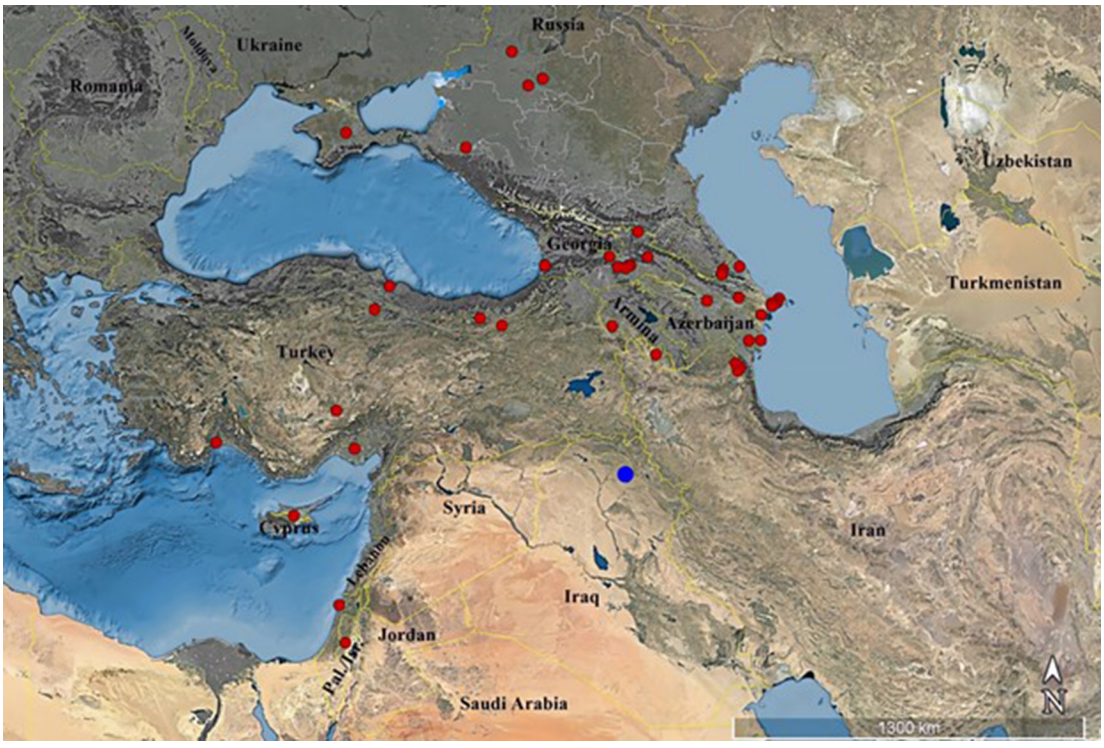

Fig. 6: Map showing the known global distribution of *Phalangium punctipes* (L. Koch, 1878) (red dots), including first records from Iraq (blue dot)

genera within four families were listed. Two years later, only one further contribution to the harvestmen of Iran had been published by Snegovaya et al. (2021), in which two new species were described: *Homolophus airyamani* and *Phalangium martensi*. Four species were also recorded for the first time, namely: *Calathocratus caucasicus* (Šilhavý, 1966); *P. armenicum* Tchemeris, 2012; *P. staregai* Snegovaya, 2005; *Rilaena kasatkini* Snegovaya, Cokendolpher & Mozaffarian, 2018, as well as five previously known species from Iran. Accordingly, the number increased to 28 species in six families of Opiliones known so far from Iranian territory.

