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The Opiliones of Iran with a description of a new genus and two new species

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Abstract. The 22 species of Opiliones recorded from Iran are known from four families: one species of Dicranolasmatidae, five species of Nemastomatidae, 15 species of Phalangiidae, and a single species of Sclerosomatidae. Five of these are recorded for the first time from the country: *Dicranolasma ponticum* Gruber, 1998, *Opilio nabozhenkoi* Snegovaya, 2010, *Phalangium armatum* Snegovaya, 2005, *Phalangium kopetdaghensis* Tchemeris & Snegovaya, 2010, and *Graecophalangium karakalensis* Tchemeris & Snegovaya, 2010. An additional unnamed *Rilaena* species is known from the literature, but not included in the total number of species from the country. One new genus and two new species are illustrated and described as new from Iran. The new species are *Opilio kakunini* and *Rilaena kasatkini*. *Goasheer*, a new genus, is described to hold the species "*Homolophus*" *iranus* Roewer, 1952.

Keywords: Taxonomy, Nemastomatidae, Dicranolasmatidae, Phalangiidae, Sclerosomatidae

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The first harvestmen named from Iran were by Thorell in 1876. His species *Egaenus oedipus* (Thorell, 1876) and *Opilio ejuncidus* (Thorell, 1876) were both discovered in Tehran. It was another 76 years before three other species were described from Iran by Roewer in 1952. Another five species were then recognized from Iran by Martens (2006) and a further two species and one new genus are described in the present publication. The remaining species now known from Iran were described from other counties and then more recently collected from Iran.

Opiliones are relatively unstudied from Iran. The number of specimens in university and other regional educational collections is uncertain. Judging from the geographic size and great variety of habitats from sandy deserts, mountains, forests, and vast shorelines of the Caspian Sea and Persian Gulf, many species are still to be discovered.

The present study provides a listing of all previously known species from the country as well as records of more recently studied collections. Hopefully, this will usher in a period of greater exploration of the Opiliones biodiversity of this region. Continued study of previously preserved museum collections is still a valuable source of unreported records; some in the present paper date back to 1914 from the Zoological Institute, St. Petersburg, Russia. We hope that it will serve as a guide to the fauna while other studies are undertaken to see what other specimens lie hidden in other institutional collections and hopefully will serve as a stimulus to students of arachnology to notice and collect new samples in as many situations as permitted.

METHODS

Specimens examined are from the collections of Agricultural Zoology Museum of Iran, (Iranian Research Institute of Plant Protection) Tehran (AZMI); Acarological Collection, Jalal Afshar Zoological Museum, Department of Plant Protection, Faculty of Agriculture, University of Tehran, Karaj, Iran (JAZM); Zoological Institute NAS of Azerbaijan, Baku (IZB); Senckenberg Museum Frankfurt am Main, Germany (SMF); Zoological Institute, St. Petersburg, Russia (ZIN); and the reference collection of Nataly Snegovaya, Baku, Azerbaijan (RCNS).

Specimens were analyzed and measured with a Nikon SMZ 1270 stereomicroscope with Sony DSC-P8 camera. Image processing was carried out in the Adobe Photoshop CS5 program. Specimens of *Homolophus iranus* Roewer, 1952 were similarly recorded in the 1980's with a Wild M5A stereomicroscope and an AO150 compound microscope with a camera lucida.

RESULTS AND DISCUSSION

Twenty-two species of Opiliones (one species of Dicranolasmatidae, five species of Nemastomatidae, 15 species of Phalangiidae, and a single species of Sclerosomatidae) are recorded from Iran. Five of these are listed for the first time from the country: *Dicranolasma ponticum* Gruber, 1998, *Opilio nabozhenkoi* Snegovaya, 2010, *Phalangium armatum* Snegovaya, 2005, *Phalangium kopetdaghensis* Tchemeris & Snegovaya, 2010, and *Graecophalangium karakalensis* Tchemeris & Snegovaya, 2010. An additional unnamed species of *Rilaena* Šilhavý, 1965 is known from the literature, but not included in the total number of species from the country.

Thus far, no Cyphophthalmi or Laniatores have been found in the country (or the nearby region of central Asia). Except for the wide-ranging (North America, Europe, Asia, and Tasmania) *Opilio parietinus* (DeGeer, 1778), most of the species are either endemic to Iran or the surrounding region. The other better-known tramp (synanthropic species) of Phalangiidae known from throughout the Northern Hemisphere and New Zealand, *Phalangium opilio* Linnaeus, 1758 is remarkably not recorded from Iran.

Species endemic to Iran are: *Mediostoma armatum* Martens, 2006, *Opilio kakunini* sp. nov., *Goasheer iranus* (Roewer, 1952), *Paranemastoma iranicum* Martens, 2006, *Rilaena kasatkini* sp. nov. and *Rilaena pusilla* (Roewer, 1952).

SYSTEMATICS

Family Dicranolasmatidae Simon, 1879

Dicranolasma ponticum Gruber, 1998

Dicranolasma ponticum Gruber 1998:513–521, figs. 54–81; Snegovaya & Chumachenko 2011:119; Snegovaya & Staręga 2011:48, 49, figs. 1–6; Schönhofer 2013:23.

Material examined.—IRAN: *Azarbaijan-e Gharbi Province*: 1 ♀, near Piranshahr, 16 May 2015, D. Kasatkin (RCNS).

Type locality.—Vilayet Ordu, ca. 5 km NE of Ulubey, Turkey.

Distribution.—Caucasus: Azerbaijan, Georgia, Iran (Fig. 5), Turkey.

Remarks.—The current record is the first from Iran.

Family Nemastomatidae Simon, 1872

Mediostoma variabile Martens, 2006

Mediostoma sp.: Snegovaya 2004:308, 309, figs. 9–13.
Mediostoma variabile Martens 2006:185–189, figs. 20, 23 a–h, 24 k–q, 25i–k; Schönhofer 2013:32; Snegovaya & Staręga 2011:48.

Material examined.—IRAN: *Gilan Province*: 1 ♀, Rostamabad District, near Hadjideh village, 29 May 2014, D. Kasatkin, I. Shokhin (RCNS).

Type locality.—Makidi near Kaleybar, Azarbaijan-e Sharghi Province, Iran.

Distribution.—Azerbaijan, Iran (Fig. 5).

Mediostoma armatum Martens, 2006

Mediostoma armatum Martens 2006:189, 190, figs. 20, 23i–n, 24f–i, 25c–d; Schönhofer 2013:31.

Type locality.—S of Alamdeh (Royan), Mazandaran Province, Iran.

Distribution.—Iran (Fig. 5).

Mediostoma nigrum Martens, 2006

Mediostoma nigrum Martens 2006:190–192, figs. 20, 23 o–q, 24 a–e, 25 a–b; Schönhofer 2013:31.

Type locality.—Seaside of Talysch Mountains, Gilan Province, Iran.

Distribution.—Azerbaijan, Iran (Fig. 5).

Paranemastoma filipes (Roewer, 1919)

Nemastoma quadripunctatum var. *filipes* Roewer 1919:144.
Nemastoma filipes: Roewer 1923:665; Redikorzev 1936:33.
Nemastoma (*Dromedostoma*) *filipes* Kratochvíl 1958:538.
Paranemastoma (*Paranemastoma*) *filipes*: Staręga 1978:204.
Paranemastoma filipes: Martens 2006:203, figs. 30 i–k, 31–32; Snegovaya & Staręga 2011:48; Schönhofer 2013:41.

