

## A new species of *Sintula* (Linyphiidae), redescription of *Brigittea innocens* (Dictynidae) and eight spider species newly recorded for Turkey (Araneae)

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**Abstract.** A list of spiders is provided (Arachnida: Araneae), collected in April 2019 in the south-west of Turkey (Antalya Province, Kemer district). In total 95 species from 28 families have been recorded. *Sintula karineae* **spec. nov.** is described based on female specimens. *Brigittea innocens* (O. Pickard-Cambridge, 1872), a relatively unknown and poorly documented species, is redescribed. Besides the newly described member of *Sintula*, further eight species are new for the fauna of Turkey: *Canariphantes nanus* (Kulczyński, 1898), *Cyclosa algerica* Simon, 1885, *Hogna effera* (O. Pickard-Cambridge, 1872), *Lepthyphantes magnesiae* Brignoli, 1979, *Oecobius navus* Blackwall, 1859, *Phrurolithus azarkinae* Zamani & Marusik, 2020, *Pseudeuophrys rhodiensis* Schäfer, 2018 and *Theridion helena* Wunderlich, 2011. One female of *Ozyptila* Simon, 1864 (Araneae: Thomisidae) is described and illustrated and possibly represents the unknown female of *O. spirembola* Wunderlich, 1995, but no accompanying male was collected. Moreover, the findings of several other species already known from Turkey represent important records for the local fauna: *Berinda cooki* Logunov, 2012, *Harpactea sturanyi* (Nosek, 1905), *Heriaeus setiger* (O. Pickard-Cambridge, 1872), *Improphantes turok* Tanasevitch, 2011, *Mermessus denticulatus* (Banks, 1898), *Nomisia orientalis* Dalmás, 1921, *Philodromus femurostriatus* Muster, 2009, *Tegenaria faniapollinis* Brignoli, 1978, *Tegenaria vankeerorum* Bolzern, Burckhardt & Hänggi, 2013 and *Zaitunia kunti* Zonstein & Marusik, 2016. Photos and drawings of most of these species are provided.

**Keywords:** Arachnida, Antalya, description, Kemer, *Ozyptila*, Phaselis, survey, taxonomy

**Zusammenfassung.** Eine neue *Sintula*-Art (Linyphiidae), eine Wiederbeschreibung von *Brigittea innocens* (Dictynidae) und acht weitere Spinnenarten neu für die Türkei (Araneae). Es wird eine Spinnenliste (Arachnida: Araneae) von Aufsammlungen aus dem April 2019 im Südwesten der Türkei (Provinz Antalya, Kreis Kemer) präsentiert. Insgesamt wurden 95 Arten aus 28 Familien erfasst. *Sintula karineae* **spec. nov.** wird nach Weibchen beschrieben. *Brigittea innocens* (O. Pickard-Cambridge, 1872), eine relativ unbekannte und wenig dokumentierte Art, wird wiederbeschrieben. Neben der neuen *Sintula*-Art sind acht Arten neu für die Fauna der Türkei: *Canariphantes nanus* (Kulczyński, 1898), *Cyclosa algerica* Simon, 1885, *Hogna effera* (O. Pickard-Cambridge, 1872), *Lepthyphantes magnesiae* Brignoli, 1979, *Oecobius navus* Blackwall, 1859, *Phrurolithus azarkinae* Zamani & Marusik, 2020, *Pseudeuophrys rhodiensis* Schäfer, 2018 und *Theridion helena* Wunderlich, 2011. Ein Weibchen der Gattung *Ozyptila* Simon, 1864 (Araneae: Thomisidae) wird beschrieben und abgebildet. Es ist möglicherweise das unbekannte Weibchen von *O. spirembola* Wunderlich, 1995, es konnte aber kein Männchen gefunden werden. Die Funde weiterer Arten sind bemerkenswert: *Berinda cooki* Logunov, 2012, *Harpactea sturanyi* (Nosek, 1905), *Heriaeus setiger* (O. Pickard-Cambridge, 1872), *Improphantes turok* Tanasevitch, 2011, *Mermessus denticulatus* (Banks, 1898), *Nomisia orientalis* Dalmás, 1921, *Philodromus femurostriatus* Muster, 2009, *Tegenaria faniapollinis* Brignoli, 1978, *Tegenaria vankeerorum* Bolzern, Burckhardt & Hänggi, 2013 und *Zaitunia kunti* Zonstein & Marusik, 2016. Zeichnungen und teilweise Fotos der meisten dieser Arten werden präsentiert.

The araneofauna of Turkey currently comprises 1129 species (Danışman et al. 2021). Although this number might appear to be high, the Turkish spider fauna is still only poorly known and several dozen species (including species new to science) are added to the national checklist every year (Nentwig et al. 2020). The paper presents the results of a survey that took place in spring 2019. Although sampling was limited in time and restricted to a few localities, the results add several new species to the Turkish spider fauna, including a species new to science. Other records concern species that are already documented for Turkey, but are of overall interest because of a very low number of known localities and/or a poorly known ecology.

### Material and methods

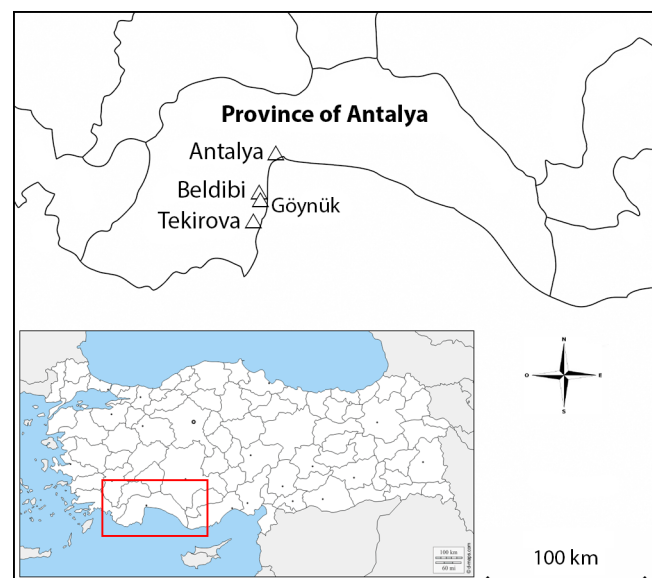
Sampling was carried out from 13 to 20 April 2019 at several places, mainly near the shoreline (Fig. 1). The sampled localities are located in the province of Antalya (Kemer district), specifically in the municipalities of Beldibi, at the foothills of the Taurus Mountains, Tekirova (archaeological site of Phaselis) and to a lesser extent in Antalya, Beşkonak, Göynük and Taşağıl. Fig. 2 shows the main habitats surveyed.