Omitted records and unproven species from the checklist of Turkish harvestmen

Family Dicranolasmatidae

***Dicranolasma opilionoides* (L. Koch, 1867)**

Comment. This is an exclusively West Mediterranean species; with no records in the eastern part. See Martens (1978: 159). **Omitted herein.**

***Dicranolasma scabrum* (Herbst, 1799)**

Comment. This species is east European and northern Balkan. No proven records from Türkiye. See Martens (1978: 153-157). **Omitted herein.**

Family Ischyropsalididae

***Ischyropsalis hellwigii hellwigii* (Panzer, 1794)**

Comment. This record is questionable and unrealistic; the subspecies occurs in central Europe southeastwards to the northern Balkans. No *Ischyropsalis* species has ever been reliably recorded in Türkiye. See Martens (1978: 190-194). Schönhofer (2024) provided an updated and detailed map of *Ischyropsalis* distribution. **Omitted herein.**

Family Nemastomatidae

***Histricostoma creticum* (Roewer, 1927)**

Comment. This species is an endemic of the island of Crete, Greece. In Türkiye, similar species occur. By comparing the illustrations of both the penis tip and cheliceral apophyses in Martens (1999) with those in Snegovaya & Marusik (2012), we find that they are different from each other. Moreover, the latter indicates no spur in the palpal femur in *H. creticum*. We treat this record as a erroneous determination. **Omitted herein**.

***Paranemastoma ferkeri* Roewer, 1951**

Comment. This is one of the *Paranemastoma* species which are not identifiable due to its insufficient first description. Its origin is unknown and no current faunal list includes this species. See Schönhofer (2013). **Omitted herein.**

***Paranemastoma silli* (Hermann, 1871)**

Comment. This species is confined to the Carpathians in Eastern Europe; no reliable records in Türkiye are possible. See Martens (1978: 126-128). **Omitted herein.**

Family Phalangiidae

***Lacinius ephippiatus* (C. L. Koch, 1835)**

Comment. A central European species distributed southeastwards to the central Balkans. Records in Türkiye are not confirmed. See Martens (1978). **Omitted herein.**

***Lacinius insularis* Roewer, 1923**

Comment. No male genitalia have ever been depicted in the literature after publishing the records from Crete, and details of this population are still open to discussion. The statement of Martens (1978: 325) is still valid. Consequently, it is unproven whether the Turkish material belongs to *L. insularis*. Thus, we suggest mentioning the Turkish record as *Lacinius* sp. (Unproven species).

***Metaplatybunus petrophilus* Martens, 1965**

Comment. This species was described from Karpathos Island, Greece (Martens 1965). The Turkish record cannot be verified without comparative material and the illustrations provided by Bayram et al. (2010) are not sufficient for identification. It would be necessary to re-examine the material and provide more clarifying details to confirm this record. **Omitted herein.**

***Mitopus morio* (Fabricius, 1779)**

Comment. This species is widespread in the northern Palearctic, but does not occur in the Mediterranean area and the Near East (Martens 1978). It was added as a new record to the Turkish fauna by Kurt et al. (2008b). The material collected from Niğde province, southeastern central Anatolia region, contained only six females. A rough penis drawing is of unrecorded origin, because no male was indicated in the material record section. So, this record is doubtful. **Omitted herein.**

***Oligolophus hansenii* (Kraepelin, 1896)**

Comment. This is a central and north European species; all records for Türkiye are based on erroneous determinations. See Martens (1978). **Omitted herein.**

***Oligolophus tridens* (C. L. Koch, 1836)**

Comment. This is a central European species reaching to the Southern Alps; all mentions for Türkiye are incorrect determinations. See Martens (1978). **Omitted herein.**

***Opilio dinaricus* Šilhavý 1938**

Comment. This is a central European species reaching to the northern Balkans; there are no reliable records in Türkiye. See Martens (1978). **Omitted herein.**

***Rafalskia olympica bulgarica* Staręga, 1963**

Comment. Based on its known distribution, an occurrence of *R. o. bulgarica* in Türkiye is highly unlikely. **Omitted herein.**

***Rilaena triangularis* (Herbst, 1799)**

Comment. This is a central European species living in the region influenced by an Atlantic climate. Most likely, all mentions for Türkiye are incorrect determinations. See Martens (1978). **Omitted herein.**