Material examined.—IRAN: *Gilan Province*: 1 ♀, 16 km W. of Assalem, 13–14 May 2015, D. Kasatkin, S. Kakunin (RCNS).

Type locality.—Lenkoran, Azerbaijan.

Distribution.—Azerbaijan, Iran (Fig. 5).

Paranemastoma iranicum Martens, 2006

Paranemastoma iranicum Martens 2006:204–206, fig. 33; Schönhofer 2013:41.

Type locality.—11 km E Alasht, Mazandaran Province, Iran.

Distribution.—Iran (Fig. 5).

Family Phalangiidae Latreille, 1802
Subfamily Opilioninae C.L. Koch, 1839
Egaenus oedipus (Thorell, 1876)

Diabunus oedipus Thorell 1876:473–475; Roewer 1911:30, fig. 8; Roewer 1912a:212, fig. 6; Roewer 1923:829, fig. 1008; Redikorzev 1936:33.
Egaenus oedipus: Staręga 1978:222; Staręga 2003:95, 96, figs. 14–18.

Type locality.—Tehran, Tehran Province, Iran.

Distribution.—Iran (Fig. 5), Turkmenistan.

Remarks.—Females of this genus cannot currently be identified to species. We have examined such a specimen and give the record here: IRAN: *Markazi Province*: Sharra area, around Pol-e-Do Ab river, autumn, 2001, R. Vafaii, 1♀ (AZMI). It is hoped that this locality can be further collected and the identification established after the study of a male.

Staręga (1973:142, fig. 26) recorded and illustrated the seminal receptacle of a single specimen that he identified as *Egaenus lindbergi* (Roewer 1960). This female was collected from Iran: between "Siroft" and Deh Bakri, 2000 m, 3.IV.1965, leg. Mission d 'Iran and is housed at the Muséum national d'Histoire naturelle, Paris. Staręga thought that Siroft was probably Sisakht, 30°50′N, 51°30′E, but since this locality is rather distant to Dehbakari, we suggest that it is more likely Jiroft, which is a nearby community south of Dehbakari on Highway 91, both in Kerman Province. *Egaenus lindbergi is* otherwise only recorded from Afghanistan, Tadjikistan, and Turkmenistan (Šilhavý 1968, Staręga 2003). Until a male can be collected from this region, we cannot accurately identify the specimen.

Opilio afghanus Roewer, 1960

Opilio afghanus Roewer 1960:26; Šilhavý 1966:254–258, tab. II–III; Šilhavý 1968:317; Komposch 2002:99.
Opilio afganus (misspelling): Gritsenko 1979:35, fig. 27; Gritsenko 1980:557.

Material examined.—IRAN: *Golestan Province*: 1 ♂, Golestan National Park, 37° 22′ 46.33″N, 55° 51′ 54.56″E, 24–25 May 2016, D. Kasatkin (RCNS).

Type locality.—Qaisar, between Ghourmatch and Maimaneh, Afghanistan.

Distribution.—Afghanistan, Iran (Fig. 5), SW Russia.

Remarks.—Komposch (2002) recorded this species from northern Iran, but gave no specific locality.

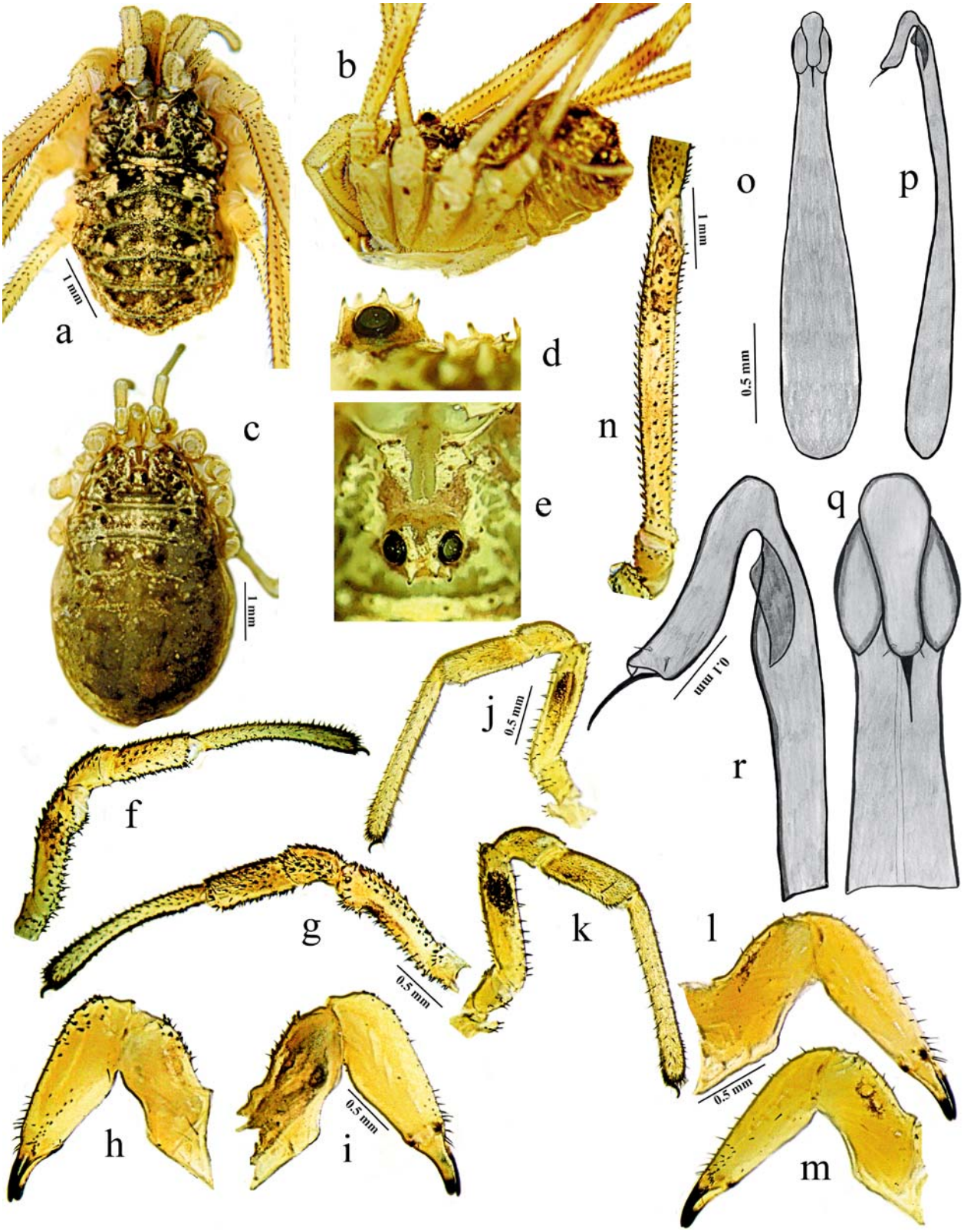

Figure 1.—*Opilio kakunini* sp. nov.: a. Male body, dorsal; b. Male body, lateral; c. Female body, dorsal; d. Male eye mound, lateral; e. Male eye mound, dorsal; f. Male pedipalp, mesolateral; g. Male pedipalp, ectolateral; h. Male chelicera, mesolateral; i. Male chelicera, ectolateral; j. Female pedipalp, mesolateral; k. Female pedipalp, ectolateral; l. Female chelicera, ectolateral; m. Female chelicera, mesolateral; n. Male femur I, lateral; o. Penis, dorsal; p. Penis, lateral; q. Penis dorsal, magnified distal end; r. Penis lateral, magnified distal end.