The main techniques used were hand capture (especially under stones but also in herbaceous layers and on the trunks),

beating, as well as pitfalls. Several juvenile specimens were raised in captivity until they reached maturity (see Annex).

All specimens were preserved in alcohol (70% ethanol) for identification purposes. Species were examined by using a Zeiss Stemi 305, a Nikon SMZ1270 stereo microscope or an Olympus CH-2 microscope.

Wherever possible, specimens were photographed in their natural habitat or, if this was not possible, at a differ-



**Fig. 1:** Geographical location of the study area (△: main sectors surveyed) (source: <https://d-maps.com>)

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**Fig. 2:** Habitats at the collecting sites. **a.** Pine grove in a park, Beldibi; **b.** Pine grove, Beldibi; **c.** Meadow in an ancient orange grove, Beldibi; **d-f.** Phaselis archaeological site, Tekirova; **d.** Reedbed and pine litter; **e.** Ancient ruined structure with microcaves; **f.** Pine forest and stony slope. **g.** Habitat of *Brigittea innocens*. Male and female were collected from thorny bushes (photos: S. Lecigne)

ent, more suitable place outside. Some photographs were also taken through a stereo microscope ocular with a Samsung S6 smartphone.

Somatic measurements were made with a scaled eye piece in the stereo microscope and are expressed in mm. Measurements of the legs are taken from the dorsal side.

Position and elevation of localities were recorded using a smartphone's GPS; geographic coordinates are presented in the WGS 84 system.

To validate identifications primarily Wesolowska (1986), Deeleman-Reinhold & Deeleman (1988), Bayram et al. (2007), Marusik (2008), Hepner & Paulus (2009), Le Peru (2011), Logunov (2012), Marusik et al. (2015), Uyar & Dolejš (2017), Bosselaers (2018), Varol & Danişman (2018), Bosmans et al. (2019), Nentwig et al. (2020) and Oger (2020) was used.

Type material has been deposited at the Senckenberg Museum Frankfurt (SMF). Unless otherwise specified, non-type material is conserved in the private collection of the author.

The nomenclature of species and authors follows the WSC (2020).

### Abbreviations

**AME** – anterior median eyes; **AME–AME** – distance between AMEs; **AME–ALE** – distance between AME and ALE; **ALE** – anterior lateral eyes; **Cd** – copulatory duct; **Co** – conductor; **des.** – description; **E** – embolus; **j** – juvenile; **Mt** – metatarsus; **PL** – prosoma length; **PME** – posterior median eyes; **PME–PME** – distance between PMEs; **PME–PLE** – distance between PME and PLE; **PLE** – posterior lateral eyes; **PW** – prosoma width; **SD** – sperm duct; **SMF** – Senckenberg Museum Frankfurt; **Sp** – spermatheca; **TA** – tibial apophysis.

### Results

The sampling period was short (7 days) and involved both a small number of sampling techniques and a very small variety of habitats. Nevertheless, it allowed the collection of 368 specimens (about a third of which were immature), yielding a total of 95 spider species. Eleven of them (i.e. about 11%) are new for the Turkish fauna (Danişman et al. 2021, Nentwig et al. 2020); three of them have already been mentioned at least once for the country, but are not yet included in the national



checklist of Danişman et al. (2021) and one species is new to science and described in detail. This confirms the fact that the spider fauna of Turkey is still poorly known.

The complete list of species is presented in the annex (Tab. I). I present below one species new to science, several new species for the spider fauna of Turkey as well as a number of other interesting records, e.g. recently described species with a poorly known ecology or distribution, or taxa with only a few citations in the WSC (2020).

### Description of the new species

#### *Sintula* Simon, 1884 (Linyphiidae)

The genus includes 17 species (WSC 2020) of which three are recorded in Turkey (Danişman et al. 2021): *Sintula corniger* (Blackwall, 1856), *Sintula cristatus* Wunderlich, 1995 and *Sintula retroversus* (O. Pickard-Cambridge, 1875).

#### *Sintula karineae* spec. nov. (Fig. 3a-f)

**Type material.** Holotype: 1 ♀, TURKEY: province of Antalya, Kemer district, Beldibi (30.56327°E, 36.70980°N, 8 m a.s.l.) (Fig. 1), pitfall, 14.–20. Apr. 2019, deposited at the SMF. Remarks: opisthosoma slightly damaged and partially discoloured due to the capture method. Paratype: 1 ♀, same locality, same data as the holotype, deposited at the SMF. Remarks: opisthosoma damaged, epigyne detached, right legs fragmented.

**Etymology.** The species name refers to the first name of my wife Karine, who has supported my scientific projects and my work on spiders for many years.

**Diagnosis.** The new species shows the typical chaetotaxy and genital characters of the genus *Sintula* Simon, 1884, according to Bosmans (1991) and Gnelitsa (2012): tibial spination 2-2-1-1; metatarsi I–II with a dorsal spine; metatarsus IV without trichobothrium; epigyne consisting of a large plate extending significantly beyond the epigastric furrow.

By the length and shape of the genital plate and by the dorso-median process of the scape, entering the epigynal cavity (Fig. 3c), this new species does not resemble any other *Sintula*.

It differs from *Sintula penicilliger* (Simon, 1884) mainly by the shape of the mid-ventral septum. In *S. karineae* spec. nov. the terminal part of the septum is clearly narrowed and its anterior part does not extend over the entire width of the epigyne. In *S. penicilliger*, the terminal part is visibly enlarged; the anterior part is equal to the entire width of the epigyne.

**Description.** Measurements (n = 2): total length 1.9–2.0, PL 0.75, PW 0.57; sternum 0.44 long, 0.40 wide; chelicerae 0.30 long.

Colour (from specimens in alcohol): prosoma brown with darkened blotch in front of the fovea, margin blackish; chelicerae yellowish brown; sternum dark grey; legs yellowish brown, a black mark under articulations (femora, patellae and tibiae); opisthosoma uniformly dark grey.

**Prosoma.** Eyes: posterior eyes row straight.

Chelicerae: with three promarginal and two retromarginal teeth.

Legs: tibiae I, position of first spine 0.27–0.28, relative length 2.3–2.5, position of second spine 0.76–0.77; position of trichobothrium on Mt I 0.28–0.32; trichobothrium on Mt IV absent.

