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The spider family Oecobiidae (Arachnida: Araneae) in Iran, Afghanistan and Turkmenistan

Alireza ZAMANI [1,*] & Jan BOSSELAERS [2]

[1] Zoological Museum, Biodiversity Unit, FI-20014 University of Turku, Finland.
[2] Royal Museum for Central Africa, B 3080 Tervuren, Belgium.

[*] Corresponding author: zamani.alireza5@gmail.com
[2] Email: dochterland@telenet.be

[1] urn:lsid:zoobank.org:author:A21C0B82-E2D9-4402-9408-D6160843DAF4
[2] urn:lsid:zoobank.org:author:D6AD7414-3540-4F06-8631-8873450AA90C

Abstract. The taxonomic and faunistic status of the spider family Oecobiidae in Iran, Afghanistan and Turkmenistan is revised. A new species, namely *Uroctea gambronica* sp. nov. (♂) is described from southern Iran, and the male of *U. grossa* Roewer, 1960 is described and illustrated for the first time. Additionally, new faunistic data are provided, including the first records of *Oecobius putus* O. Pickard-Cambridge, 1876 and *U. grossa* in Afghanistan and Turkmenistan, respectively, and the re-evaluation of previously misidentified and questionable records of this family in the region. The known distribution ranges of all species are mapped for these three countries.

Keywords. Central Asia, new combination, new species, tent-web spiders.

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Introduction

The spider family Oecobiidae Blackwall, 1862 is globally represented by 119 extant species in six genera, two of which occur in the Palaearctic: *Oecobius* Lucas, 1846 and *Uroctea* Dufour, 1820 (World Spider Catalog 2020). The latter genus was formerly classified as the sole member of the family Urocteidae Thorell, 1869 until Lehtinen (1967) moved it into Oecobiidae, as the single representative of the ecribellate subfamily Urocteinae Thorell, 1869. Two other subfamilies include the cribellate Oecobiinae Blackwall, 1862 and the ecribellate Uroecobiinae Kullmann & Zimmermann, 1976 (Yang *et al.* 2019). In the Middle East and Central Asia, the family has been relatively poorly studied. In his taxonomic and biogeographic revision of the species of *Oecobius* occurring in the Mediterranean Region and the Arabian Peninsula, Wunderlich (1995) described several new species and provided many new distribution records of the genus. Also, country level revisions have been provided for Egypt (Hassan 1953), Iran (Zamani *et al.* 2017a) and Turkey (Demir *et al.* 2009), and more scattered contributions have been made by Zamani *et al.* (2016), El-Hennawy (2016), Zamani & Marusik (2018) and Boukan *et al.* (2018). The genus *Uroctea* has received far less attention in the region, with few revisionary works

provided for Yemen (Rheims *et al.* 2007) and Turkey (Kunt *et al.* 2009), and scattered descriptions and records published by Roewer (1960), Zamani *et al.* (2015) and Fomichev & Marusik (2020). In this paper, we aim to revise the status of this family in Iran, Afghanistan and Turkmenistan, based on museum material and other recently collected specimens.

Material and methods

Specimens were studied using a Euromex MIC465 and an Olympus SZX9 stereo microscopes. Illustrations of internal genitalia were made after digestion of soft tissues in trypsin (Sigma) for 24 hours at room temperature and clearing in methyl salicylate. Lengths of leg segments were measured on the dorsal side. Leg spination is illustrated in a schematic representation where prolateral, dorsal, retrolateral and ventral sides of leg articles are flattened as a folding net (Dürer 1525). Measurements of legs are listed as: total length (femur, patella, tibia, metatarsus, tarsus). All measurements are given in millimeters. The maps (Figs 1–2) were created using the webpage SimpleMappr (online at http://www.simplemappr.net/). Geographic coordinates, if not available from the labels, were georeferenced using Google Earth (online at https://www.google.com/earth/).

Abbreviations

Carapace

PSP = *plagula sternalis postica* (the plagula is a triangular or ribbon-shaped sclerite situated on the ventral side of the petiolus; it may be fused with the sternum, see Simon 1892: 5, figs. 15–18; Ledoux & Canard 1991: figs. 13–14)

Eyes

AER = anterior eye row
ALE = anterior lateral eyes
AME = anterior median eyes
MOQ = median ocular quadrangle
PER = posterior eye row
PLE = posterior lateral eyes
PME = posterior median eyes

Legs

fe = femur
mt = metatarsus
pa = patella
rh = retrocoxal hymen (a weak spot, in most cases hyaline and lens- to dome-shaped, on the retrolateral face of coxa I, see Raven 1998; Bosselaers & Jocqué 2002)
ta = tarsus
ti = tibia

Spinnerets

ALS = anterior lateral spinnerets
PLS = posterior lateral spinnerets
PMS = posterior median spinnerets

Male copulatory organs

C = conductor
E = embolus
fC = functional conductor
MA = median apophysis

MAb1 = median apophysis, branch 1
MAb2 = median apophysis, branch 2
MAb3 = median apophysis, branch 3
OEA = oecobiid embolic apophysis
OTA = oecobiid tegular apophysis
OTL = oecobiid tegular lobe
Ra = radix
RaA = radix apophysis
S = stipes
STA = subterminal apophysis
T = tegulum
TA = terminal apophysis
TL = tegular lobe

Female copulatory organs

Bd = blind ending duct(s)
Bu = bursa(e)
Cd = copulatory duct(s)
Co = copulatory opening
Fd = fertilization duct(s)
St = spermatheca(e)

Leg spination

do = dorsal side
pl = prolateral side
plv = ventroprolateral side
rl = retrolateral side
rlv = ventroretrolateral side
ve = ventral side

Repositories

CJB = personal collection of Jan Bosselaers
GNM = Göteborgs Naturhistoriska Museum, Göteborg, Sweden
MHNG = Muséum d'Histoire naturelle, Genève, Switzerland
NMP = National Museum in Prague, Czech Republic
RBINS = Royal Belgian Institute of Natural Sciences, Brussels, Belgium
SMF = Senckenberg Research Institute, Frankfurt am Main, Germany
ZMMU = Zoological Museum of Moscow State University, Moscow, Russia

Results

Class Arachnida Lamarck, 1801
Order Araneae Clerck, 1757
Family Oecobiidae Blackwall, 1862
Genus *Oecobius* Lucas, 1846

Oecobius cellariorum (Duges, 1836)

Oecobius cellariorum – Ghahari & Marusik 2009: 4. — Boukan *et al.* 2018: 24, figs 2a–d (♂).

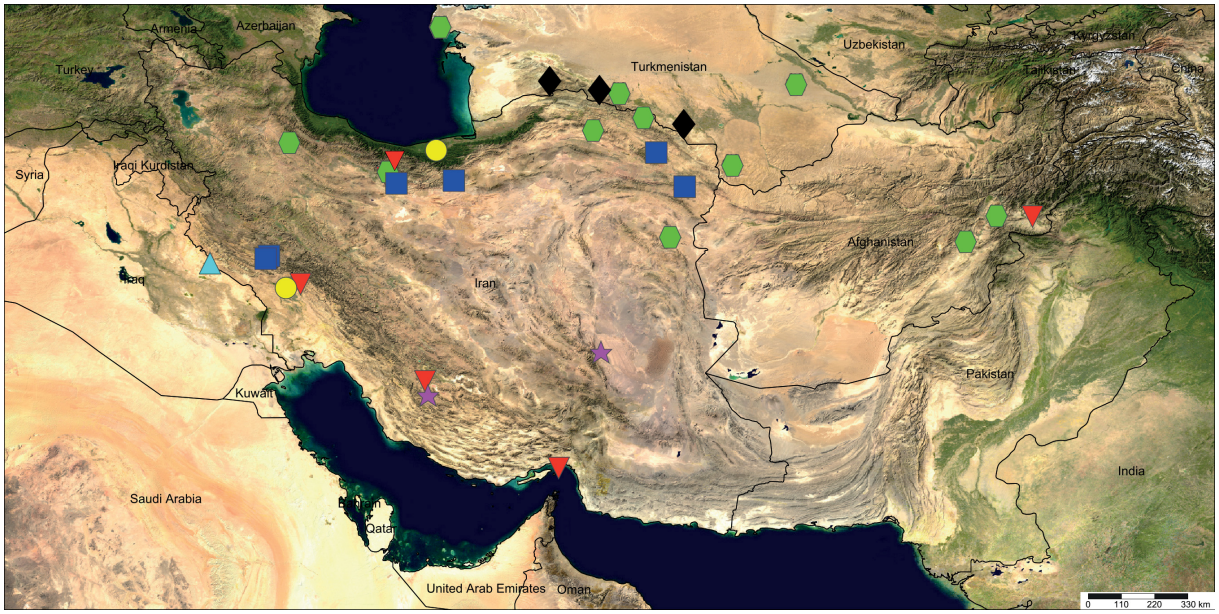

Fig. 1. Distribution of *Oecobius* Lucas, 1846 in Iran, Afghanistan and Turkmenistan. yellow circles = *O. cellariorum* (Duges, 1836; pink stars = *O. fahimii* Zamani & Marusik, 2018; blue squares = *O. ferdowsii* Mirshamsi, Zamani & Marusik, 2017; cyan triangle = *O. ilamensis* Zamani, Mirshamsi & Marusik, 2017; green hexagons = *O. nadiae* (Spassky, 1936); red triangles = *O. putus* O. Pickard-Cambridge, 1876; black diamonds = *O. tadzhikus* Andreeva & Tyschchenko, 1969.