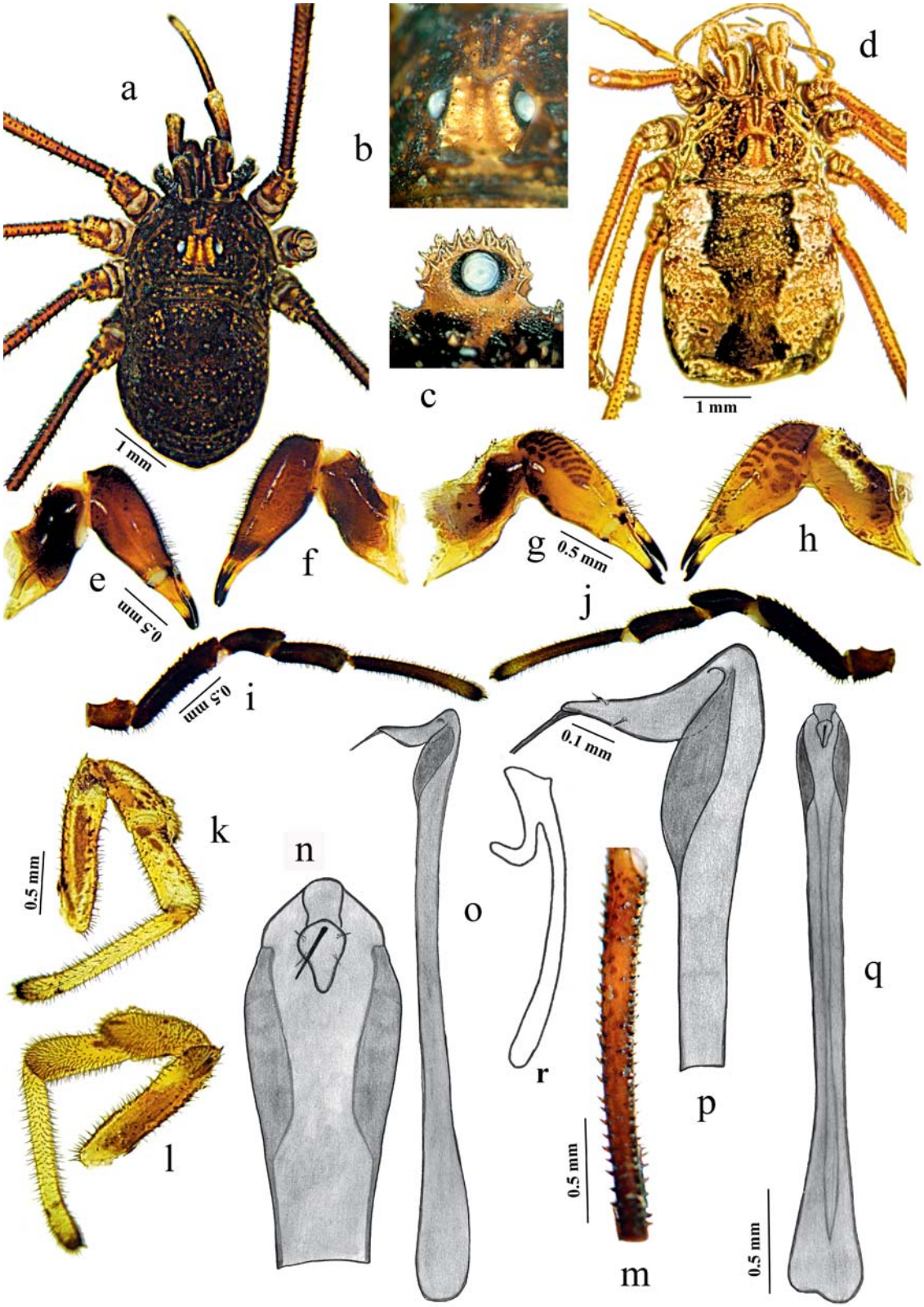

Figure 2.—*Rilaena kasatkini* n. sp: a. Male body dorsal; b. Male eye mound dorsal; c. Male eye mound lateral; d. Female body dorsal; e. Male chelicera ectolateral; f. Male chelicera mesolateral; g. Female chelicera ectolateral; h. Female chelicera mesolateral; i. Male pedipalp ectolateral; j. Male pedipalp mesolateral; k. Female pedipalp ectolateral; l. Female pedipalp mesolateral; m. Male femur I lateral; n. Penis dorsal magnified distal end; o. Penis lateral; p. Penis lateral magnified distal end; q. Penis dorsal; r. Seminal receptacle.