**Opisthosoma.** Epigyne (Fig. 3b–e): scape visibly longer than wide, undivided, rather broad at the base, obviously narrowed in its distal part. Vulva (Fig. 3f): copulatory ducts associated with the dorso-median process and consisting of a circular coil forming one loop and a quarter, spermathecae elongated, slightly oblique. See also diagnosis.

**Male.** Unknown.

**Comment.** *Sintula karineae* spec. nov. is the fourth member of the genus in Turkey.

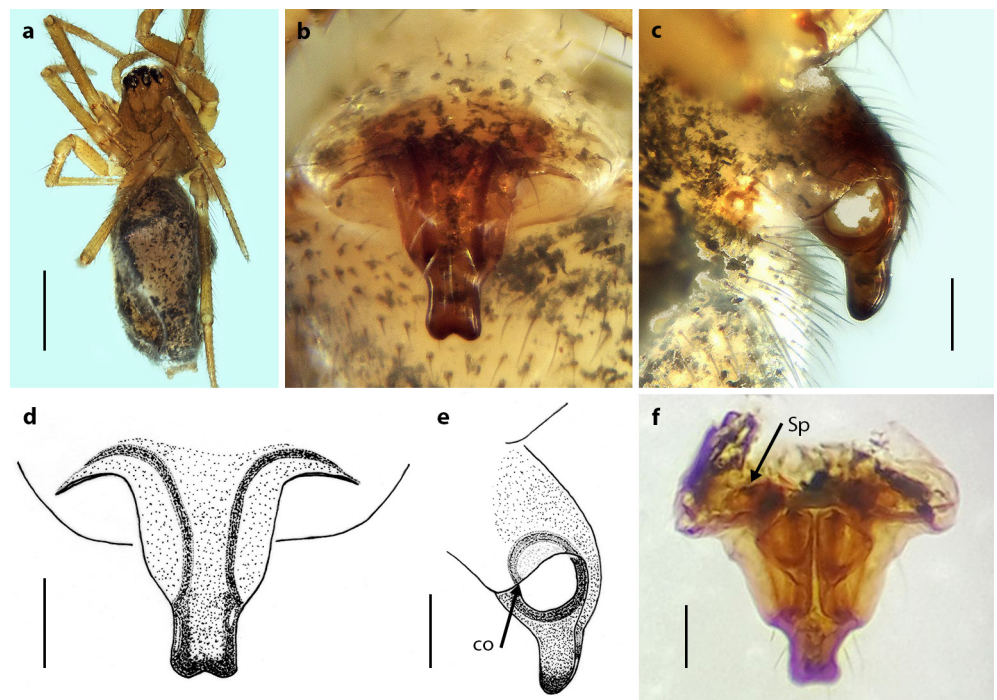
**Distribution and habitat.** Only known from the type locality in Beldibi (Turkey), grasslands, in an ancient orange grove in peri-urban area (Fig. 2c).

### Redescription of a poorly known species

#### *Brigittea innocens* (O. Pickard-Cambridge, 1872)

(Figs 4a–i, 5a–h, 6a–e) (Dictynidae)

*Dictyna innocens*: Pickard-Cambridge (1872): p. 262 (descr. ♀);



**Fig. 3:** *Sintula karineae* spec. nov. a–e. Female holotype; a. Dorsal view; b, d. Epigyne, ventral view; c, e. Idem, lateral view; f. Female paratype, vulva, dorsal view (photos f: S. Lecigne; a–c: P. Oger). Scale line = 0.1 mm. Abbreviations: CO – copulatory opening; Sp – spermatheca

Kulczyński, (1911): p. 13, pl. 1, fig. 3 (♀); *Dictyna abaronii*: Strand (1914): p. 174 (descr. ♀); *Dictyna jacksoni*: Bristowe (1935): p. 778, figs 1-3 (descr. ♀); Hadjissarantos (1940): p. 49, figs 16-17 (♀, descr. ♂); *Brigittea innocens*: Lehtinen (1967): p. 219, figs 309, 323 (♂, ♀); *Dictyna innocens*: IJland et al. (2012): p. 5, figs 4-5 (♂, ♀).

**Comments.** The identification of the specimens from Italy (IJland et al. 2012) is erroneous; they probably belong to *Brigittea varians* (Spassky, 1952) (IJland pers. comm.). *Brigittea varians* is known only from South Russia and Central Asia (Nentwig et al. 2020), and it remains questionable if this species is distributed in the Mediterranean region.

The original description of Pickard-Cambridge's female (1872) is insufficient because it is essentially based on the opisthosomal pattern, which is not usable for a reliable identification in Dictynidae.

Kulczyński (1911) described *Dictyna innocens* based on a female from Beirut (Lebanon) and presented a drawing of the epigyne. His assignment was only tentative, as indicated by a “?” after the species name.

Strand (1914) described *Dictyna abaronii*, now a junior synonym of *B. innocens*, and specified that it is related to *D. innocens*, but nevertheless explained through a diagnosis how his species differs in minor details from the female tentatively assigned to this name by Kulczyński, in particular by its size and the shape of the genital opening.

Bristowe (1935) described *Dictyna jacksoni* from females from several localities in Greece, but without any further indication about the deposition of the types.

At this time, the only description of the male was the one by Hadjissarantos (1940), whose two drawings (ventral view and tibial apophyses view) show only very a few visible details.