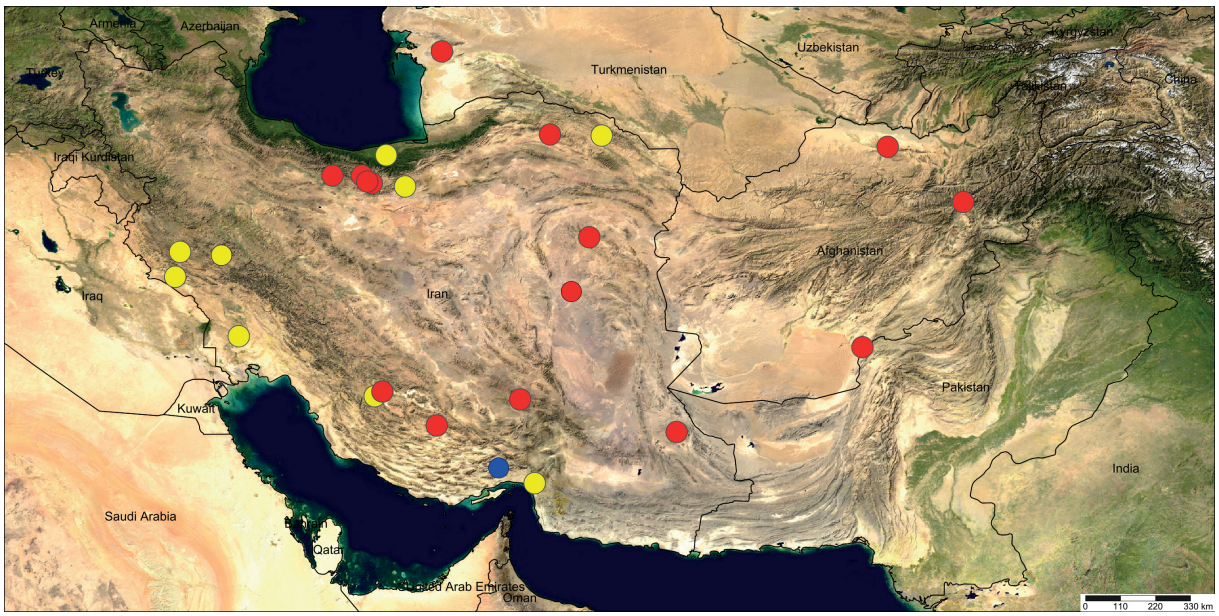

Fig. 2. Distribution of *Uroctea* Dufour, 1820 in Iran, Afghanistan and Turkmenistan. red circles = *U. grossa* Roewer, 1960; yellow circles = *U. thaleri* Rheims, Santos & van Harten, 2007; blue circle = *U. gambronica* sp. nov.

Distribution

Mediterranean Region, Russia (Europe), Azerbaijan, Jordan, Iran. Introduced into USA, China, Japan (World Spider Catalog 2020).

Records in Iran

Mazandaran (Ghahari & Marusik 2009) and Khuzestan (Boukan *et al.* 2018) Provinces (Fig. 1).

Oecobius fahimii Zamani & Marusik, 2018

Oecobius fahimii Zamani & Marusik, 2018: 73, figs 2E–F, 3A–E (♀).

Material examined

IRAN • 1 ♀; Fars Province, Kavar; 29°12′ N, 52°37′ E; 5 Jun. 1974; A. Senglet leg.; MHNG.

Distribution

Iran (World Spider Catalog 2020).

Records in Iran

Kerman (Zamani & Marusik 2018) and Fars (this paper) Provinces (Fig. 1).

Oecobius ferdowsii Mirshamsi, Zamani & Marusik, 2017
Fig. 3A

Oecobius ferdowsii Mirshamsi, Zamani & Marusik in Zamani *et al.*, 2017a: 333, figs 2A–D, 3A–D (♂, ♀).

Distribution

Iran (World Spider Catalog 2020).

Records in Iran

Lorestan, Razavi Khorasan, Semnan and Tehran Provinces (Zamani *et al.* 2017a) (Fig. 1).

Oecobius ilamensis Zamani, Mirshamsi & Marusik, 2017

Oecobius ilamensis Zamani, Mirshamsi & Marusik in Zamani *et al.*, 2017a: 331, figs 1A–F (♂).

Distribution

Iran (World Spider Catalog 2020).

Records in Iran

Ilam Province (Zamani *et al.* 2017a) (Fig. 1).

Oecobius nadiae (Spassky, 1936)
Fig. 3B

Uroctea nadiae – Denis 1958: 112.
Oecobius afghanicus – Kullmann & Zimmermann 1976: 42, figs 1–3, 6–9, 12–13 (♂, ♀).
Oecobius nadiae – Mikhailov & Fet 1994: 503. — Zamani *et al.* 2015: 342; 2018: 192. — Sadeghi *et al.* 2016: 6. — Zamani 2016: 82.