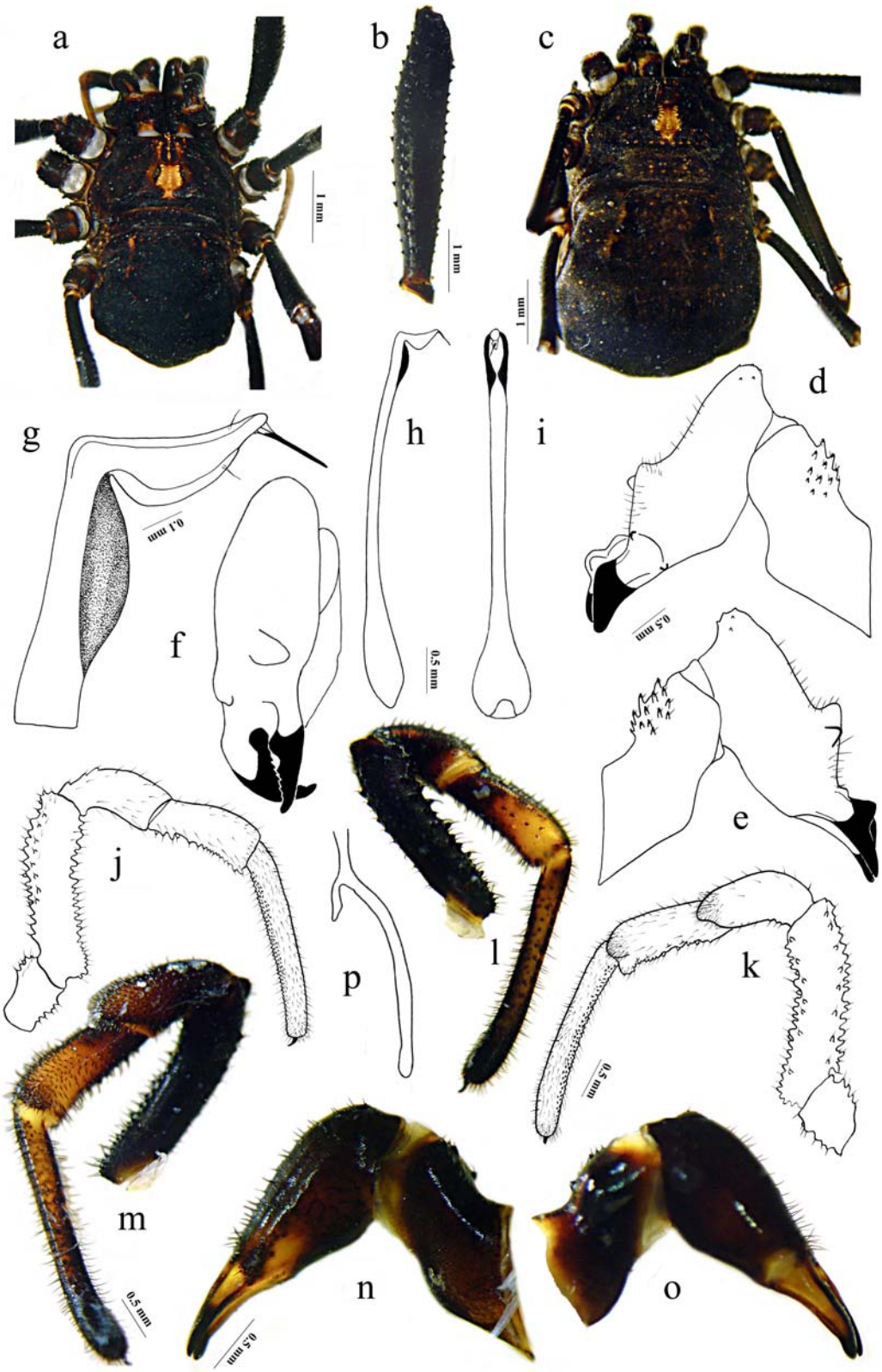

Figure 3.—*Rilaena pusilla*: a. Male body dorsal; b. Male femur I lateral; c. Female body dorsal; d. Male chelicera ectolateral; e. Male chelicera mesolateral; f. Male chelicera 2nd segment anterior; g. Penis lateral magnified distal end; h. Penis lateral; i. Penis dorsal; j. Male pedipalp ectolateral; k. Male pedipalp mesolateral; l. Female pedipalp ectolateral; m. Female pedipalp mesolateral; n. Female chelicera mesolateral; o. Female chelicera ectolateral; p. Seminal receptacle.

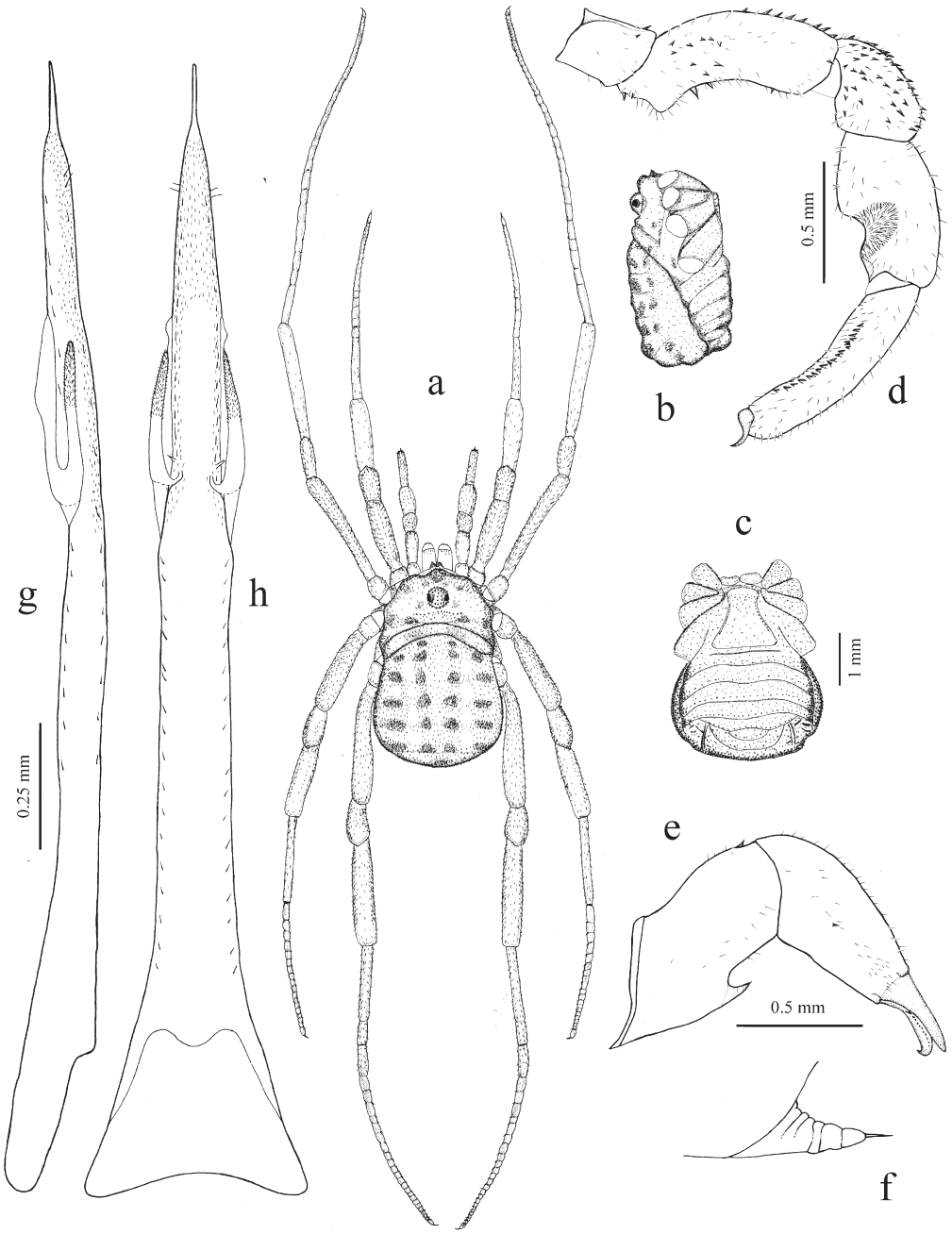

Figure 4.—*Goasheer iranus*: Male; a. Body dorsal; b. Body lateral; c. Body ventral; d. Pedipalp mesolateral; e. Chelicera ectolateral; f. Chelicera hook magnified; g. Penis lateral; h. Penis ventral.

Opilio ejuncidus (Thorell, 1876)

Phalangium ejuncidum Thorell 1876:475, 476.
Opilio ejuncidus: Roewer 1923:773, 774; Morin 1937:213, 218, 220; Bogachev 1951:406.
Opilio ?ejuncidus: Staręga 2003:96.

Type locality.—Tehran, Tehran Province, Iran.

Distribution.—Azerbaijan, Iran (Fig. 5).

Remarks.—Staręga (2003) was unaware of the record by Morin (1937) of this species in Bilasary village, Azerbaijan, when he stated that this species has never been collected again.

Opilio hemseni Roewer, 1952

Opilio hemseni Roewer 1952:512, 513, fig. 1a, b; Staręga 2003:97, 98, 101; Snegovaya 2010:5, figs. 10–19; Snegovaya & Staręga 2011:53, 54, figs. 17–20.
Opilio reginae Staręga 1966:404–406, figs. 19–21; Staręga 1978:227; Chevrizov 1979:26, fig. 149 (synonymized by Staręga 2003:98).
Homolophus azerbaijanicus Snegovaya & Staręga 2008:15–17, figs. 1–11 (synonymized by Snegovaya & Staręga 2011:53).