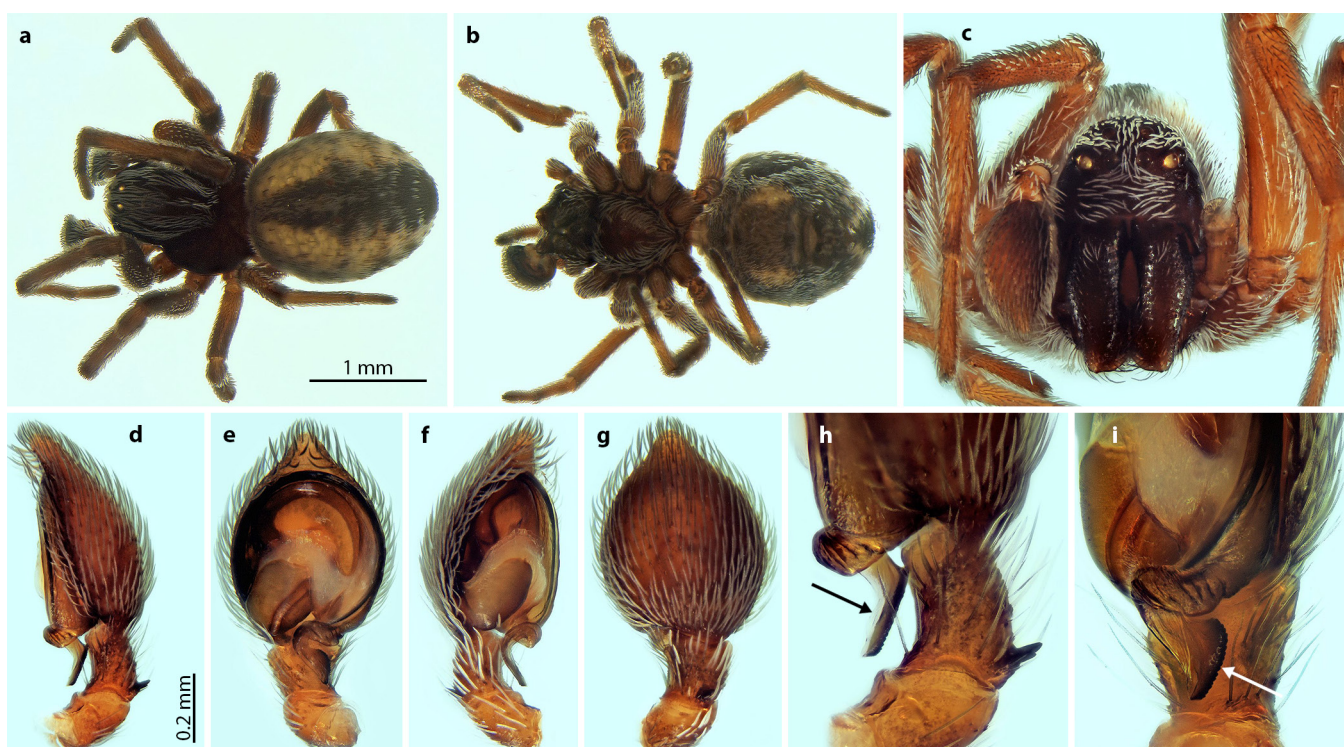
Lehtinen (1967), who potentially had access to the Oxford collection (and therefore to the holotype) as stated in

the list of museums in his work, synonymized *D. abaronii* and *D. jacksoni* with *D. innocens*. In addition, he synonymised the male by Pickard-Cambridge (1876) with *Brigittea vicina* (Simon, 1873). Lehtinen also shows a male pedipalp of *B. innocens* (Lehtinen 1967; fig. 323) and states that the depicted material is a syntype. The latter is not possible, because Pickard-Cambridge (1872, p. 262) explicitly mentions in the first description that he had no male material available (“Examples (all females) were found on low-growing plants on the plains of the Jordan.”). However, the drawing in Lehtinen agrees with the pedipalp of the male collected together with the female in Turkey and is considered to indeed represent the male of *B. innocens*.

Given the uncertainties recalled by IJland et al. (2012) with respect to the descriptions of the species in the past (drawings or descriptions that are not sufficiently precise, misidentifications, female and male descriptions of the same author not conspecific), I present a detailed redescription of the species – including the first illustration of the vulva structures – based on both sexes collected from bushes on the same rocky slope (Fig. 2g). The identification of the pair from Turkey agrees with the description in Pickard-Cambridge (1872: p. 262), Kulczyński (1911: p. 13, pl. 1, fig. 3), Bristowe (1935: p. 778, figs 1-3) and Lehtinen (1967: figs 309, 323), as well as the examined female type material of the junior synonym *B. abaronii*.

**Material examined.** TURKEY: Antalya (province), Kemer (district), Göynük, 30.56811°E, 36.67889°N, 4 m a.s.l., coastal area, on a rocky slope in thorny dry bushes, 1 ♂, 1 ♀, 1 j, beating, 19. Apr. 2019, deposited at the SMF. Remarks: left male pedipalp detached; female's opisthosoma detached from body, as well as the epigyne.

**Other material examined.** Holotype female of *Dictyna abaronii* Strand, 1914 from Israel, Jaffa – Rehoboth, 14. Jul. 1913,



**Fig. 4:** *Brigittea innocens*, male from Turkey. **a.** Dorsal view; **b.** Ventral view; **c.** Frontal view; **d.** Pedipalp, retrolateral view; **e.** Idem, ventral view; **f.** Idem, ventro-prolateral view; **g.** Idem, dorsal view; **h.** Idem, conductor and tibial apophysis, retrolateral view (arrow: terminal part of the conductor, almost straight from this view); **i.** Idem, conductor, ventro-prolateral view (arrow: indentations on the apical part of the conductor) (photos: P. Oger)



1 ♀ (SMF 2742-94). Remarks: specimen discoloured, pattern not analysable.

**Diagnosis.** Males of *B. innocens* are distinguished by the shape of both the conductor and the tibial apophysis and by the size of the tibial apophysis.

Females of *B. innocens* can be mainly distinguished by the position of the genital openings and by the shape of the spermathecae.

**Description. Male.** Measurements ( $n = 1$ ): total length 2.9, PL 1.34, PW 1.10; sternum 0.73 long, 0.67 wide; chelicerae 0.63 long.

Colour: prosoma, chelicerae and sternum dark brown, legs brown, tibiae and Mt distally darkened; opisthosomal pattern consisting of a median dark band which narrows in front, barely widened in the middle, the rear part formed by three blocks of different thickness whose sides converge towards the spinnerets, this dark band bordered on both sides by a whitish band, flanks dark, ventral part formed by a wide brown band reaching the spinnerets and bounded by a lighter area (Fig. 4a-b).

**Prosoma.** Cephalic part markedly elevated, covered with white flat-lying hairs; chelicerae in frontal view close set (Fig. 4c), posterior margin with one tiny tooth, the anterior margin with a series of five small teeth and outwards (towards the base of the hook) with four bristles inserted on a small chitinous knob.

Legs: covered with both white and black hairs; without spines; the calamistrum extending almost over the entire length of Mt IV.

**Opisthosoma.** Cribellum divided by thin median line.

Pedipalp: bulb almost round (Fig. 4e); conductor twisted, wide at its base, apically, the outer margin with numerous small indentations (arrow, Fig. 4i), retrolaterally, this part appearing thin and almost straight (arrow, Fig. 4h); tibial apophyses (ctenidia) short, aligned at their bases, the first retrolateral one straight and with broad base, the second prolateral one a little longer and slightly tilted forward (Fig. 6a).

**Female.** Measurements ( $n = 1$ ): total length 2.9, PL 1.30, PW 1.07; sternum 0.75 long, 0.63 wide; chelicerae 0.49 long.