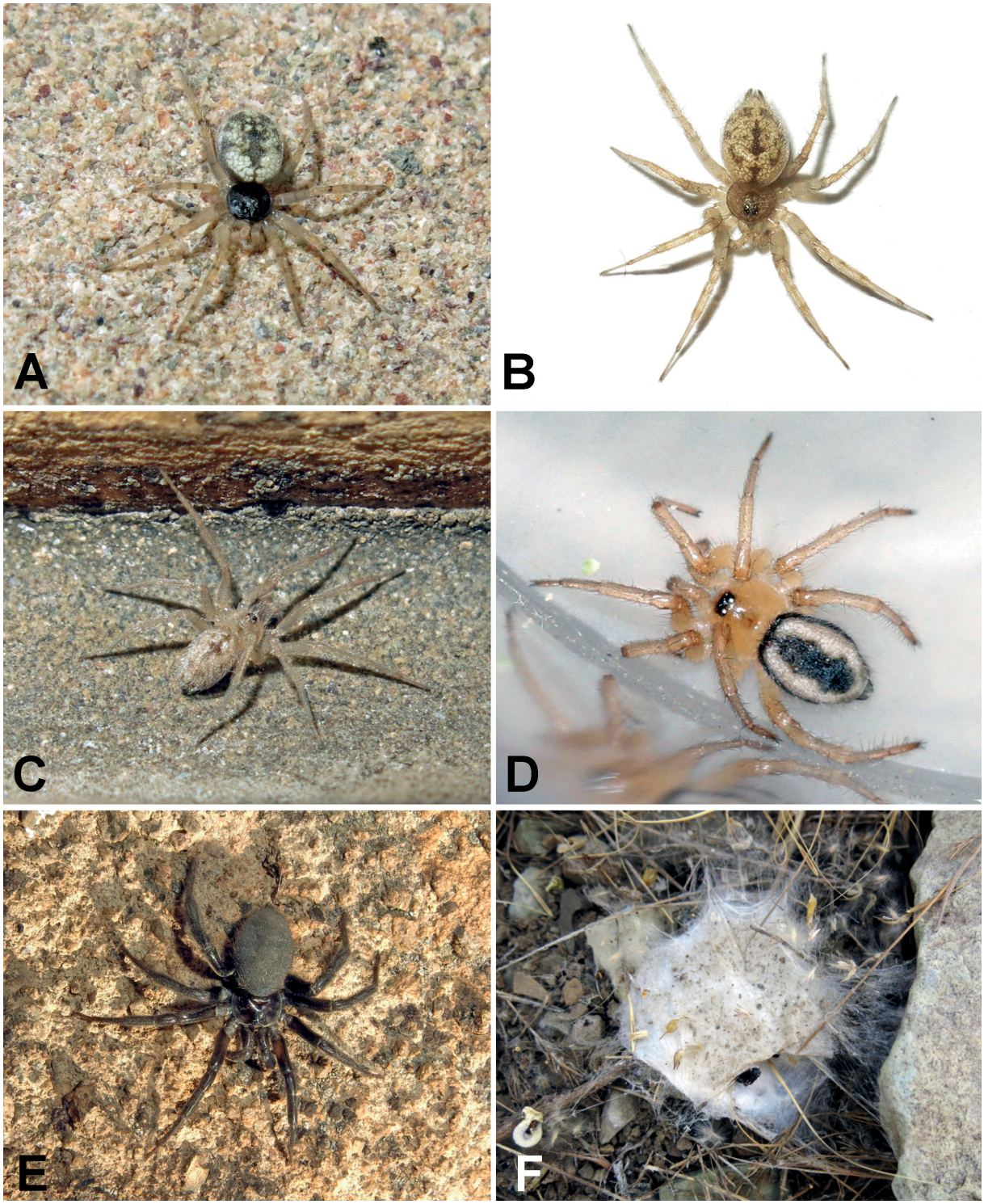

Fig. 3. Live habitus and tent web of oecobiids. **A**. *Oecobius ferdowsii* Mirshamsi, Zamani & Marusik, 2017, ♀. **B**. *Oecobius nadiae* (Spassky, 1936), ♀. **C**. *Oecobius putus* O. Pickard-Cambridge, 1876, ♂. **D**. *Uroctea thaleri* Rheims, Santos & van Harten, 2007, juvenile. **E**. *Uroctea grossa* Roewer, 1960, ♀. **F**. Tent web of *Uroctea grossa*. A–C, E–F by Alireza Zamani; D courtesy of Mahmoud Kolnegari.

Material examined

AFGHANISTAN • 1 ♂, 3 ♀♀; Kabul Province, Kabul; 34°31′ N, 69°29′ E; 3 Aug. 1975; A. Senglet leg.; MHNG • 3 ♀♀, 2 juvs; Wardak Province, NNE of Ghazni; 33°45′ N, 68°34′ E; 12 Aug. 1975; A. Senglet leg.; MHNG.

Distribution

Azerbaijan, Iran, Afghanistan, Turkmenistan, Tajikistan, China (World Spider Catalog 2020).

Records in Iran

North Khorasan, Razavi Khorasan, South Khorasan, Tehran and Zanjan Provinces (Zamani *et al.* 2015, 2018; Zamani 2016; Sadeghi *et al.* 2016) (Fig. 1).

Records in Afghanistan

Kabul (Denis 1958; Kullmann & Zimmermann 1976; this paper) and Wardak (this paper) Provinces (Fig. 1).

Records in Turkmenistan

Ahal, Balkan, Mary and Labap Regions (Mikhailov & Fet 1994) (Fig. 1).

Oecobius putus O. Pickard-Cambridge, 1876
Fig. 3C

Oecobius putus – Zamani 2016: 83. — Zamani *et al.* 2016: 109, figs 36–40 (♂, ♀). — Zamani & Mozaffarian 2017: 13. — Boukan *et al.* 2018: 23, figs 3a–d (♂).

Material examined

AFGHANISTAN • 1 ♂, 6 ♀♀; Nangrahar Province, NE of Djelalabad; 34°30′ N, 70°33′ E; 8 Aug. 1975; A. Senglet leg.; MHNG.

IRAN • 1 ♂, 1 ♀; Mazandaran Province, Pol-e Zanguleh; 36°13′ N, 51°15′ E; 5 Jul. 1975; A. Senglet leg.; MHNG.

Distribution

Egypt, Sudan to Iran, India. Introduced into USA, Mexico (World Spider Catalog 2020). Newly recorded from Afghanistan.

Records in Iran

Fars, Hormozgan, Khuzestan, Tehran (Zamani 2016; Zamani *et al.* 2016; Zamani & Mozaffarian 2017; Boukan *et al.* 2018) and Mazandaran (this paper) Provinces (Fig. 1).

Records in Afghanistan

Nangrahar Province (this paper) (Fig. 1).

Oecobius tadzhikus Andreeva & Tyschchenko, 1969

Oecobius tadzhikus – Mikhailov & Fet 1994: 503.

Distribution

Tajikistan, Turkmenistan (World Spider Catalog 2020).

Records in Turkmenistan

Ahal and Balkan Regions (Mikhailov & Fet 1994). These records have been considered as doubtful and potentially referring to another species by Marusik *et al.* (2015).

Genus ***Uroctea*** Dufour, 1820

Uroctea grossa Roewer, 1960
Figs 3E–F, 4F–G, 5, 6A–D, 7A–C, 8–9

Uroctea grossa Roewer, 1960: 51, figs 18a–d (♀).

Uroctea grossa – Zamani *et al.* 2015: 342, fig. 4 (♀). — Fomichev & Marusik 2020: 235, figs 1–12 (♀).
Uroctea durandi – Roewer 1955: 752 (misidentification).
Uroctea limbata – Denis 1958: 112 (misidentification, tentatively assigned to *U. grossa*).

Emended diagnosis

Uroctea grossa is closest to *U. thaleri* Rheims, Santos & van Harten, 2007 and *U. gambronica* sp. nov., but differs from them and from other species of *Uroctea* by its larger size, its broad, V-shaped MAb2 making a sharp angle (also present in *U. gambronica* sp. nov.) and having a wide, fan-shaped terminal section (also present in *U. thaleri*, cf. Fig. 7A–G), by its gently curved MAb1, its relatively long, stout, curved TL (Fig. 7C, also present in *U. thaleri*), its short and stout Bd and a Cd that is coiled over 360° and directed outwards anteriorly (vs uncoiled in *U. limbata* (C.L. Koch, 1843) and inwardly bent in *U. thaleri*; cf. Fig. 9B, Rheims *et al.* 2007: fig. 8 and Baum 1972: fig. 9).

Material examined

Holotype

AFGHANISTAN • ♀; Kandahar Province, "Kouh Dana Ouat (bei Spin Boldaq an der Grenze von Pakistan)" [Kouh Dana Ouat (near Spin Boldaq on the Pakistan border)]; 9 May 1958; K. Lindberg leg.; "unter Steinen" [under stones]; GNM-A497.

Other material

AFGHANISTAN • 1 ♂ (only palp); Parwan Province, near Gulbahar, Rig-Revan, outside cave; 26 Jul. 1957; K. Lindberg leg.; misidentified as *U. limbata*; SMF-13231.

IRAN • 1 ♂, 5 ♀♀, 3 juvs; Fars Province, 50 km NNE of Shiraz, Bamoo Res.; 29°45′ N, 52°45′ E; 18–28 May 2000; Y.M. Marusik leg.; ZMMU • 1 ♀; Fars Province, Barm-e-peere-Ghaibi; 29 May 2000; Y.M. Marusik and K. Elmi leg.; ZMMU • 2 ♀; Fars Province, Firouzabad; 28°52′ N, 52°32′ E; 6 Jun. 1974; A. Senglet leg.; MHNG • 1 juv.; Kerman Province, Qualeh-e-Asghard; F. Starmühlner leg.; misidentified as *U. durandi*; SMF • 1 ♂, 1 ♀; Mazandaran Province, Amol County, Larijan; 35°52′54″ N, 52°10′12″ E; Jun. 2014; A. Zamani leg.; MHNG • 1 ♂, 1 ♀; Sistan and Baluchistan Province, Khash, surroundings of Taftan volcano; 28°36′ N, 61°07′ E; May 2018; A. Zamani leg.; MHNG • 1 sub♀; South Khorasan Province, 40 km N of Naybandan; J. Garzoni leg.; MHNG • 1 ♂, 3 ♀♀; Tehran Province, 80 km E of Tehran, Damavand area, Aroo Vil.; 35°40′ N, 52°27′ E; 15 Jun. 2000; Y.M. Marusik and F. Mozaffarian leg.; ZMMU • 1 ♂, 1 juv.; Tehran Province, 5 km N of Tehran, Tochal Mountain; 35°53′ N, 51°20′ E; 2000–2900 m a.s.l.; 16 Jun. 2000; Y.M. Marusik, F. Mozaffarian and R. Bahramishad leg.; ZMMU • 3 ♀♀; Tehran Province, Damavand County, Havir Vil.; 35°42′52″ N, 52°19′15″ E; Jul. 2015; A. Zamani leg.; MHNG.