Material examined.—IRAN: *Gilan Province*: 1 ♂, 1 ♀,

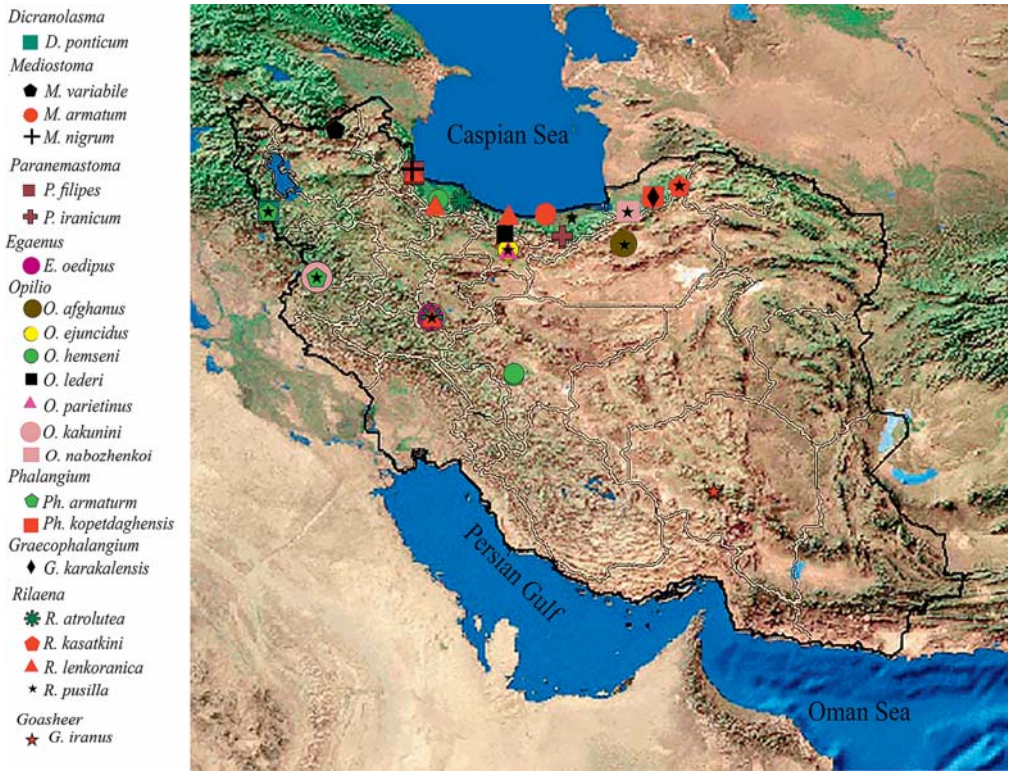

Figure 5.—Map showing the distribution of Opiliones in Iran.

Rasht District, near Dizkoh village, 36° 59′ 18.84″N, 49° 34′ 22.55″E, 5–6 June 2016, D. Kasatkin (RCNS).

Type localities.—Pir Bakran, Isfahan Province, Iran (*Opilio hemseni*); Suchumi, Republic of Abkhazia (*Opilio reginae*), Azfilial, Lenkoran, Azerbaijan (*Homolophus azerbaijanicus*).

Distribution.—Armenia, Azerbaijan, Georgia, Iran (Fig. 5), NE Turkey, SW Russia.

Opilio lederi Roewer, 1911

Opilio lederi Roewer 1911:45; Roewer 1912a:130; Roewer 1923:773, fig. 946; Staręga 1978:226; Chevrizov 1979:23, fig. 152; Staręga 2003:97; Snegovaya 2004:313; Snegovaya 2010:3–5, figs. 1–9; Snegovaya & Staręga 2011:53.

Phalangium coronatum: Redikorzev 1936:43, 44, fig. 15 (nec Fabricius 1779, misidentification).

Opilio redikorzevi Roewer 1956:294; Staręga 1978:227; Chevrizov 1979:26, figs. 144–146; Snegovaya 1999:455, figs. 19–23 (synonymized by Staręga 2003:97).

Material examined.—IRAN: *Alborz Province*: 2 ♂, 5 ♀, near Gachsar village, 2,330 m, 36° 6′ 42.19″N, 51° 20′ 7.74″E, 1–2 June 2016, D. Kasatkin (RCNS).

Type locality.—"Kussari", Caucasus = "Kusari" – Kusari district, now Gusar district, North Azerbaijan.

Distribution.—Armenia, Azerbaijan, Georgia, Iran (Fig. 5), Russia (North Ossetia-Alania, Daghestan), Ukraine (the Crimea).

Opilio parietinus (DeGeer, 1778)

Phalangium parietinum DeGeer 1778:116, fig. 35.

Opilio parietinus: Roewer 1923:770; Mkheidze 1959:113; Mkheidze 1962:185; Mkheidze 1964:120; Martens 1978:240–243, figs. 423–428; Staręga 1966:404; Staręga 1978:226; Chevrizov 1978:70, 71, figs. 1–12; Chevrizov 1979:26, figs. 141–143; Gritsenko 1979:35, fig. 26; Farzalieva & Esyunin 1999:194 195, figs. 79–86; Tchemeris, Logunov & Tsurusaki 1999:197, 198, figs. 43–48; Snegovaya 1999:455; Staręga 2003:96; Snegovaya 2004:313, 314, 316; Çorak & Bayram 2007:456; Snegovaya 2010:5, figs. 20–37; Snegovaya & Staręga 2011:53.

Material examined.—IRAN: *Tehran Province*: 1 ♂, Tehran, May 2012, A. Zamani (RCNS); 1 ♀, Tehran, Damarand, May 2014, A. Zamani (RCNS).

Type locality.—Sweden.

Distribution.—Azerbaijan, Georgia, Iran (Fig. 5), Kazakhstan, Turkey, western Siberia, and ?Afghanistan. Introduced many hundreds of years ago to many European countries and North America and presumably more recently to Tasmania.

Opilio kakunini sp. nov.

http://zoobank.org:8080/NomenclaturalActs/urn:lsid:zoobank.org:act:C9C53A69-D11C-4167-B0E8-1471D1AF5ABB

(Figs. 1a–r & 5)

Material examined.—*Holotype* ♂. IRAN: *Kermanshakh Province*: Shamshir village environs, 21 May 2015, D. Kasatkin, S. Kakunin (ZIN).

Paratypes. IRAN: *Kermanshakh Province*: 2 ♂, 1 ♀, collected with holotype (IZB).

Diagnosis and comparisons.—Body: oval in form (not quadrangular), covered with single transverse rows of black-tipped denticles. Eye mound: low, with 6 pairs large black-tipped denticles. Legs: long, femora I cylindrical, covered with large denticles. Pedipalps: medium-size (not enlarged), dorsally and ventrally with black-tipped denticles (not spine-tipped denticles). Chelicerae: medium-size (not large and strong), both segments dorsally with black-tipped denticles and no granules. Penis: short (less than 3 mm), small oval wings, glans oval form, long, not very wide.

Opilio kakunini sp. nov. is most similar to *Opilio lederi* Roewer, 1911 (Snegovaya 2010:3–5, figs. 1–9), *Opilio arborphilus* Snegovaya, 2010 (Snegovaya 2010:7, 9, 15, figs. 74–82) and *Opilio parietinus* (Snegovaya 2010:5, 8, 10, figs. 20–37). From *Opilio lederi*, it differs by having a smaller body size, longer legs, especially the femur of all legs, less developed chelicera and pedipalps, and by another form of penis (wings rounded versus straight, the shaft widened in the basal third, then tapers to the glans versus straight without expansion). From *Opilio arborphilus*, it differs by the more thickened Femur I, having stronger armament on chelicera, pedipalps and in front of the eye mound, the shorter penis, the broader and more rounded wings on the penis. From *Opilio parietinus*, it differs by smaller size of the body, shorter legs, and penis (wings on the penis smaller versus very wide wings).