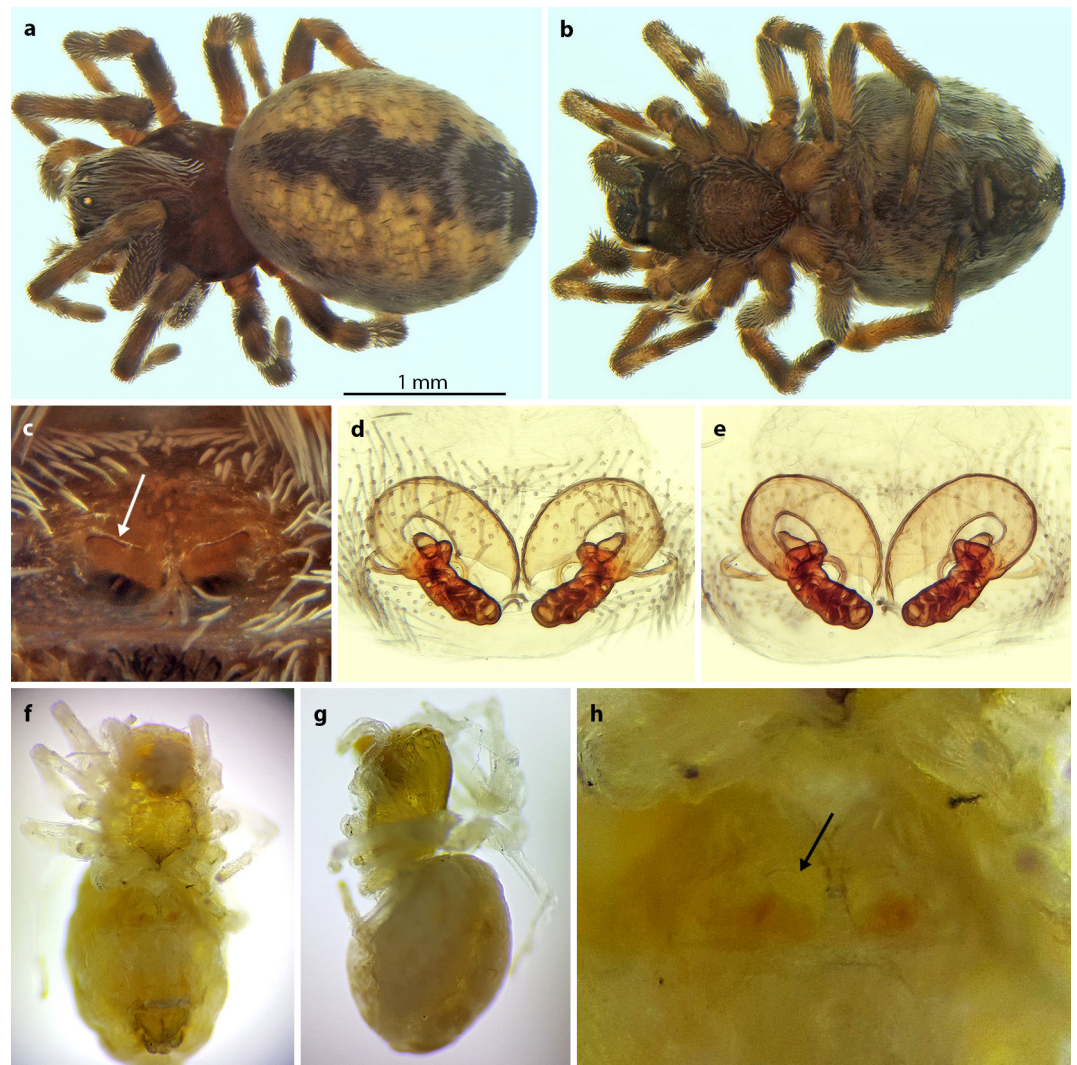
Overall very similar to the male, unless otherwise specified.

Colour: prosoma and sternum dark brown; chelicerae olive brown; legs brown, first half of femorae lighter, tibiae darkened distally, Mt and tarsi yellowish, darkened distally; opisthosomal pattern similar to that of male but the median dark band is visibly widened in the middle on both sides forming 2 lobes (Fig. 5a-b).

**Prosoma.** cephalic part less visibly elevated than in male.

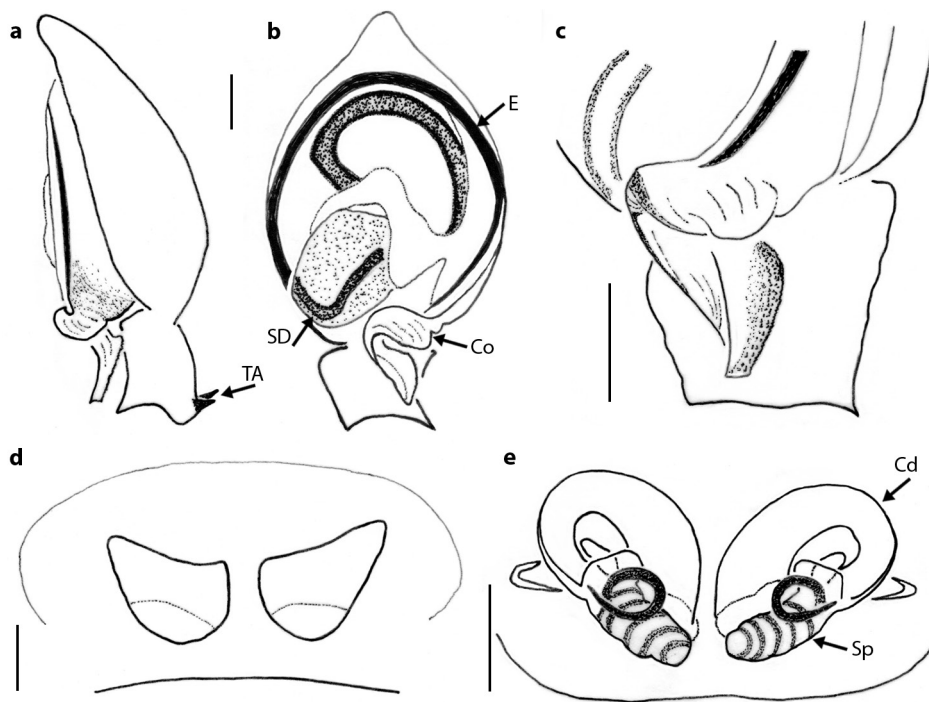
**Opisthosoma.** division of cribellum hardly visible.