Family Sclerosomatidae

***Leiobunum rotundum* (Latreille, 1798)**

Comment. This is a central and southwest European species. Most likely, all mentions for Türkiye are erroneous determinations. See Martens (1978). **Omitted herein.**

***Leiobunum rupestre* (Herbst, 1799)**

Comment. This is a central European species confined to the Alps and a few adjoining mountains in the north. See Martens (1978) and Martens & Schönhofer (2016). **Omitted herein.**

Family Trogulidae

***Calathocratus rhodiensis* (Gruber, 1963)**

Comment. This species is endemic to the island of Rhodos, Greek Aegean (Martens 1965). Records from Türkiye are neither reliable and nor are they sufficiently documented. *Calathocratus* is a taxonomically extremely 'difficult' genus, and only detailed morphological and genetic analyses drawing on

comparative material can provide sound systematics (Schönhofer & Martens 2010). **Omitted herein.**

***Calathocratus singularis* (Roewer, 1940)**

Comment. *Calathocratus singularis* is endemic to Crete. There are no reliable records from Türkiye. For further details, see Shönhofer & Martens (2010). **Omitted herein.**

***Trogulus gypseus* Simon, 1879**

Comment. The type locality is in Egypt; once mentioned for the island of Karpathos, Aegean Sea (but probably erroneous; see Martens 1965), as well as a one cf. identification in Schönhofer & Martens (2010). This is a large species, and a number of such harvestmen occur also in Türkiye, but belong to different species. No proof of its distribution in Türkiye. **Omitted herein.**

***Trogulus tricarinatus* (Linnaeus, 1758)**

Comment. This is a central European and northern Balkan species. Occurrences in Türkiye may be possible in the European part, but are not proven. Different, but similar, species of this group occur in SE Europe. See Martens (1978: 164-168). **Omitted herein.**

In Tab. 1, we summarized the number of species of harvestmen for two of the most studied countries neighboring Iraq for this group of arachnids, i.e., Iran and Türkiye, in order to clarify the difference in the number of species between Iraq and these countries and between Iran and Türkiye on the other hand. This does not mean that the lists presented here are final or complete. Of course, the number will change with increasing contributions and the survey of a larger number of different regions of these countries by local researchers or others.

Tab. 1: Checklist of the harvestmen (Opiliones) known from the Iraq compared with two neighboring countries, Iran and Türkiye. Symbols: (+) present, (–) absent species