Description.—Medium-size harvestmen, body length 4.5 mm, wide 2.7 mm, oval form, covered with transverse rows of black-tipped denticles (Fig. 1a–b). A group of merged large black-tipped denticles situated in front of eye mound. Eye mound low, covered with 6 pairs large black-tipped denticles (Fig. 1d–e). Body yellow with dark brown spots all over the body surface. Legs relatively long, covered with transverse rows of large denticles. Femora I cylindrical form (Fig. 1n). Length of legs (mm): I - 4 + 1.3 + 3.4 + 4.2 + 6.7 = 19.6, II - 4 + 2 + 6.6 + 5 + 18 = 35.6, III - 3.6 + 1.3 + 3.2 + 4.5 + 7.5 = 20.1, IV - 5.8 + 1.3 + 4.3 + 6.5 + 10.5 = 28.4. Chelicerae (Fig. 1h–i) small, basal and distal segments dorsally with small black-tipped denticles and setae. Basal segment of chelicera 1.7 mm, distal 1.8 mm. Pedipalps not very large, all segments, besides tarsus dorsally and ventrally densely covered with black-tipped denticles and setae (Fig. 1f–g). Tarsus covered only with setae and in male ventrally with microdenticles. Length of palpal segments: femur 1.4 mm, patella 0.5 mm, tibia 0.8 mm, tarsus 1.7 mm, total length 4.4 mm. Penis (Fig. 1o–r) medium-size, with oval wings, length 2.45 mm, glans length 0.35 mm; glans distally with two pairs of setae.

Female (paratype) (Fig. 1c). Body length 6 mm, width 3.5 mm. Basal segment of chelicera 1.3 mm, distal 1.6 mm. Length of palpal segments: femur 1.1 mm, patella 0.5 mm, tibia 0.8 mm, tarsus 1.5 mm, total length 3.9 mm. Legs missing on only specimen. Seminal receptacles not observed, damaged during processing for microscopical examination. Female differs from male by larger size, lack of black-tipped denticles on the pedipalps (Fig. 1j–k) and chelicerae (Fig. 1l–m).

Etymology.—The species is named in honor of the famous collector and photographer-entomologist, Mr. Sergei Kakunin (Krasnodar, Russia). He kindly provided material of the new *Opilio* and is further recognized for collecting the types as well as other interesting Opiliones of Iran.

Distribution.—The species is thus far known only from Kermanshakh Province, Iran (Fig. 5).

Opilio nabozhenkoi Snegovaya, 2010

Opilio nabozhenkoi Snegovaya 2010:9, 16, figs. 83–91.

Material examined.—IRAN: *Golestan Province*: 2 ♂, near Gorgan, Ziarat village, 36° 40′ 22.67″N, 54° 28′ 7.68″E, 27 May 2016, D. Kasatkin (RCNS).

Type locality.—North Ossetia-Alania, Russia.

Distribution.—Azerbaijan, Russia (North Ossetia-Alania). New for Iran (Fig. 5).

Family Phalangiidae Latreille, 1802
Subfamily Phalangiinae Latreille, 1802
Phalangium armatum Snegovaya, 2005

Phalangium savignyi: Snegovaya 1999:455, figs. 9–13; Snegovaya 2004:313, figs. 17–19 (nec *savignyi* Audouin 1826:182, misidentified).

Phalangium armatum Snegovaya 2005:22–26, figs. 17–34; Snegovaya & Staręga 2011:50; Kurt, Koç & Yağmur 2015:127, 129, 131–134.

Phalangium zuvandicum Snegovaya 2005:23, 26, figs. 35–45 (synonymized by Snegovaya & Staręga 2011:50).

Material examined.—IRAN: *Azarbaijan-e Gharbi Province*: 4 ♀, 4 juveniles, near Piranshahr, 16 May 2015, D. Kasatkin (RCNS); 1 ♂, 3 ♀, 3 juveniles, near Rajan village, 25–27 May 2014, D. Kasatkin, I. Shokhin (RCNS). *Kermanshah Province*: 1 ♀, Shamshir village environs, 21 May 2015, D. Kasatkin, S. Kakunin (RCNS).

Type localities.—Near Gosmalyan, Zuvand, Lerik District, Azerbaijan (*Phalangium armatum*); ca. 6 km. W of Gosmalyan, Zuvand, Azerbaijan (*Phalangium zuvandicum*).

Distribution.—Azerbaijan, Turkey. New for Iran (Fig. 5).

Phalangium kopetdaghensis Tchemeris & Snegovaya, 2010

Phalangium kopetdaghensis Tchemeris & Snegovaya 2010:70, 71, figs. 27–35.

Material examined.—IRAN: *Golestan Province*: 1 ♂, 1 ♀, road between Azad-Shahr and Shahorud, Khoshyeylag village, 15–16 May 2016, 36° 49′ 31.80″N, 55° 20′ 31.78″E, D. Kasatkin (RCNS).

Type locality.—SW Kopetdagh Mts., ca. 10 km SE of Kara-Kala (=Garrygala), Turkmenistan.

Distribution.—Turkmenistan. New for Iran (Fig. 5).

Graecophalangium karakalensis Tchemeris & Snegovaya, 2010

Graecophalangium karakalensis: Tchemeris & Snegovaya 2010:69, 70, figs. 10–26, 35; Murányi 2015:7.

Material examined.—IRAN: *Golestan Province*: 6 ♂, 3 ♀, road between Azad-Shahr and Shahrud, Khoshyeylag village, 15–16 May 2016, 36° 49′ 31.80″N, 55° 20′ 31.78″E, D. Kasatkin (RCNS).

Type locality.—South slopes of Isak Mt., N of Kara-Kala (=Garrygala), Turkmenistan.

Distribution.—Turkmenistan. New for Iran (Fig. 5).

Rilaena sp.

Rilaena sp.: Komposch 2002:99.

Distribution.—North Iran.

Remarks.—Komposch (2002) stated that this should be a new species, but that further taxonomic revision work is urgently needed at this point. We have not studied this material.

Staręga (1973:144) recorded *Rilaena hyrcana* (Thorell, 1876) as being distributed in Iraq, Iran, and Afghanistan, but Snegovaya & Staręga (2009) listed this name as *incertae sedis*.

Rilaena atrolutea (Roewer, 1915)

Metaplatybunus atroluteus Roewer 1915:133, 134; Roewer 1923:853, fig. 1024; Roewer 1956:271; Redikorzev 1936:33.

Metaplatybunus georgicus Mkheidze 1952:614; Mkheidze 1959:114; Mkheidze 1964:122 (synonymized by Staręga 1978:217).

Rilaena atrolutea: Staręga 1978:217; Snegovaya & Pkhakadze 2014:313, 316, 317, fig. 2.

Material examined.—IRAN: *Gilan Province*: 1 ♂, Lahijan, date? (pre-2001), R. Bastan (AZMI). *Markazi Province*: 1 ♀, Sharra area, around Pol-e-Do Ab river, Autumn 2001, R. Vafaii (AZMI).

Type locality.—Vladikavkaz, North Ossetia-Alania, Russia.