Epigyne: consisting of two genital openings rounded posteriorly, widening anteriorly with oblique anterior margin (Figs 5c, 6d) or ovoid (Fig. 5h; Kulczyński 1911: pl. 1, fig. 3). Sper-



**Fig. 5:** Dictynidae from Turkey. **a-e.** *Brigittea innocens*, female. **a.** Dorsal view; **b.** Ventral view; **c.** Epigyne (arrow: shape of the anterior margin of a genital opening); **d.** Vulva, ventral view; **e.** Idem, dorsal view; **f-h.** *Brigittea aharonii*, female, holotype; **f.** Ventral view; **g.** Lateral view; **h.** Epigyne (dotted line: anterior contour of a genital opening; arrow: shape of the anterior margin of a genital opening) (photos f-h: S. Lecigne; a-e: P. Oger)





**Fig. 6:** *Brigittea innocens*, specimens from Turkey. **a.** Male pedipalp, retrolateral view; **b.** Idem, ventral view; **c.** Idem, conductor, ventro-prolateral view; **d.** Epigyne; **e.** Vulva, dorsal view. Scale line = 0.1 mm. Abbreviations: Cd – copulatory duct; Co – conductor; E – embolus; SD – sperm duct; Sp – spermatheca; TA – tibial apophyses

mathecae partly visible through the genital openings, at their posterior edge (Fig. 6d).

Vulva: spermathecae elongated and turning outwards at an angle of 45°. Copulatory ducts consisting of a semi-circular coil, widening towards their openings (Figs 5d-e, 6e).

**Distribution.** Eastern Mediterranean species, known from Greece, Cyprus, Turkey, Syria, Israel and from Kazakhstan; to be removed from the Italian species list (see above).

#### Documentation of an unknown specimen of the genus

##### *Ozyptila* Simon, 1864

##### *Ozyptila* sp. (Fig. 7a-j) (Thomisidae)

**Material examined.** TURKEY: Antalya (province), Kemer (district), Tekirova, site of Phaselis, scattered pine forest by the sea, under a stone (30.56811°E, 36.67889°N, 3 m a.s.l.), 1 ♀, hand collecting, 18. Apr. 2019.

**Comments.** Following recent taxonomic changes that have affected several genera of crab spiders including *Xysticus*, *Ozyptila*, *Bassanioides* and *Psammitis* (Breitling 2019), and pending consistent morphological definition of the genera involved, I have compared the specimen from Turkey to available diagnoses of these and other crab spider genera.

The specimen does not have the characteristics of the genus *Cozyptila*, and lacks in particular a massive outgrowth of the epigynal plate (Marusik et al. 2005), neither it has an unpaired central epigynal cavity like in *Psammitis* (Lehtinen 2002) and also lacks the characters of the genus *Psammitis* defined by Pocock (1903), namely the spine armature of the anterior legs and the disposition of the eyes. The specimen also has no posteriorly concave, well sclerotized anterior hood like in *Bassanioides* (Lehtinen 2002).

I attribute the specimen to the genus *Ozyptila* based on the description by several authors including Dondale & Redner (1978). I excluded the species of the *rauda* group, as the specimen does not display the characteristics of this group defined by Hippa & Koponen (1986), especially a "pit-like epigyne" (Fig. 2a-b).

I also excluded most of the species for which only males are known and that do not converge with the female specimen presented herein. The only exception is *O. spirembola* Wunderlich, 1995, with which it has many similarities (e.g. PL/PW ratio, leg spination, general colouration, nature and distribution of the opisthosomal bristles). Thus, the specimen from Turkey could be the unknown female of *O. spirembola* or a related species not yet described. This will remain to be confirmed with the collection of both sexes.

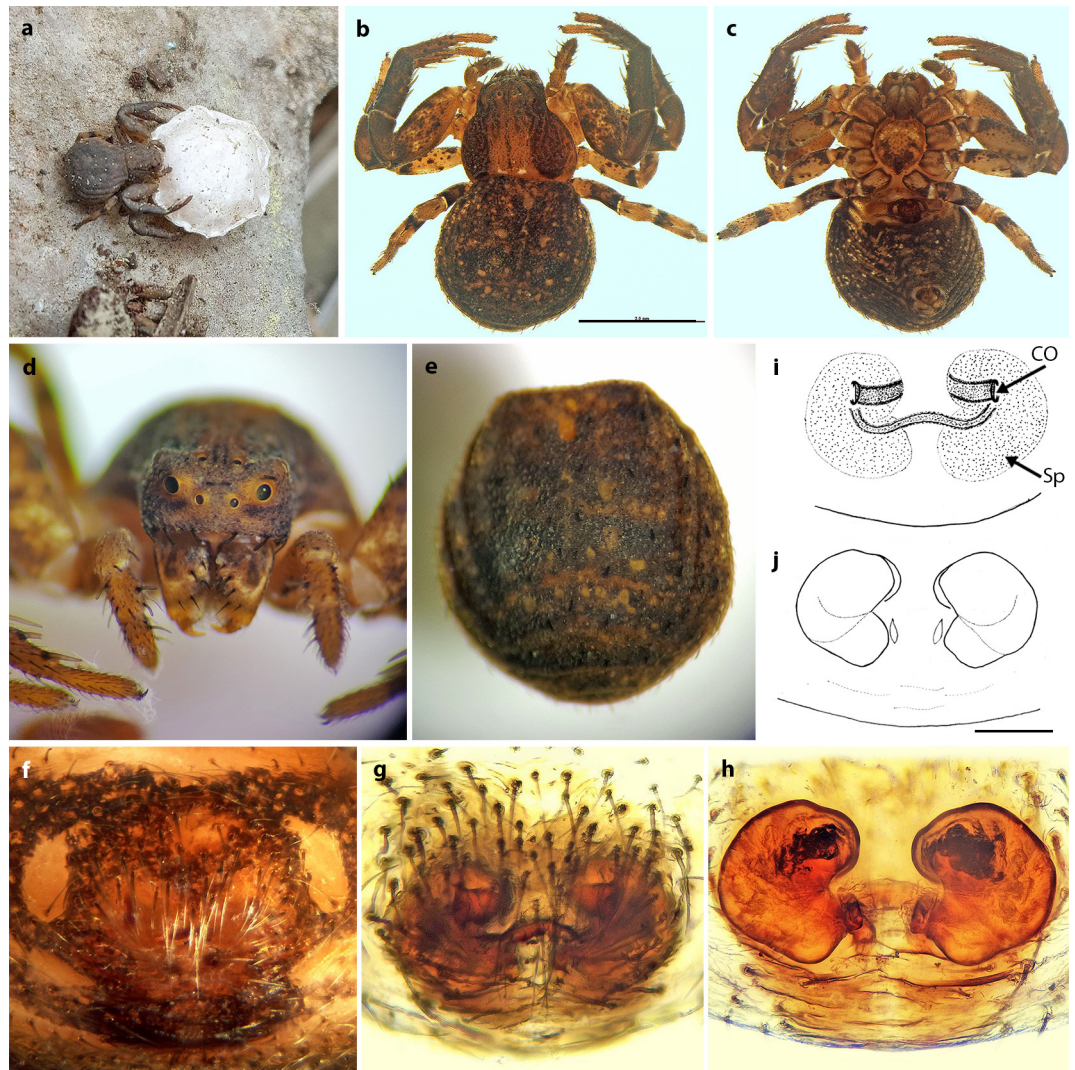
**Diagnosis.** The species differs distinctly from other *Ozyptila* species by the form, simple structure (see description) and the arrangements of the epigynal (no anterior process – scape or hood – neither any groove) and spermathecal structures.