Family/Species	Iraq	Iran	Türkiye
Family Biantidae			
Biantes sp.	–	+	–
Family Dicranolasmatidae			
Dicranolasma giljarovi Šilhavý, 1966	–	–	+
Dicranolasma hoberlandti Šilhavý, 1956	–	–	+
Dicranolasma kurdistanum Staręga, 1970	+	–	–
Dicranolasma ponticum Gruber, 1998	–	+	+
Dicranolasma ressli Gruber, 1998	–	–	+
Family Nemastomatidae			
Giljarovia tenebricosa (Redikorzev, 1936)	–	–	+
Giljarovia turcica Gruber, 1976	–	–	+
Histricostoma caucasicum (Redikorzev, 1936)	–	–	+
Histricostoma dentipalpe (Ausserer, 1867)	–	–	+
Histricostoma gruberi Snegovaya & Marusik, 2012	–	–	+
Histricostoma mitovi Snegovaya & Marusik, 2012	–	–	+
Histricostoma anatolicum (Roewer, 1962)	–	–	+
Mediostoma armatum Martens, 2006	–	+	–
Mediostoma izmirica Snegovaya, Yağmur & Kurt, 2016	–	–	+
Mediostoma ceratocephalum Gruber, 1976	–	–	+
Mediostoma haasi (Roewer, 1953)	–	–	+
Mediostoma nigrum Martens, 2006	–	+	–
Mediostoma stussineri (Simon, 1885)	–	–	+
Mediostoma variabile Martens, 2006	–	+	–
Mitostoma gracile (Redikorzev, 1936)	–	–	+
Nemastoma bidentatum sparsum Gruber & Martens, 1968	–	–	+
Paranemastoma aurigerum aurigerum (Roewer, 1951)	–	–	+
Paranemastoma filipes (Roewer, 1919)	–	+	–
Paranemastoma iranicum Martens, 2006	–	+	–
Paranemastoma kalischevskyi (Roewer, 1951)	–	–	+
Paranemastoma karolianus Çorak, Bayram, Yiğit & Sancak, 2017	–	–	+
Paranemastoma radewi (Roewer, 1926)	–	–	+
Paranemastoma superbum Redikorzev, 1936	–	–	+
Paranemastoma werneri (Kulczyński, 1903)	–	–	+
Pyza anatolica (Roewer, 1959)	–	–	+
Pyza taurica Gruber, 1979	–	–	+
Vestiferum alatum Martens, 2006	–	–	+
Vestiferum funebre (Redikortsev, 1936)	–	–	+
Family Phalangiidae			
Buresilia macrina (Roewer, 1956)	–	–	+
Buresilia nigerrimus (Roewer, 1956)	–	–	+
Dasylobus beschkovi (Staręga, 1976)	–	–	+
Dasylobus eremita Simon, 1878	–	–	+
Dasylobus kulczynskii Nosek, 1905	–	–	+
Egaenus amanensis (Simon, 1884)	–	–	+
Egaenus convexus (C. L. Koch, 1835)	–	–	+
Egaenus turcicus Snegovaya & Marusik, 2012	–	–	+
Egaenus oedipus (Thorell, 1876)	–	+	–
Graecophalangium anatolicum Kurt, 2022	–	–	+
Graecophalangium marenzelleri (Nosek, 1905)	–	–	+
Graecophalangium turcicum Mitov, 2009	–	–	+
Homolophus funestus L. Koch, 1877	–	–	+
Homolophus nakhichevanicus Snegovaya, 2012	–	–	+
Homolophus snegovayae Kurt, 2015	–	–	+
Homolophus turcicum (Roewer, 1959)	–	–	+
Lacinius sp.	–	–	+
Metaphalangium cirtanum (C. L. Koch, 1839)	–	–	+
Metaphalangium punctatus (Roewer, 1956)	–	–	+
Metaphalangium strandi (Nosek, 1905)	–	–	+
Metaplatybunus filipes Roewer, 1956	–	–	+
Metaplatybunus grandissimus (C. L. Koch, 1839)	–	–	+
Odiellus lendli (Sørensen, 1894)	–	–	+
Odiellus zecariensis Mkheidze, 1952	–	–	+
Opilio nabozhenkoi Snegovaya, 2010	–	+	–
Opilio afghanus Roewer, 1960	–	+	–
Opilio coxipunctus (Sørensen, 1912)	+	+	+
Opilio ejuncidus (Thorell, 1876)	–	+	–
Opilio dinaricus Šilhavý, 1938	–	+	–
Opilio insulae Roewer, 1956	–	–	+
Opilio hemseni Roewer, 1952	–	+	+
Opilio lederi Roewer, 1911	–	+	+