TURKMENISTAN • 1 ♀; Balkan Province, SW of Kopetdagh, Damdam; 800 m a.s.l.; SMF38817.

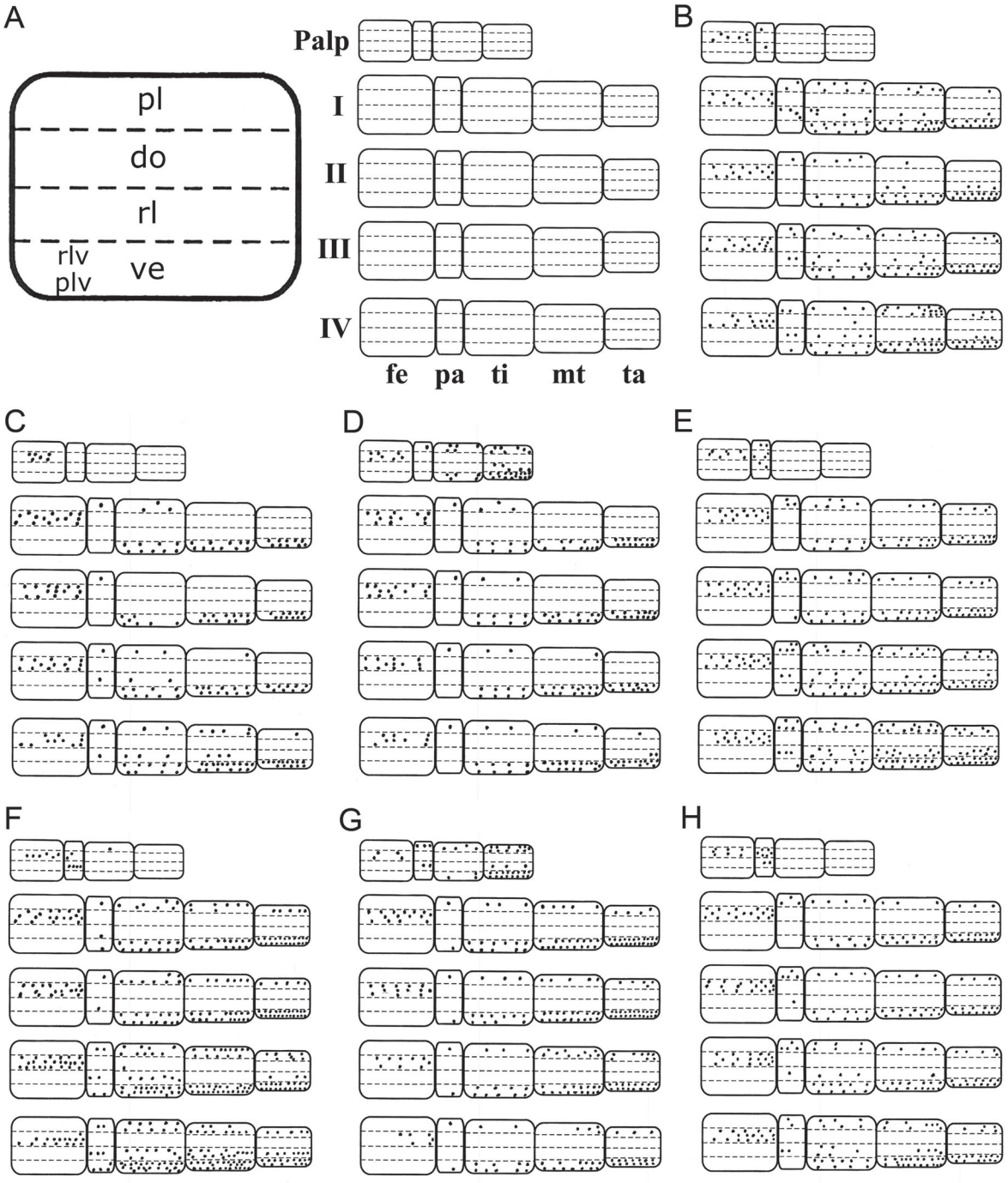

Fig. 4. Leg spination schematics. **A**. Legend. **B**. *Uroctea hashemitorum* Bosselaers, 1999, holotype, ♂ (RBINS). **C**. *Uroctea durandi* (Latreille, 1809), ♂ from Spain, Catalonia, Empordà (CJB-3992). **D**. *Uroctea durandi*, ♀ from Spain, Catalonia, Empordà (CJB-2198). **E**. *Uroctea thaleri* Rheims, Santos & van Harten, 2007, ♂ from Hormozgan Province, Minab County (MHNG). **F**. *Uroctea grossa* Roewer, 1960, ♂ from Sistan and Baluchistan Province, surroundings of Taftan volcano (MHNG). **G**. *Uroctea grossa*, holotype, ♀ (GNM-A497). **H**. *Uroctea gambronica* sp. nov., holotype, ♂ (NMP-P6j-180/2002).

Description

Male (measurements based on specimen from Sistan and Baluchistan Province, Iran)
Total length 9.80. Carapace broadly oval, yellowish brown with thin grey margin, faint black radial pattern and dark median band from eye region to fovea. Carapace length 4.00, width 5.05. Fovea deep triangular pit, situated 2.15 from front, length 0.30, width 0.35. Eyes surrounded by black pigment. AER 1.03, PER 1.00. AME larger than ALE, separated by slightly less than AME diameter. PLE similar in size to ALE, PME smaller, separated by four times their own diameter (= 0.5). PME and PLE touching. MOQ anterior width 0.65, posterior width 0.75, depth 0.45. Clypeus 0.60. No chilum. Chelicerae long and thin, parallel-sided, yellowish brown, length 1.35, width 0.25, no teeth. Sternum yellow with orange-brown border, smooth, heart-shaped. Sternum length 2.50, width 2.45. Labium free, subtriangular, length 0.60, width 0.65. Endites subrectangular, no serrula, no apical hair tuft. PSP long and narrow, parallel-sided, fused with sternum. Abdomen dorsally either entirely black with concentric pattern of yellowish wrinkles or bearing longitudinal oval central black mark surrounded by broad yellow zone and thin black border (Fig. 6D). Three pairs of orange-brown sigilla are present on dorsal side of abdomen. ALS subcylindrical with short apical segment. PMS small, conical. PLS with long and curved apical segment. Colulus large and covered in stiff setae. Legs greyish brown with orange brown