Distribution.—Iran (Fig. 5), Russia (North Ossetia-Alania and Daghestan).

Remarks.—Because the male and female reported above were not collected at the same location, we are not certain they represent the same species. Both are larger *Rilaena* specimens, with a distinctive saddle mark and longer legs. The male pedipalps and penis are like those illustrated for this species from Daghestan (Snegovaya & Pkhakadze 2014). Further collections from northwestern Iran will hopefully confirm these identifications. These are the first records of this species from Iran.

Rilaena kasatkini sp. nov.

http://zoobank.org:8080/NomenclaturalActs/urn:lsid:zoobank.org:act:F1AAC7F3-4EA8-4180-B1C4-E5D6B9045222

(Figs. 2a–q & 5)

Material examined.—*Holotype* ♂. IRAN: *Golestan Province*: Golestan National Park, 37° 22′ 46.33″N, 55° 51′ 54.56″E, 24–25 May 2016, D. Kasatkin (ZIN).

Paratypes. IRAN: *Golestan Province*: 1 ♀, collected with holotype (ZIN), 7 ♂, 6 ♀, collected with holotype (IZB).

Diagnosis and comparisons.—Body: oval form (not quadrangular), covered with denticles (not rounded granules). Legs: long, femora I fusiform (not longer than femur II), covered with large denticles. Pedipalps: femora dorsally with large denticles, ventrally with smaller denticles. Penis: with large black wings, glans banana-form (not triangular).

Rilaena kasatkini sp. nov. is most similar to *R. lenkoranica* Snegovaya, 2007 (Snegovaya 2007:90, 91, figs. 10–18) and *R. talishica* (Snegovaya, 2007) (Snegovaya 2007:88, 89, figs. 1–9). From *R. lenkoranica*, it differs by being smaller, more heavily armed (denticles on the body and legs are much larger and greater in number), armament on the chelicera (large teeth on the distal segment versus almost no denticles), armament on the femur of the pedipalp ventrally (the denticles are larger), in structure of the penis (more developed very dark wings versus weak light wings). From *R. talishica*, it differs by being larger, more darkly colored, more developed armament on the body (especially in front of the eye mound), segments of the legs are larger and more armed, denticles on the legs are more numerous, penis is longer and spoon is more developed, femur of the pedipalp ventrally without large teeth versus large spine-tipped teeth on *R. talishica*, less developed and less setose apophyses versus well-developed setose apophyses in *R. talishica*.

Description.—Males relatively large harvestmen, body length (holotype measurements) 5.3 mm, width 2.8 mm, rectangular in form, covered with transverse rows of small denticles near tergite borders (Fig. 2a). A group of similar denticles situated in front of eye mound and on each side of it. Eye mound (Fig. 2b–c) large, trapezoidal, covered with 8–9 pairs rather large black-tipped denticles. Body dark-brown, almost black with small light spots. Legs long, pair I slightly thickened. Femur I fusiform (Fig. 2m), femora and patella covered with transverse rows of large denticles. Lengths of palpal segments: femur 1.5 mm, patella 1.0 mm, tibia 1.0 mm, tarsus 1.9 mm, total length 5.4 mm. Lengths of legs (mm): I - $2.1 + 0.6 + 1.8 + 2.3 + 3.3 = 10.1$, II - $3.5 + 0.8 + 2.8 + 4.3 + 7.1 = 18.5$, III - $2.3 + 0.7 + 1.8 + 2.8 + 3.8 = 11.4$, IV - $3.3 + 0.8 + 2.3 + 3.1 + 6.\ 0 = 15.5$. Chelicerae (Fig. 2e–f) not very large, basal segment dorsally with small denticles, distal segment with only setae. Basal segment of chelicera 1.5 mm long, distal 2.0 mm. Pedipalps not enlarged (Fig. 2i–j). Femora dorsally with large denticles, ventrally with smaller denticles. Patella and tibia with small apophyses. Penis (Fig. 2n–q) with wide base, expanded to the glans, forming a spoon, with rather large black wings; glans narrow, banana-shaped with long stylus. Penis length 3.2 mm, stylus 0.4, glans 0.2.

Female (Fig. 2d) differs from the male by larger size and rounded form of body, shorter legs, lighter color, chelicerae (Fig. 2g–h) and pedipalps (Fig. 2k–l) less armed, pedipalp apophyses larger and more densely covered by setae. Female (paratype): body length 7.2 mm, width 3.4 mm. Basal segment of chelicera 1.7 mm, distal 2.0 mm long. Length of palpal segments: femur 1.7 mm, patella 1.1 mm, tibia 1.0 mm, tarsus 2.0 mm, total length 5.8 mm. Length of legs (mm): I - $4 + 1.3 + 3.3 + 4.3 + 6.2 = 19.1$, II - $7.2 + 1.3 + 3.5 + 6.0 + 7.8 + 14.4 = 40.2$, III - $4.0 + 1.3 + 3.5 + 5.5 + 6.8 = 21.1$, IV - $6.5 + 1.7 + 1.8 + 9.0 + 8.6 = 27.6$. Seminal receptacle as in Fig. 2r.

Etymology.—The species is named in honor of the famous Russian entomologist, Dr. Denis Kasatkin (Rostov-on-Don), who kindly provided material for study.

Distribution.—This species is thus far known only from Golestan Province, Iran (Fig. 5).

Rilaena lenkoranica Snegovaya, 2007

Rilaena pusilla: Staręga 1978:218; Snegovaya 1999:455, figs. 29–33; Snegovaya 2004:318, figs. 36–41 (nec Roewer 1952, misidentified).

Rilaena lenkoranica Snegovaya 2007:90–92, figs. 10–18; Snegovaya & Staręga 2011:52, figs. 12–16.

Lophopilio palpinalis: Noei, Saboori & Hajizadeh 2013:57, 59, 62 (nec Herbst 1799, misidentified).

Material examined.—IRAN: *Gilan Province*: 6 ♂, 2 ♀, 16 km W of Assalem, 13–14 May 2015, D. Kasatkin, S. Kakunin (RCNS); 1 ♂, Masooleh city, 19 July 2010 (JAZM); 25 ♂, 21 ♀, Rostamabad District, near Hajideh village, 29 May 2014, D. Kasatkin, I. Shokhin (RCNS). *Markazi Province*: 1 ♂, 8 ♀, 1 juvenile, Sharra area, around Pol-e-Do, Ab river, autumn 2001, R. Vafaii (AZMI). *Mazandaran Province*: 7 ♂, 11 ♀, Elburs Mts, near Chalus, elev. 200 m, 26 May 2015, D. Kasatkin, S. Kakunin (RCNS).

Type locality.—Lenkoran, Azerbaijan.

Distribution.—Azerbaijan, Iran (Fig. 5).

Rilaena pusilla (Roewer, 1952)
(Figs. 3a–o & 5)

Zacheus hyrcanus Redikorzev 1936:45, 46, figs. 18, 19 (nec Thorell 1876, synonymized by Staręga 1973:144).
Platybunus pusillus Roewer 1952:513; Roewer 1956:305.
Metadasylobus dentichelis Roewer 1956:268, 269, figs. 65–68 (synonymized by Staręga 1973:144).
Rilaena pusilla: Staręga 1973:143–146, figs. 31–33; Staręga 1978:218 (in part, not record from Azerbaijan); Komposch 2002:99.