Family/Species	Iraq	Iran	Türkiye
Opilio kakunini Snegovaya, Cokendolpher & Mozaffarian, 2018	+	+	–
Opilio parietinus (De Geer, 1778)	–	+	+
Opilio saxatilis C. L. Koch, 1839	_	–	+
Opilio silvestris Snegovaya, 2010	_	–	+
Opilio validus Roewer, 1959	–	–	+
Phalangium armatum Snegovaya, 2005	–	+	+
Phalangium armenicum Tchemeris, 2012	–	+	–
Phalangium kopetdaghensis Tchemeris & Snegovaya, 2010	–	+	–
Phalangium martensi Snegovaya, Cokendolpher & Zamani, 2021	–	+	–
Phalangium nalanae Kurt, Erdek & Kurt, 2023	–	–	+
Phalangium opilio Linnaeus, 1761	–	–	+
Phalangium punctipes (C. L. Koch, 1878)	+	–	+
Phalangium savignyi Audouin, 1826	–	–	+
Phalangium staregai Snegovaya, 2005	–	+	–
Phalangium taylani Kurt, Erdek & Kurt, 2023	–	–	+
Phalangium yuriysnegovoyi Snegovaya, 2022	–	–	+
Platybunoides argaea Šilhavý, 1956	–	–	+
Metaplatybunus hypanicus Šilhavý, 1966	–	–	+
Rafalskia azizsancari Kurt, Yağmur & Tezcan, 2019	–	–	+
Rafalskia cretica (Roewer, 1923)	–	–	+
Rafalskia olympica olympica (Kulczyński, 1903)	–	–	+
Rilaena anatolica (Roewer, 1956)	–	–	+
Rilaena ermani Kurt, 2015	–	–	+
Rilaena artvinensis Kurt, 2015	–	–	+
Rilaena atrolutea (Roewer, 1915)	–	+	–
Rilaena buresi (Šilhavý, 1965)	–	–	+
Rilaena gruberi Staręga, 1973	+	–	+
Rilaena hyrcana (Thorell, 1876)	+	–	–
Rilaena kasatkini Snegovaya, Cokendolpher & Mozaffarian, 2018	–	+	–
Rilaena lenkoranica Snegovaya, 2007	–	+	–
Rilaena pusilla (Roewer, 1952)	–	+	–
Rilaena zakatalica Snegovaya & Chemeris, 2005	–	–	+
Zachaeus anatolicus (Kulczyński, 1903)	–	–	+
Zachaeus crista (Brullé, 1832)	–	–	+
Zachaeus hebraicus (Simon, 1884)	–	–	+
Zachaeus orchimonti (Giltay, 1933)	–	–	+
Zachaeus redikorzevi (Staręga & Chevrizov, 1978)	–	–	+
Zachaeus seyyari Kurt, Koç & Yağmur, 2015	–	–	+
Family Sclerosomatidae			
Goasheer iranus (Roewer, 1952)	–	+	–
Leiobunum anatolicum Roewer, 1957	–	–	+
Leiobunum lindbergi Roewer, 1959	–	–	+
Leiobunum ghigii Di Caporiacco, 1929	–	–	+
Leiobunum seriatum Simon 1878	–	–	+
Microliobunum erseni Kurt, 2018	–	–	+
Nelima pontica Charitonov, 1941	–	–	+
Family Sironidae			
Siro duricorius bithynicus Gruber, 1969	–	–	+
Siro duricorius yalovensis Gruber, 1969	–	–	+
Family Trogulidae			
Calathocratus beieri Gruber, 1968	–	–	+
Calathocratus caucasicus (Šilhavý, 1966)	–	+	+
Trogulus cf. *graecus* Dahl, 1903	–	–	+
Trogulus uncinatus Gruber, 1969	–	–	+

Discussion

According to our most recent findings and earlier records, only six species of Opiliones from four genera and two families have been identified from Iraq so far. This is significantly less than in Türkiye with 89 species, three subspecies and 31 genera in seven families (current study), and Iran with 28 species in six families (Snegovaya et al. 2021). *Phalangium punctipes* was expected in Iraq because it has already been recorded in two neighboring countries, namely Syria and Türkiye (Chemeris & Kovblyuk 2005). The other five Opiliones species, including *Dicranolasma kurdistanum* Staręga, 1970 and *Rilaena hyrcana* (Thorell, 1876), have not been found in Türkiye or Iran, however *Opilio coxipunctus* (Srensen, 1922) has been found in both countries. *Rilaena gruberi* Staręga, 1973, was only recorded in Türkiye, while *Opilio kakunini* Snegovaya et al., 2018, only had known records from Iran.