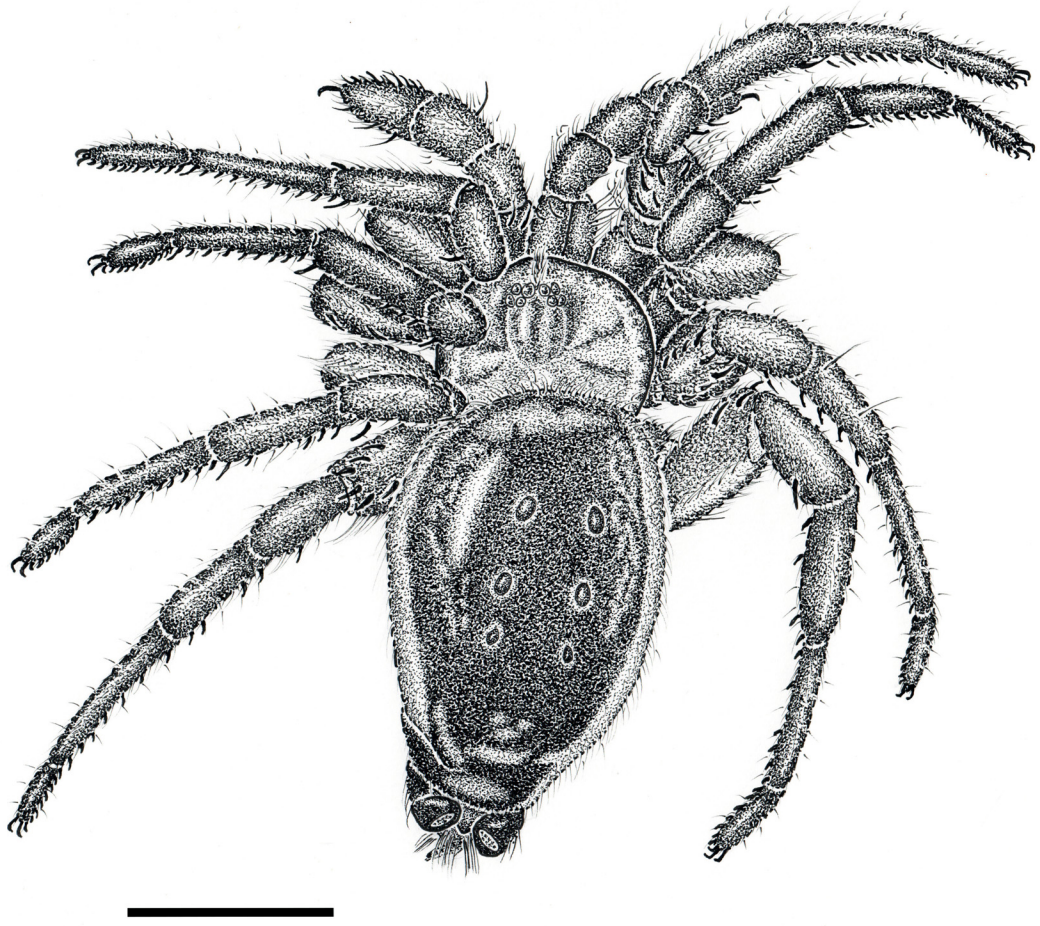

Fig. 5. *Uroctea grossa* Roewer, 1960, holotype, ♀ (GNM-A497); dorsal habitus. Scale bar = 4 mm.

mt and ta. Patellar indentation narrow, one third of length of pa. Tarsus IV straight. Three tarsal claws, two large ones with fine teeth. No tenent hairs. Leg formula: 4321. For leg spination see Fig. 4F.

Leg measurements:

	fe	pa	ti	mt	ta	Total
I	5.00	1.75	3.75	4.00	2.10	16.60
II	5.00	1.75	3.90	4.25	1.75	16.65
III	4.75	1.75	3.80	4.75	1.75	16.80
IV	4.75	2.50	3.50	4.50	1.75	17.00

Palp as illustrated in Fig. 7A–C, with short, pointed and curved E connected to narrow, membranous and spoon-shaped fC, long and thin, gently curved and hooked MAb1, large, sharply angled, V-shaped MAb2 with fan-shaped tip ending in three blunt terminal lobes and with large, blunt and slightly curved TL.

Female (measurements based on holotype, GNM)

Total length 13.15. Carapace broadly oval, yellowish brown, margin mottled with black (Fig. 5). Carapace length 4.15, width 5.35. Fovea deep oval pit, situated 2.35 from front, length 0.20, width 0.35. Eyes faintly ringed with black. AER 1.13, PER 1.15. AME larger than ALE, separated by slightly less than AME diameter. PLE similar in size to ALE, PME smaller, separated by 2.5 times their own diameter. Median and lateral eyes touching in both eye rows. MOQ anterior width 0.70, posterior width 0.80, depth 0.50. Clypeus 0.90. No chilum. Chelicerae long and thin, parallel-sided, yellowish brown, length 1.65, width 0.45, no teeth. Sternum light yellow brown with dark reddish brown border, smooth, heart-shaped. Sternum length 2.60, width 2.85. Labium free, subtriangular, length 0.70, width 0.85. Endites subrectangular, no serrula, no apical hair tuft. PSP long and narrow, parallel-sided, fused with sternum. Abdomen of holotype dorsally dark grey with light yellow border and thin, dark grey silky hairs (Fig. 5). Three pairs of orange-brown sigilla present on dorsal side of abdomen. ALS subcylindrical with short apical segment. PMS small, conical. PLS with long and curved apical segment. Colulus large and covered in stiff setae. Legs reddish brown, mottled with grey. Coxa I with flattened, very pale rh, length 0.20, width 0.13. Patellar indentation narrow, one third of length of pa. Tarsus IV straight. Three tarsal claws, two large ones with fine teeth. No tenent hairs. Leg formula: 4321. For leg spination see Fig. 4G.

Leg measurements:

	fe	pa	ti	mt	ta	Total
I	4.10	1.25	3.10	3.55	1.85	13.85
II	4.50	1.50	3.50	3.75	1.90	15.15
III	4.50	1.50	3.50	4.25	1.80	15.55
IV	5.10	1.90	3.50	4.25	1.90	16.65

Epigyne and vulva as in Figs 8–9, somewhat variable, simple, with numerous sclerotized arcs in anterior half and in posterior half with oval Co connected to Cd (Figs 8A–D). Vulva (Figs 9A–D) with long, stout Cd curved over 360° and terminally directed outwards, and with thin, long, wavy Fd that are terminally recurved and connected to subtriangular sclerite (Fig. 9C–D) that tends to detach in some vulva preparations (Fig. 9). St small and sclerotized, connected to short and blunt Bd and adjacent to large, thin-walled bursae.

Distribution

Iran, Afghanistan, Tajikistan (World Spider Catalog 2020), Turkmenistan (this paper).

Records in Iran

Kerman (Roewer 1955), North Khorasan, Razavi Khorasan (Zamani *et al.* 2015), Fars, Mazandaran, Sistan and Baluchistan, South Khorasan, and Tehran (this paper) Provinces.

Records in Afghanistan

Balkh, Parwan and Kandahar Provinces (Denis 1958; Roewer 1960; this paper).