Material examined.—*Holotype* ♂. IRAN: *Golestan Province*: Gorgan (listed on label as ancient city name Astrabad), 1914, A. Kirichenko (ZIN).

Paratype. IRAN: *Golestan Province*: 1 ♀, collected with holotype (ZIN).

Other material. IRAN: *Golestan Province*: 2 ♂, 1 ♀, Gorgan, 1914, A. Kirichenko (ZIN); 13 ♂, 5 ♀ Golestan National Park, 37° 22′ 46.33″N, 55° 51′ 54.56″E, 24–25 May 2016, D. Kasatkin, (RCNS); 8 ♀, near Gorgan, Ziarat village, 36° 40′ 22.67″N, 54° 28′ 7.68″E, 27 May 2016, D. Kasatkin (RCNS); 2 ♂, 3 ♀, Gorgan, wheat field, 30 March 2001, Mobasheri (AZMI). *Kermanshakh Province*: 1 ♀, Shamshir village environs, 21 May 2015, D. Kasatkin, S. Kakunin (RCNS); 1 ♂, 1 ♀, Mazandaran, Sari, April 2012, A. Zamani (RCNS); 1 ♀, Sari, Shahid Zare Forest Park, 25 April 2001, Abaii (AZMI). *Markazi Province*: 1 ♀, Sharra area, around Pol-e-Do, Ab river, autumn, 2001, R. Vafaii (AZMI). *Azarbaijan-e Gharbi Province*: 2 ♀, near Piranshahr, 16 May 2015, D. Kasatkin (RCNS).

Type localities.—Gorgan, Golestan Province, Iran (*Zacheus hyrcanus*); Lahidjan, Gilan Province, Iran (*Platybunus pusillus*); Tehran, Tehran Province, Iran (*Metadasylobus dentichelis*).

Remarks.—To aid in the recognition of this species, we have illustrated both sexes. Male body (Fig. 3a), femur I (Fig. 3b), chelicerae (Fig. 3d–f), pedipalps (Fig. 3j–k), penis (Fig. 3g–i). Female body (Fig. 3c), chelicerae (Fig. 3n–o), pedipalps (Fig. 3l–m), seminal receptacle (Fig. 3p).

Distribution.—Iran (Fig. 5).

Family Sclerosomatidae Simon, 1879
Subfamily Leiobuninae Banks, 1893
Goasheer gen. nov.
http://zoobank.org:8080/NomenclaturalActs/urn:lsid:zoobank.org:act:298B16E1-C4E5-4B3C-B11D-C3DF4CB45882

Homolophus: Roewer 1952:513–515; Roewer 1957:355 (in part); Roewer 1960:32 (in part); Cokendolpher 1985:397 (in part).
Microliobunum: Cokendolpher 1987:94 (in part).

Type species.—*Homolophus iranus* Roewer, 1952.

Diagnosis and comparisons.—Small sclerosomatids with all leg femora shorter than body length, no lateral abdominal sclerites, ozopores visible from above. Leg femora and tibiae without nodules or pseudosegments. Penis alate with lateral wings which narrow into bristly lobes. Male pedipalp with tibiae modified into groove on retrolateral margin; tarsi with ventral rows of tubercles, palpal claw smooth.

The new genus is most similar to *Microliobunum* Roewer, 1912b from the western coast of Lebanon and *Dilophiocara* Redikorzev 1931 from Uzbekistan. These three genera having species that are small (3–5 mm body lengths), short-legged (femora II less than body length) Leiobuninae without a palpal apophysis. The palpal claws are toothed in *Dilophiocara* and *Microliobunum*, but not *Goasheer*.

Description.—Small opilionids, 3.2–3.9 mm total length, with short legs; all femora less than body length. Coxae I–IV with rows of tri-pointed denticles, sometimes absent on posterior surfaces; femora and tibiae without pseudosegments or pseudoarticulary nodules. Male palpal tibiae modified into groove on retrolateral margin; tarsi with ventral rows of tubercles, claw smooth. Genital operculum with lateral rows of tri-pointed tubercles. Penis with long tapered shaft, ending in sharp tip, with median alate portion ventrally with lateral wings which narrow into bristly lobes. Eye mound low, covered with many small tubercles. Large preocular protuberance present, covered with many small single and tri-pointed tubercles. Ozopores small and slightly elongate, visible from above. Palpal tarsus with rows of small tubercles, claw simple and smooth. Chelicerae with hook on first segment ventrally. Supracheliceral lamellae in form of two plates, covered with denticles.

Etymology.—The new name, *Goasheer*, is the ancient name for the city of Kerman, now the capital of the Kerman Province and also another name for "Bardsir", where specimens of this genus are recorded. It is not formed from Latin or Greek so following the I.C.Z.N. code 30.2.2, we are specifying the gender to be masculine.

Distribution.—Known only from high mountains in central Iran (Fig. 5).

Goasheer iranus (Roewer, 1952), comb. nov.
(Figs. 4a–f & 5)

Homolophus iranus Roewer 1952:513–515, fig. 2; Roewer 1957:355; Roewer 1960:32; Cokendolpher 1985:399.
Microliobunum iranum: Cokendolpher 1987:94.

Material examined.—Holotype ♂. IRAN: *Kerman Province*: Bardsir, Lalezar Mountain (=Kūh-e-Lāleh Zār and Kūh-i-Laizar), 29° 24′ N, 56° 46′ E, 1949–1950, H. Löffler, F. Starmühlner, stream at about 3,000 m elev. (SMF cat. no. RII/10720). Chelicera, palpus, and first leg of holotype on microscope slide, SMF cat. no. RII/16119-RII/10720/13.

Paratype. IRAN: *Kerman Province*: 1 ♂, collected with holotype (SMF).

Diagnosis.—As for genus.

Description.—Male (measurements of holotype first) (Fig. 4a–c): Body small, total length 3.21–3.85, greatest width 2.56–2.98, maximum height 1.62–2.09; covered with small tubercles; cream yellow with light brown spots in four rows on dorsum of abdomen; dorsum flattened, coarsely granulate; venter and lateral surfaces finely granulate. Eye mound low, maximum height 0.21–0.24, greatest width 0.45–0.41, length 0.39–0.37; eyes black contrasting strongly with tubercle. Preocular protuberance prominent, height 0.18–0.24. Supracheliceral lamellae with many small tubercles on distal margin. Chelicerae (Fig. 4e–f) yellow, teeth black; spur on basal segment ending in sharp point. Genital operculum length 1.19–1.18, width at base 1.22–1.26, width at neck 0.51–0.58. Pedipalps (Fig. 4d) yellow, robust; all segments with spines; femora, patellae, and tibiae with few sharp tubercles; tibia with groove on retrolateral margin; tarsi with ventral rows of tubercles, claw smooth. Palpal segment lengths: femora 0.71–0.64, patellae 0.51–0.46, tibiae 0.59–0.59, tarsi 0.83–0.87. Legs yellow; femora, patellae, and tibiae with many spines and tubercles. Femora I–IV lengths (respectively): 1.39–1.42, 2.51–2.40, 1.62–1.61, 2.42–2.49. Tibiae I–IV lengths (respectively): 1.30–1.39, 2.30–2.27, 1.46–1.40, 2.13–1.89. Penis (Fig. 4g–h) with long shaft, tapered to a fine tip distally; alate portion small, with many small setae laterally; length 1.93–2.11, width at midpoint 0.14–0.14.

Distribution.—Kerman Province of Iran (Fig. 5).

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