Our data clearly documents how poorly the Opiliones of Iraq are known. There are no data available about harvestmen from more than two-thirds of the country. Even the places where data are available were not thoroughly investigated. We anticipate a rise in the number of Opiliones in Iraq as a result of further research and collecting of fresh material from locations that have not yet been researched, especially given the relatively high numbers of harvestmen reported from Türkiye and Iran. For the purpose of providing thorough information and understanding about the Iraqi Opiliones fauna, more research work is necessary.

Acknowledgements

We would like to extend our special thanks to Dr. Nataly Snegovaya (National Academy of Sciences of Azerbaijan) for confirming the species identification (*P. punctipes*). Special thanks to our colleague Dr. Alireza Zamani for providing us with the latest checklist of Iranian harvestmen. Our thanks to our colleague Ayoub Ibrahim Ahmed (Erbil Polytechnic University, Kurdistan Iraq) for helping us collect samples and travel during the field trip. We would like to express our gratitude to the editor and anonymous reviewers of the Arachnologische Mitteilungen for their insightful guidance and recommendations on the manuscript.

References

Bayram A, Çorak İ, Danışman T, Sancak Z & Yigit N 2010 Checklist of the harvestmen of Turkey (Arachnida: Opiliones). – Munis Entomology and Zoology 5: 563-585

Chemeris AN & Kovblyuk MM 2005 A contribution to the knowledge of the harvestman fauna of the Crimea (Arachnida: Opiliones). – Arthropoda Selecta 14: 305-328

Chevrizov BP 1979 The short-form finder harvest-spiders (Opiliones) in the European part of the USSR. Fauna iekologiya paukoobraznykh. – Trudy Zoologicheskogo Institute AN SSSR 85: 4-27

Cokendolpher J & Robert GH 2018 Harvestmen of the family Phalangiidae (Arachnida, Opiliones) in the Americas. – Special Publications of the Museum of Texas Tech University 67: 1-44 – doi: 10.5962/bhl.title.156873