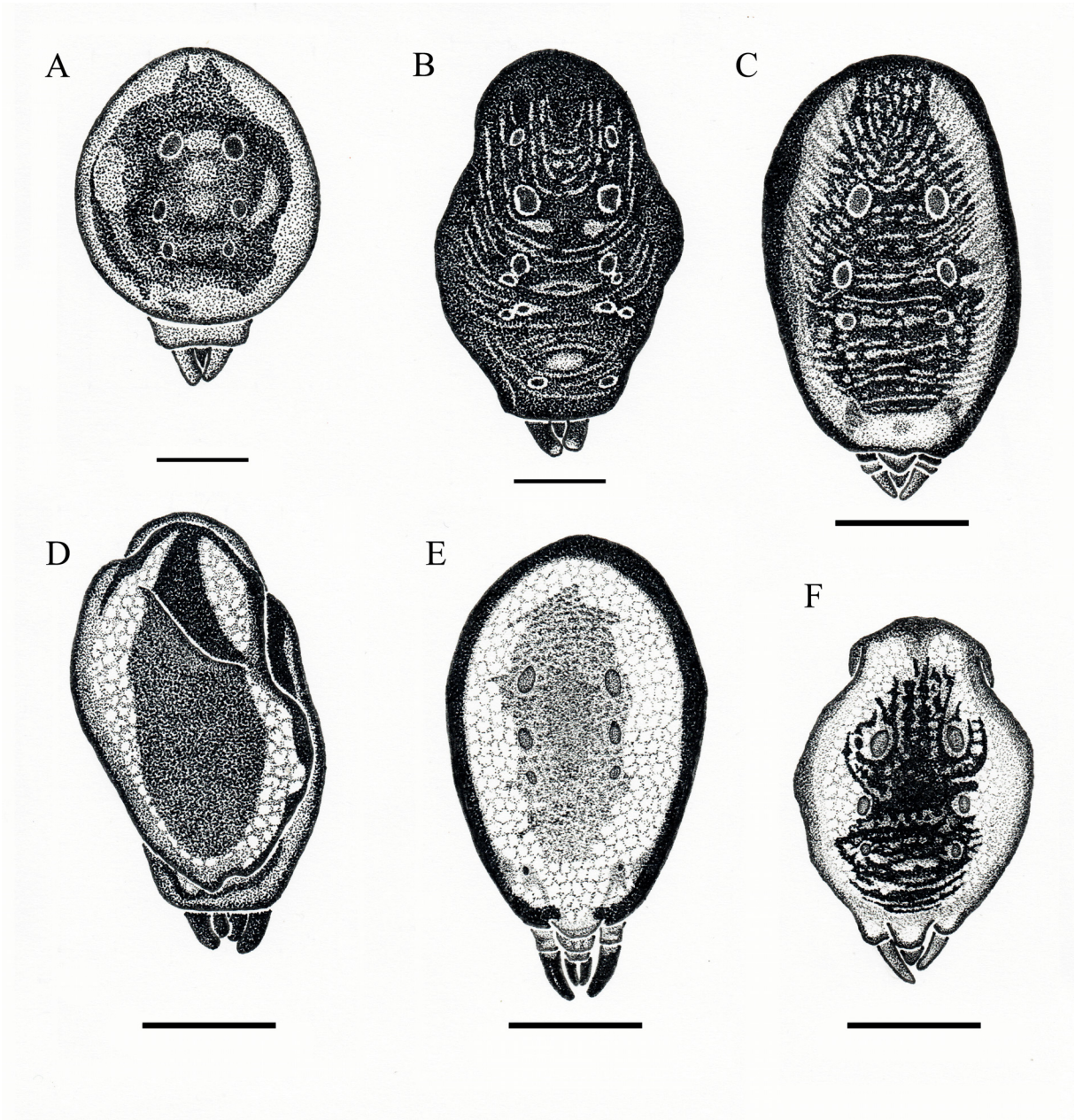

Fig. 6. Abdominal patterns, dorsal views. **A**–**D**. *Uroctea grossa* Roewer, 1960. **A**–**B**. ♀♀ from Iran, Damavand County, Havir village (MHNG). **C**. ♀ from Mazandaran Province, Larijan (MHNG). **D**. ♂ from Mazandaran Province, Larijan (MHNG). **E**. *Uroctea gambronica* sp. nov., holotype, ♂ (NMP-P6j-180/2002). **F**. *Uroctea thaleri* Rheims, Santos & van Harten, 2007, ♂ from Hormozgan Province, Minab County (MHNG). Scale bars = 2 mm.

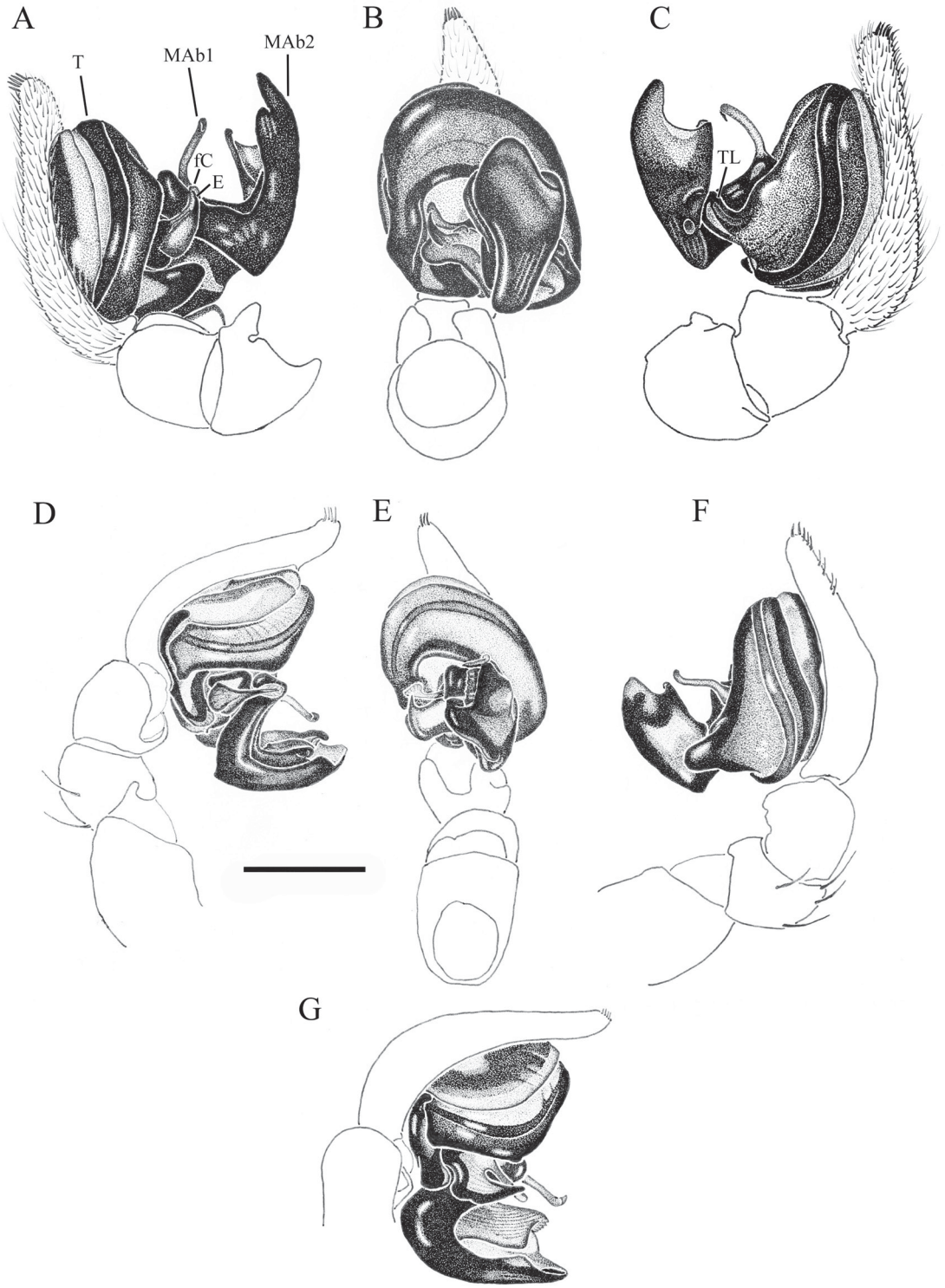

Fig. 7. Left male palps. **A**–**C**. *Uroctea grossa* Roewer, 1960, ♂ from Sistan and Baluchistan Province, surroundings of Taftan volcano (MHNG). **D**–**F**. *Uroctea gambronica* sp. nov., holotype, ♂ (NMP-P6j-180/2002). **G**. *Uroctea thaleri* Rheims, Santos & van Harten, 2007, ♂ from Hormozgan Province, Minab County (MHNG). A, D, G = prolateral view; B, E = ventral view; C, F = retrolateral view. Scale bars = 1 mm.

Records in Turkmenistan

Balkan Province (this paper) (Fig. 2).

Uroctea gambronica sp. nov.
urn:lsid:zoobank.org:act:A8E3360D-A2B8-4E0B-B745-8AABB0D8D7F5
Figs 4H, 6E, 7D–F

Uroctea limbata – Zamani *et al.* 2017b: 60 (misidentification).

Diagnosis

Uroctea gambronica sp. nov. is closest to *U. grossa* and *U. thaleri*. It differs from both species by its short, straight, subconical TL of the male palp (vs long, curved and subcylindrical), the basal part of its MAb1 making a 135° hook (Fig. 7F, vs gently curved in *U. grossa* and straight in *U. thaleri*), its smaller, subrectangular terminal section of MAb2 (vs large and fan-shaped), and its sharply toothed retrolateral lobe of MAb2 (vs bluntly toothed). It further differs from *U. grossa* by its smaller size and its lower number of ti spines (Fig. 4H vs Fig. 4F). It also differs from *U. thaleri* by its sharply angled MAb2 (vs smoothly bent, Fig. 7D vs Fig. 7G).