**Description.** Measurements: female (n = 1): total length 4.3; PL 2.10, PW 2.00, ratio PL/PW = 1.05; sternum 1.00 long, 0.87 wide; opisthosoma length 2.93; median ocular quadrangle, slightly longer than wide (0.38 long, 0.33 wide), eye inter-distances: AME–AME 0.20, AME–ALE 0.13, PME–PME 0.20, PME–PLE 0.29, PME spaced 3 times their diameter. Colour (from specimens in alcohol): prosoma dark brown, the longitudinal median band lighter (yellowish) in its posterior part, marked by a thin brown median line (Fig. 7b); lighter, orange ring around the eyes, AME underlined with a thick brown mark (Fig. 7d); sternum yellowish, provided with a broad V-shaped brown pattern on the rear side; maxillae and labium brown, clearer in the anterior part; chelicerae brown, the basal part with darker patches; opisthosoma dark brown with small lighter spots; legs brown to brown-yellowish, leg I: femora, patella and tibia noticeably darker, leg II: idem but less distinct shade, coxae, trochanters and femorae II–III–IV with dark brown patches (Fig. 7b), tibia IV basally with a wide dark brown ring.

**Prosoma.** Chelicerae: on the anterior margin, a series of 5 bristles inserted on a small chitinous knob, the size of the bristles increases towards the base of the hook.

Legs: robust, with few spines, mainly: tibiae I–II, 2 pairs of ventral spines; Mt I–II, 3 pairs of ventral spines and 1 prolateral, Mt I with 1 additional retrolateral spine.



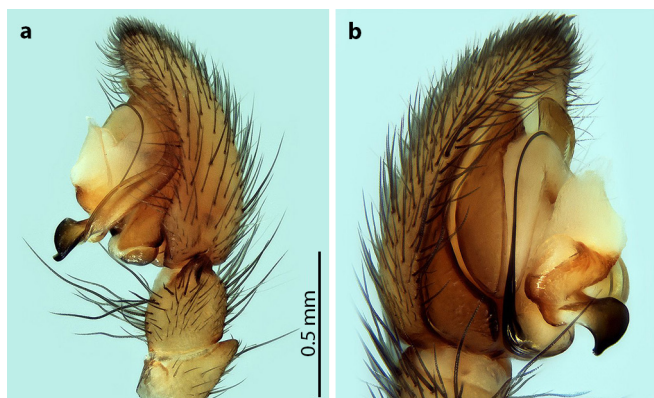


**Fig. 7:** *Ozyptila* sp., female: **a-b.** Dorsal view; **c.** Ventral view; **d.** Frontal view; **e.** Opisthosoma, dorsal view; **f.** Epigyne; **g.** Vulva, ventral view; **h.** Idem, dorsal view; **i.** Epigyne/vulva, ventral view; **j.** Vulva, dorsal view (photos a, d-e: S. Lecigne; b-c, f-h: P. Oger). Scale line = 0.1 mm. Abbreviations: CO – copulatory opening; Sp – spermatheca

**Opisthosoma.** Wrinkled dorsum and sides, with a few clavate setae (a few sharp spines at the back) and very sparse, short, plated bristles (Fig. 7e).

Epigyne: simple, not very legible, formed by a discrete, sclerotized transverse structure between the 2 small lateral copulatory openings (Fig. 7i). These are only visible in the vulva, on the ventral view. See also diagnosis.

Vulva: massive, bean-shaped spermathecae, barely longer than wide (Fig. 7h).



**Fig. 8:** *Berinda cooki*, male pedipalp. **a.** Retrolateral view; **b.** Prolateral view (photos: P. Oger)

#### New species and new interesting records for the spider fauna of Turkey

*Berinda cooki* Logunov, 2012 (Fig. 8a-b) (Gnaphosidae)

**Identification.** Logunov (2012): p. 375, figs 1-2.

**New records.** Beldibi, under a stone, on the edge of the meadow of an ancient orange grove (30.55252°E, 36.52397°N, 9 m a.s.l.), 1 subad. ♂ (raised to maturity), hand collecting, 14. Apr. 2019. Tekirova, site of Phaselis, pine forest, on the ground on a grassy slope (30.56293°E, 36.70976°N, 3 m a.s.l.), 2 subad. ♂♂ (raised to maturity), hand collecting, 18. Apr. 2019.

**Comments.** *Berinda cooki* has only recently been described, from a single male; so far the species is only known from the type locality (near Kalkan, Antalya Province, Turkey). During the time of the survey, the species were collected twice, at two localities, suggesting that it might be locally well distributed.