Cokendolpher J, Zamani A & Snegovaya NY 2019 Overview of arachnids and arachnology in Iran. – Journal of Insect Biodiversity and Systematics 5: 301-367 – doi: 10.52547/jibs.5.4.301
Çorak I, Bayram A, Danışman T, Sancak Z & Yigit N 2010 Checklist of the harvestmen of Turkey (Arachnida: Opiliones). – Munis Entomology and Zoology 5: 563-585
Çorak İ, Bayram A, Yiğit N & Sancak Z 2017 Morphological study on a new opilionid species recorded from Turkey: *Paranemastoma karolianus* sp. n. (Opiliones: Nemastomatidae). – Korean Journal of Applied Entomology 56 (3): 241-247 – doi: 10.5656/KSAE.2017.03.1.052
Kurt K 2014a Updated checklist of harvestmen (Arachnida: Opiliones) in Turkey. – Archives of Biological Sciences 66: 1617-1631 – doi: 10.2298/ABS1404617K
Kurt K 2014b New record of the genus *Homolophus* (Opiliones: Phalangiidae) in Turkey and SEM studies on its morphology. – Florida Entomologist 97: 406-413 – doi: 10.1653/024.097.0210
Kurt K 2015a A new species of the genus *Homolophus* (Opiliones, Phalangiidae) from Turkey. – Entomological News 124: 310-319 – doi: 10.3157/021.124.0502
Kurt K 2015b A new species of the harvestmen genus *Rilaena* (Opiliones: Phalangiidae) from Turkey. – Zoology in the Middle East 61: 179-183 – doi: 10.1080/09397140.2015.1008191
Kurt K 2015c A new species and a new record of the genus *Rilaena* Šilhavý, 1965 (Opiliones: Phalangiidae) from Turkey. – Entomological News 124: 345-353 – doi: 10.3157/021.124.0507
Kurt K 2015d Contributions to the knowledge of the genus *Vestiferum* Martens, 2006 (Opiliones: Nemastomatidae) from Turkey. – Entomological News 125: 24-32 – doi: 10.3157/021.125.0106
Kurt K 2018 A new species of the genus *Microliobunum* from Turkey (Opiliones, Sclerosomatidae). – Turkish Journal of Zoology 42: 389-393 – doi: 10.3906/zoo-1710-26
Kurt K 2022 A new species of the harvestman genus *Graecophalangium* (Opiliones: Phalangiidae) from Turkey. – Zoology in the Middle East 68 (1): 81-85 – doi: 10.1080/09397140.2022.2034306
Kurt K, Demir H, Seyyar O & Topcu A 2008a Some harvestmen records (Arachnida: Opiliones) from Niğde Province of Turkey. – Serket 11: 2-6
Kurt K, Babaşoğlu A, Seyyar O, Demir H & Topçu A 2008b New faunistic records for the Turkish harvestmen fauna (Arachnida: Opiliones). – Munis Entomology & Zoology 3: 654-660
Kurt K & Erman ÖK 2015 Harvestmen fauna of Gümüshane and Bayburt in Turkey (Arachnida, Opiliones). – Spixiana 38: 29-38
Kurt K, Eman K, Demir H & Seyyar O 2010 The Turkish harvestmen (Opiliones) with zoogeographical remarks. – Serket 12: 33-44
Kurt K, Erdek M & Kurt P 2023 Two new species of *Phalangium* (Opiliones: Phalangiidae) from Turkey. – Zootaxa 5360: 429-436 – doi: 10.11646/zootaxa.5360.3.6
Kurt K & Koç H 2021 A new harvestmen record from Turkey: *Opilio silvestris* Snegovaya, 2010 (Opiliones: Phalangiidae). – Arthropods 10: 34-37
Kurt K, Koç H & Yağmur EA 2015a A new species of *Zachaeus* C. L. Koch from Turkey (Opiliones, Phalangiidae). – ZooKeys 514: 15-23 – doi: 10.3897/zookeys.514.9545
Kurt K, Koç H & Yağmur EA 2015b Two new records for Turkish harvestmen fauna (Arachnida: Opiliones). – Entomological News 125: 127-135 – doi: 10.3157/021.125.0206
Kurt K & Yağmur EA 2019 Redescription and new record of the harvestman *Lacinius insularis* Roewer, 1923 (Opiliones: Phalangiidae) from Turkey. – Entomological News 128: 243-249 – doi: 10.3157/021.128.0304
Kurt K, Yağmur EA & Tezcan E 2019 *Rafalskia azizsancari* sp. n., a new harvestman (Opiliones: Phalangiidae) from Turkey. – Entomologica Fennica 30: 28-32 – doi: 10.33338/ef.79903
Kury AB 2012 A synopsis of catalogs and checklists of harvestmen (Arachnida, Opiliones). – Zootaxa 3184: 35-58 – doi: 10.11646/zootaxa.3184.1.2