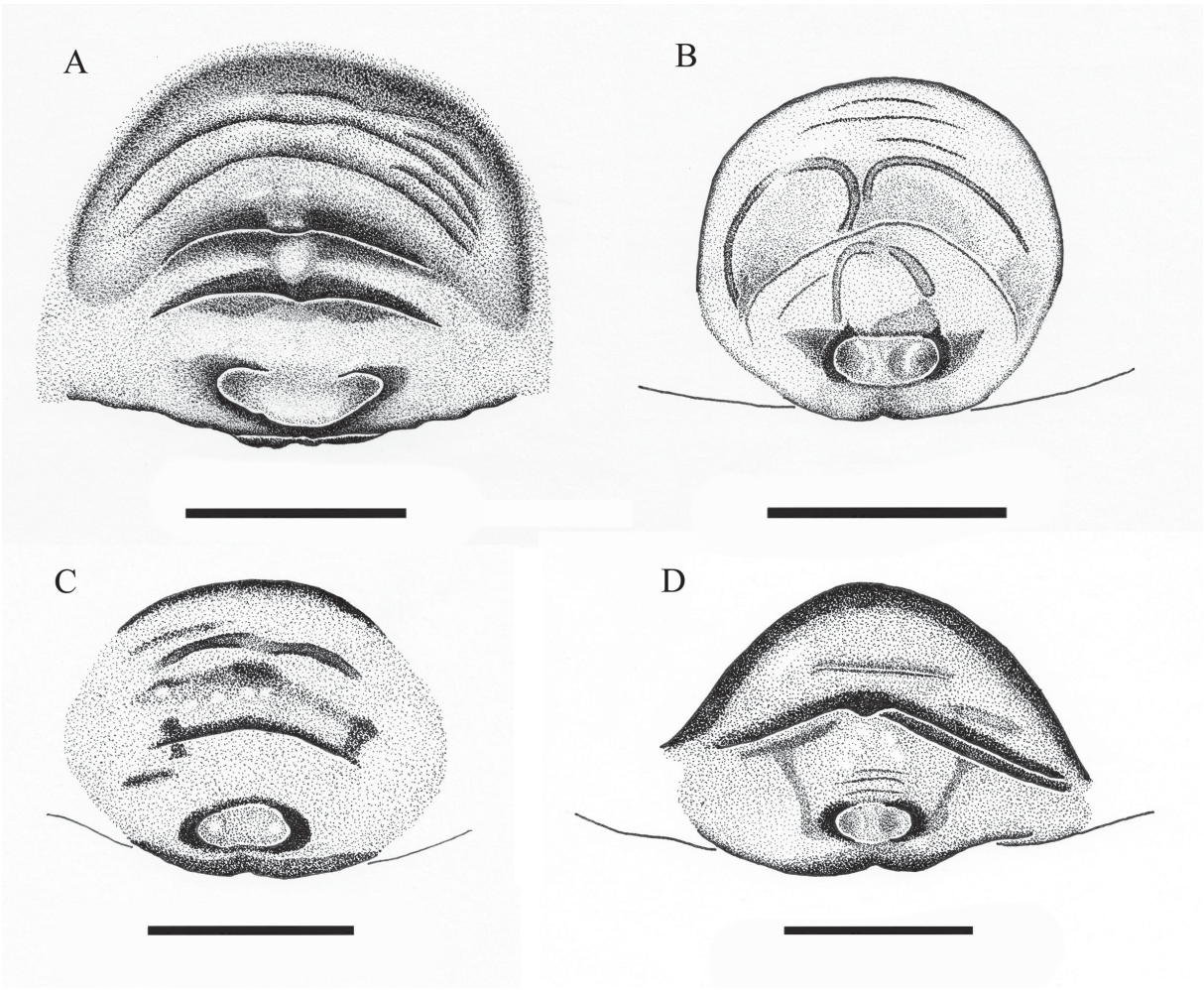

Fig. 8. Epigynes of *Uroctea grossa* Roewer, 1960; ventral view. **A**. Holotype, ♀ (GNM-A497). **B**. ♀ from Mazandaran Province, Larijan (MHNG). **C**. ♀ from Sistan and Baluchistan Province, surroundings of Taftan volcano (MHNG). **D**. ♀ from Turkmenistan (SMF38817). Scale bars = 0.5 mm.

Etymology

The new species is named after Gambron, the former English traders' name for Bandar Abbas, the type locality of the species.

Type material

Holotype

IRAN • ♂; Hormozgan Province, Kuh-e Genu, 15 km NW of Issin; 27°24′ N, 56°11′ E; 600–1000 m a.s.l.; Apr. 1977; B. Pražan leg.; NMP-P6j-180/2002.

Description

Male

Total length 8.85. Carapace broadly oval, yellowish brown, somewhat mottled with grey, with faint black radiae and grey reticulate pattern near border. Carapace length 3.50, width 4.05. Fovea deep triangular pit, situated 1.70 from front, length 0.35, width 0.25. Eyes surrounded by black pigment. AER 0.90, PER 0.88. AME larger than ALE, separated by half of AME diameter. PLE similar in size to ALE, PME smaller, separated by three times their own diameter. PME and PLE touching. MOQ anterior width 0.50, posterior width 0.70, depth 0.40. Clypeus 0.65. No chilum. Chelicerae long and thin, parallel-sided, yellowish brown, length 1.15, width 0.20, no teeth. Sternum yellow with light brown border, smooth, heart-shaped. Sternum length 2.20, width 2.05. Labium free, subtriangular, length 0.45, width 0.55. Endites subrectangular, no serrula, no apical hair tuft. PSP long and narrow, parallel-sided, fused with sternum. Abdomen whitish with narrow black border and central, oval, olive green patch with three pairs of olive brown sigilla (Fig. 6E). ALS light brown, blunt and conical, with short apical segment. PMS small, conical. PLS grey, with long and curved apical segment. Colulus large and covered in stiff setae. Legs yellow brown with orange brown mt and ta. Patellar indentation narrow, one third of length of pa. Tarsus IV straight. Three tarsal claws, two large ones with fine teeth. No tenent hairs. Leg formula: 4321. For leg spination see Fig. 4H.

Leg measurements:

	fe	pa	ti	mt	ta	Total
I	4.10	1.50	3.20	3.60	2.00	14.40
II	4.00	1.50	3.50	3.80	1.75	14.55
III	4.15	1.50	3.35	4.25	1.75	15.00
IV	4.30	1.85	3.00	4.25	1.85	15.25

Male palp as in Fig. 7D–F, with short, pointed and curved E connected to membranous, scoop-shaped fC, with long and thin, bent and hooked MAb1, with large, sharply angled, V-shaped MAb2 with relatively short, subrectangular scoop-shaped tip ending in two blunt and one toothed terminal lobe and broad, straight, subconical, blunt TL.

Female

Unknown.

Distribution

Currently known only from the type locality in Hormozgan Province, southern Iran (Fig. 2).

Uroctea thaleri Rheims, Santos & van Harten, 2007
Figs 3D, 4E, 6F, 7G

Uroctea sp. indet. a. – Baum 1972: 113, figs 11–13 (♀, per Rheims *et al.* 2007: 67).
Uroctea limbata – Zamani 2015: 14. — Sadeghi *et al.* 2016: 6 (misidentifications).

Material examined

IRAN • 1 ♂, 2 juv.; Fars Province, Shiraz; 1990; K. Elmi leg.; ZMMU • 1 ♂; Hormozgan Province, Minab County; Feb. 2018; A. Zamani leg.; MHNG • 1 ♂; Ilam Province, Dehloran, Zarrinabad District; Jul. 2018; A. Zamani leg.; MHNG • 1 ♂; Lorestan Province, Dizgaran; 33°43′ N, 47°00′ E; 25 Jun. 1974; A. Senglet leg.; MHNG • 1 juv.; Lorestan Province, Veisian; 33°29′ N, 48°04′ E; 8 Sep. 1975; A. Senglet; MHNG • 1 subadult ♂; Lorestan Province, Pol-e Dokhtar; 33°10′ N, 47°44′ E; 17 May 1974; A. Senglet leg.; MHNG • 1 ♀; Mazandaran Province, Ghaemshahr, rice fields; Sep. 2005; H. Ghahari leg.; ZMMU.

Distribution

Turkey, Israel, Iran, Yemen, India (World Spider Catalog 2020).