Kury AB, Mendes AC, Cardoso L, Kury MS & Granado A 2020 WCO-Lite: online world catalogue of harvestmen (Arachnida, Opiliones). Version 1.0. – Checklist of all valid nomina in Opiliones with authors and dates of publication up to 2018. Self-published, Rio de Janeiro. 237 pp.
Martens J 1965 Über südägäische Weberknechte der Inseln Karpathos, Rhodos und Kos (Arachnoidea, Opiliones). – Senckenbergiana biologica 46: 61-79
Martens J 1966 Zoologische Aufsammlungen auf Kreta. III. Opiliones. – Annalen des Naturhistorischen Museums Wien 69: 347-382
Martens J 1978 Spinnentiere, Arachnida: Weberknechte, Opiliones. Die Tierwelt Deutschlands 64. Gustav Fischer, Jena. 464 pp.
Martens J & Schönhofer AL 2016 The *Leiobunum rupestre* group: resolving the taxonomy of four widespread European taxa (Opiliones: Sclerosomatidae). – European Journal of Taxonomy 216: 1-35 – doi: 10.5852/ejt.2016.216
Mitov P 2007 Spatial Niches of Opiliones (Arachnida) from Vitosha Mountains, Bulgaria. In: Fet V & Popov A (eds) Biogeography and Ecology of Bulgaria. Monographiae Biologicae 82. Springer, Dordrecht. pp. 423-446 – doi: 10.1007/978-1-4020-5781-6_13
Najim S & Al-Fayyadh M 2021 First record of *Opilio kakunini* Snegovaya, Cokendolpher & Mozaffarian, 2018 (Arachnida, Ppiliones, Phalangiidae) from Iraq. – Bulletin of the Iraq Natural History Museum 16: 283-290 – doi: 10.26842/binhm.7.2021.16.3.0283
Roewer W 1911 Übersicht der Genera der Subfamilie der Phalangiini der Opiliones Palpatores nebst Beschreibung einiger neuer Gattungen und Arten. – Archiv für Naturgeschichte 77 (1, suppl. 2): 1-106
Roewer W 1912 Revision der Opiliones Palpatores (= Opiliones Plagiostethi). II. Teil: Familie der Phalangiidae. (Subfamilien: Sclerosomini, Oligolophini, Phalangiini). Abhandlungen aus dem Gebiete der Naturwissenschaften, herausgegeben vom Naturwissenschaftlichen Verein in Hamburg 20: 1-295
Schönhofer AL 2013 A taxonomic catalogue of the Dyspnoi Hansen and Sørensen, 1904 (Arachnida: Opiliones). – Zootaxa 3679: 1-68 – doi: 10.11646/zootaxa.3679.1.1
Schönhofer AL 2024 Distribution of the genus *Ischyropsalis*. – Internet: http://axelschoenhofer.weebly.com/ischyropsalis-distribution.html (5. Jan. 2024)
Schönhofer AL & Martens J 2010 Hidden Mediterranean diversity: Assessing species taxa by molecular phylogeny within the opilionid family Trogulidae (Arachnida, Opiliones). – Molecular Phylogenetics and Evolution 54: 59-75 – doi: 10.1016/j.ympev.2009.10.013
Snegovaya NY 2014 Survey of the genus *Phalangium* Linnaeus, 1758 (Phalangiidae: Opiliones) from the Caucasus with description of two new species. – Fragmenta Faunistica 57: 1-19
Snegovaya NY, Cokendolpher JC & Mozaffarian F 2018 The Opiliones of Iran with a description of a new genus and two new species. – Journal of Arachnology 46: 69-80 – doi: 10.1636/JoA-S-17-016.1
Snegovaya NY, Cokendolpher J & Zamani A 2021 Further studies on harvestmen (Arachnida: Opiliones) from Iran, with the descriptions of two new species. – Zootaxa 4984: 73-86 – doi: 10.11646/zootaxa.4984.1.7
Snegovaya NY, Kurt K & Yağmur EA 2016 *Mediostoma izmirica* sp. nov.: a new harvestman species (Arachnida, Opiliones, Nemastomatidae) from Turkey. – Turkish Journal of Zoology 40: 489-498
Snegovaya NY & Staręga W 2009 *Taurolaena*, a new genus of Phalangiidae (Opiliones). – Revista Ibérica de Aracnologia 17: 37-44
Staręga W 1966 Beitrag zur Kenntnis der Weberknecht-Fauna (Opiliones) der Kaukasusländer. – Annales Zoologici, Warszawa 23: 387-411
Staręga W 1970 Eine neue *Dicranolasma*-Art aus Irak, (Opiliones, Trogulidae). – Bulletin de l'Académie Polonaise des Sciences, Varsovie, Cl. II, Série des Sciences Biologiques 18: 475-477
Staręga W 1973 Beitrag zur Kenntnis der Weberknechte (Opiliones) des Nahen Ostens. – Annales Zoologici, Warszawa 30: 129-153