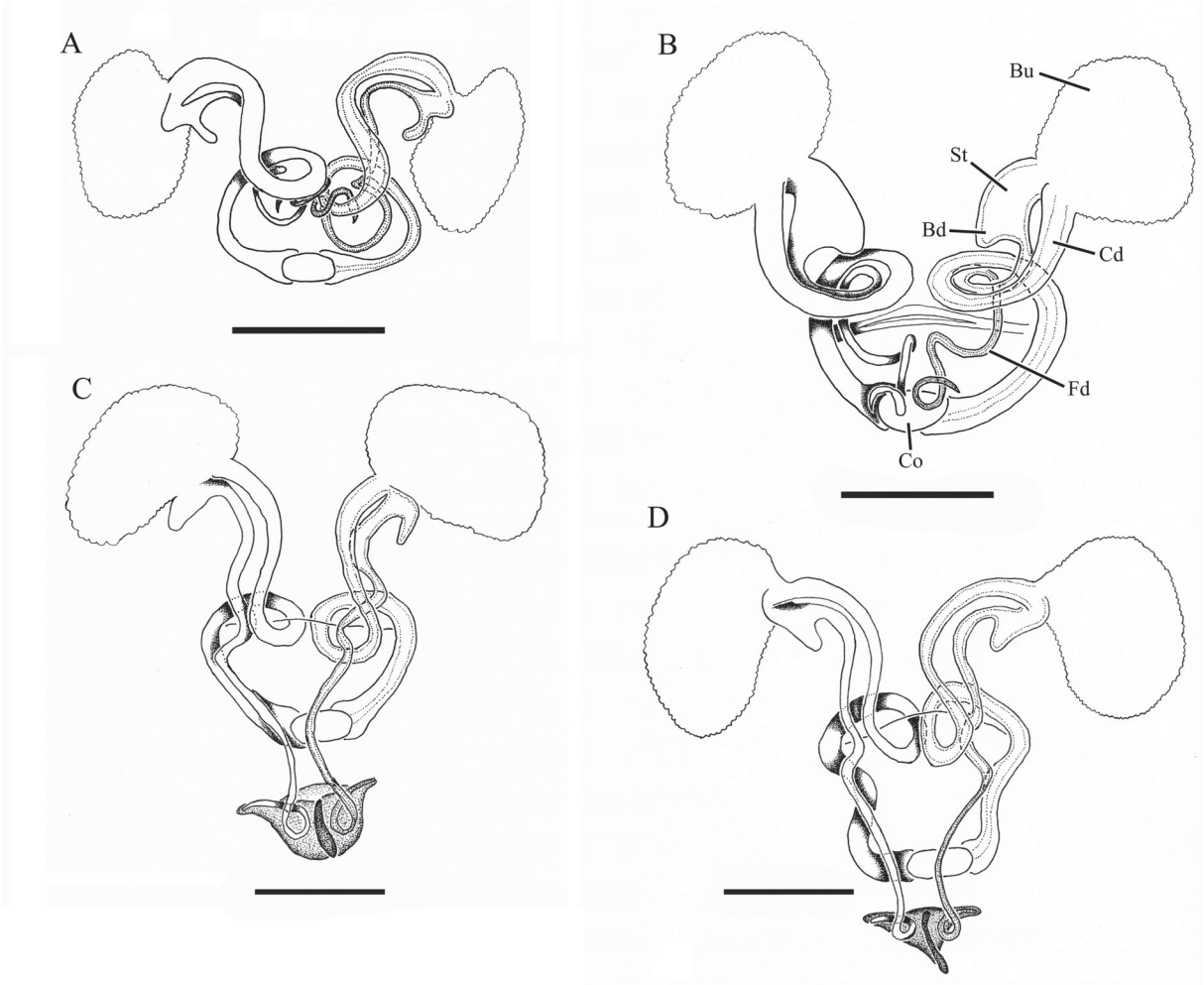

Fig. 9. Vulvae of *Uroctea grossa* Roewer, 1960; dorsal view. **A**. ♀ from Mazandaran Province, Larijan (MHNG). **B**. Holotype, ♀ (GNM-A497). **C**. ♀ from Turkmenistan (SMF38817). **D**. ♀ from Sistan and Baluchistan Province, surroundings of Taftan volcano (MHNG). Scale bars = 0.5 mm.

Records in Iran

Ilam, Khuzestan, Razavi Khorasan, Semnan (Baum 1972; Hosseini *et al.* 2014; Zamani 2015; Namaghi *et al.* 2016; Zamani & Mozaffarian 2017), Fars, Hormozgan, Lorestan and Mazandaran (this paper) Provinces (Fig. 2).

Discussion

The male palp and vulva of Oecobiidae are notoriously complex. For the male palps, Shear (1970), Baum (1972) and Bosselaers (1999) used the terminology of Comstock (1910), without due consideration of homology, in spite of the fact that Comstock's terminology was mainly based on the palpal structure of Linyphiidae Blackwall, 1859 and Araneidae Clerck, 1757. Coddington (1990) highlighted this problem and proposed a palpal terminology specifically applicable to Oecobiidae and Hersiliidae Thorell, 1870. Coddington calls Baum's (1972) "radix" the "oecobiid tegular lobe". This structure is called "tegular lobe" by Rheims *et al.* (2007) and Kunt *et al.* (2009). Baum's "terminal apophysis" and "functional conductor" are named "oecobiid terminal apophysis" and "oecobiid embolic apophysis", respectively, by Coddington. Baum's (1972: fig. 62) "median apophysis" is situated proximally to the tegulum and, as a result, is certainly not a median apophysis *sensu* Comstock (1910: 172, 179), which is a sclerite "Arising within the distal margin of the tegulum", and "joined by a flexible articulation to the tegulum". Coddington (1990: fig. 5) completely misinterprets Baum's median apophysis and therefore has no useful name for it. What Coddington calls "median apophysis" is in fact a basal lobe of the tegulum. As a result of this confusion, Yang *et al.* (2019: 137) could not "match the median apophysis of Coddington (1990) and Bosselaers (1999) with male palpal structures of *Uroctea* species here described." The "median apophysis" of Bosselaers (1999) is basically Baum's median apophysis. Yang *et al.* (2019) developed their own terminology, considering Baum's terminal and subterminal apophyses as one multibranched median apophysis. We consider this interpretation justified and applied it here. Yang's *et al.* (2019) use of the term conductor, on the other hand, seems unjustified, as this structure is not a separate sclerite in *Uroctea*, but an appendage of the embolus. Therefore, we used the term "functional conductor". For Baum's "radix", we followed Rheims *et al.* (2007) and Kunt *et al.* (2009) in calling it "tegular lobe". For the sake of clarity, the palpal terminology used by different authors is summarized in Table 1.

The vulvar terminology of Oecobiidae has also proven to be problematic. Yang *et al.* (2019) rightly argue that Baum's (1972, 1980) transparent, poorly sclerotized "receptacula" are in fact bursae, while her "B1", interpreted by Baum as the globular, sclerotized first stretch of the fertilization duct, are the actual spermathecae. Yang *et al.* (2019) do not mention Baum's "blind endender Anhang (A)", because it is not present in the *Uroctea durandi* (Latreille, 1809) species group (Benoit 1966: 192). We called this structure "blind ending duct", following Rheims *et al.* (2007). Apart from this, we applied Yang's *et al.* (2019) vulvar terminology in this paper.

It is noteworthy that seven species of *Uroctea* (*U. gambronica* sp. nov., *U. grossa*, *U. hashemitorum* Bosselaers, 1999, *U. limbata*, *U. paivani* (Blackwall, 1868), *U. sudanensis* Benoit, 1966 and *U. thaleri*) differ from *Uroctea durandi*, the type species of the genus, by the considerably larger number of prolateral spines on tarsus, metatarsus and tibia ((1)3–9(16) vs 0–3(5), Fig. 4), by the very large, scoop-shaped "branch 2" of the median apophysis (vs medium-sized, flat, pointed and subtriangular), the absence of a MAb3 (vs present), the presence of a conspicuous tegular lobe in the male palp (vs very small to absent), and the presence of a blind ending duct in the vulva (vs absent). This group of species might belong to a distinct, currently undescribed genus; this matter shall be investigated in future using integrative taxonomic methods.

Considering the results of this paper, there are now nine species of Oecobiidae known from Iran, and three are known from Afghanistan and Turkmenistan. Nevertheless, the arachnological research in the

Table 1. Palpal terminology related to Oecobiidae in six publications.

Comstock (1910)	Shear (1970)	Baum (1972)	Coddington (1990)	Yang *et al.* (2019)	Present paper
?	T	MA	?	?	–
T	Ra	T	T	T	T
?	S	Ra	OTL-1	–	TL
?	S	RaA	OTL-1	–	TL
–	–	STA-1	–	MAb1	MAb1
–	–	STA-2	–	MAb3	MAb3
–	C	TA	OTA	MAb2	MAb2
C	C	fC	OEA	C	fC
E	E	E	E	E	E
?	S	S	–	–	–

region is still in the discovery phase, and new sampling efforts, especially in remote and geographically diverse areas (e.g., Zagros, Kopet Dagh and Hindu Kush mountain ranges, Sahand-Bazman Volcanic and Plutonic Belt), could yield more undescribed species and new records.

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