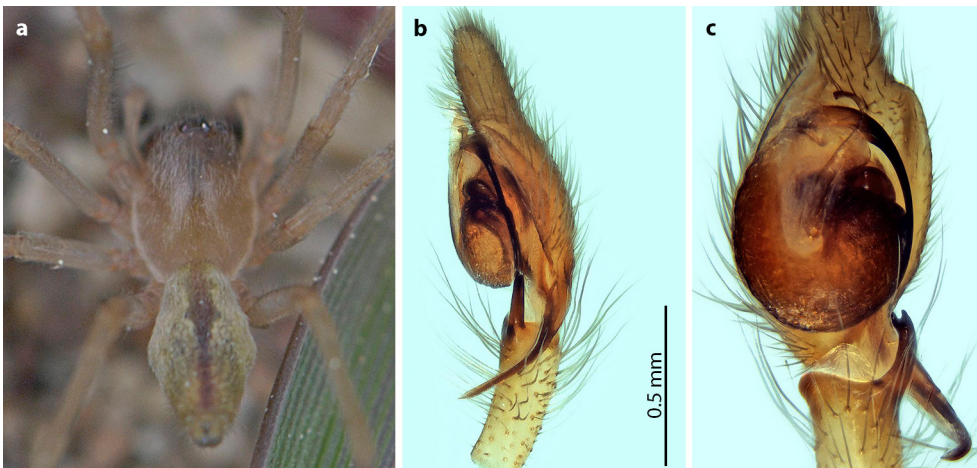
*Canariphantes nanus* (Kulczyński, 1898) (Fig. 30a-c)

(Linyphiidae)

**Identification.** Gnelitsa (2009: 191, fig. 1a-g); Nentwig et al. (2020).

**New record.** Beldibi, on a stony path at the edge of the pine forest (30.56226°E, 36.70926°N, 3 m a.s.l.), 1 ♀, hand collecting, 16. Apr. 2019. Beldibi, grasslands, in an ancient orange grove (30.56327°E, 36.70980°N, 8 m a.s.l.), 1 ♀, pitfall, 20. Apr. 2019.





**Fig. 9:** *Cheiracanthium pelasgicum* group, male. **a.** Dorsal view; **b.** Pedipalp, retrolateral view; **c.** Idem, ventral view (photos a: S. Lecigne; b-c: P. Oger)

**Comments.** The species is known from Central to Eastern Europe and from Israel (WSC 2020). *Canariphantes nanus* is a species of the epigeal fauna that appears to be quite rare throughout its range (Grbić et al. 2021). It colonises grasses and litter in a fairly wide variety of habitats (open to shrubby and forested areas), suggesting that its ecological valence is fairly broad (see also Gnelitsa (2009) and Grbić et al. (2021) for notes on the habitat). *Canariphantes nanus* is new to Turkey and it is the only species of the genus currently known for the country.

***Cheiracanthium pelasgicum* group** (Fig. 9a-c)  
(Cheiracanthiidae)

**Records.** Beldibi, on the perimeter wall of a hotel park (30.56581°E, 36.71052°N, 3 m a.s.l.), 3 ♂♂, hand collecting, 14. Apr. 2019.

**Comments.** The number of teeth (7) on the posterior margin and the small size (4–4.3 mm) exclude *C. pennyi* O. Pickard-Cambridge, 1873. A high number of teeth is typical for a complex of species near *C. pelasgicum*, but specimens from Turkey are quite unusual (Dolanský pers. comm.), i.e. they have a very wide cymbium spur (without a thin end) and the bifurcation on the tip of the RTA is more significant. According to Dolanský, the description of the characteristic male pattern of *C. pelasgicum* is that defined by Koch (1839, fig. 436) and seems to correspond to Simon's (1932) description of *C. pennatum*. Simon's (1932) description of the pattern of *C. pelasgicum* could correspond to the specimen from Turkey. According to Simon (1932), *C. abbreviatum* Simon, 1878 would be a local form of *C. pelasgicum*, but smaller in size. Moreover, the opisthosomal band does not extend beyond the middle, which does not correspond to the pattern of the

specimens from Turkey. Thus, it appears that *C. pelasgicum* and related species merit extensive revision and it is possible that a single polymorphic species or complex of many closely related species are present in the Mediterranean region (Dolanský pers. comm.). In the meantime, I assign the specimens collected in Turkey to the *pelasgicum* group.

***Cyclosa algerica* Simon, 1885** (Fig. 10a-d) (Araneidae)

**Identification.** Levi (1977): p. 79, figs 34–37.

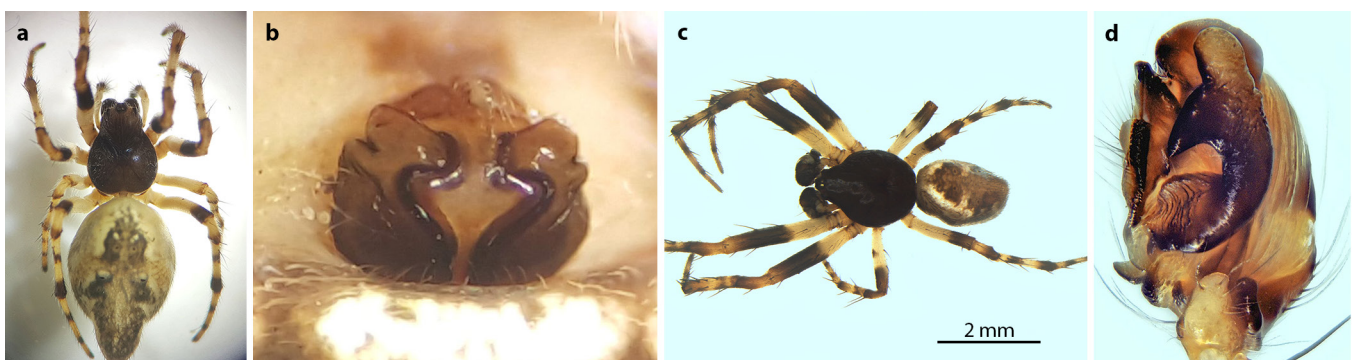
**New records.** Göynük, coastal zone, in tall grass in a meadow, in a pine forest clearing (30.56939°E, 36.68153°N, 2 m a.s.l.), 1 ♂, beating, 19. Apr. 2019; Göynük, coastal zone, on a rocky slope, in dry, young coniferous bushes (30.56811°E, 36.67889°N, 4 m a.s.l.), 1 ♀, beating, 19. Apr. 2019. Tekirova, site of Phaselis, pine forest, under rocks (30.55277°E, 36.52342°N, 3 m a.s.l.), 1 ♀, 1 subad. ♀, hand collecting, 18. Apr. 2019; Göynük, pine forest, in holly boughs (30.55071°E, 36.67889°N, 3 m a.s.l.), 1 ♂, beating, 18. Apr. 2019.

**Comments.** *Cyclosa algerica* is a Mediterranean species whose records for Europe so far concern only Portugal, Spain, France and Bulgaria (Nentwig et al. 2020). The species is new to Turkey. It seems to be locally well distributed. The new records suggest a preference for open and xerothermophilic habitats.

***Dysdera longimandibularis* Nosek, 1905** (Fig. 11a-g)  
(Dysderidae)

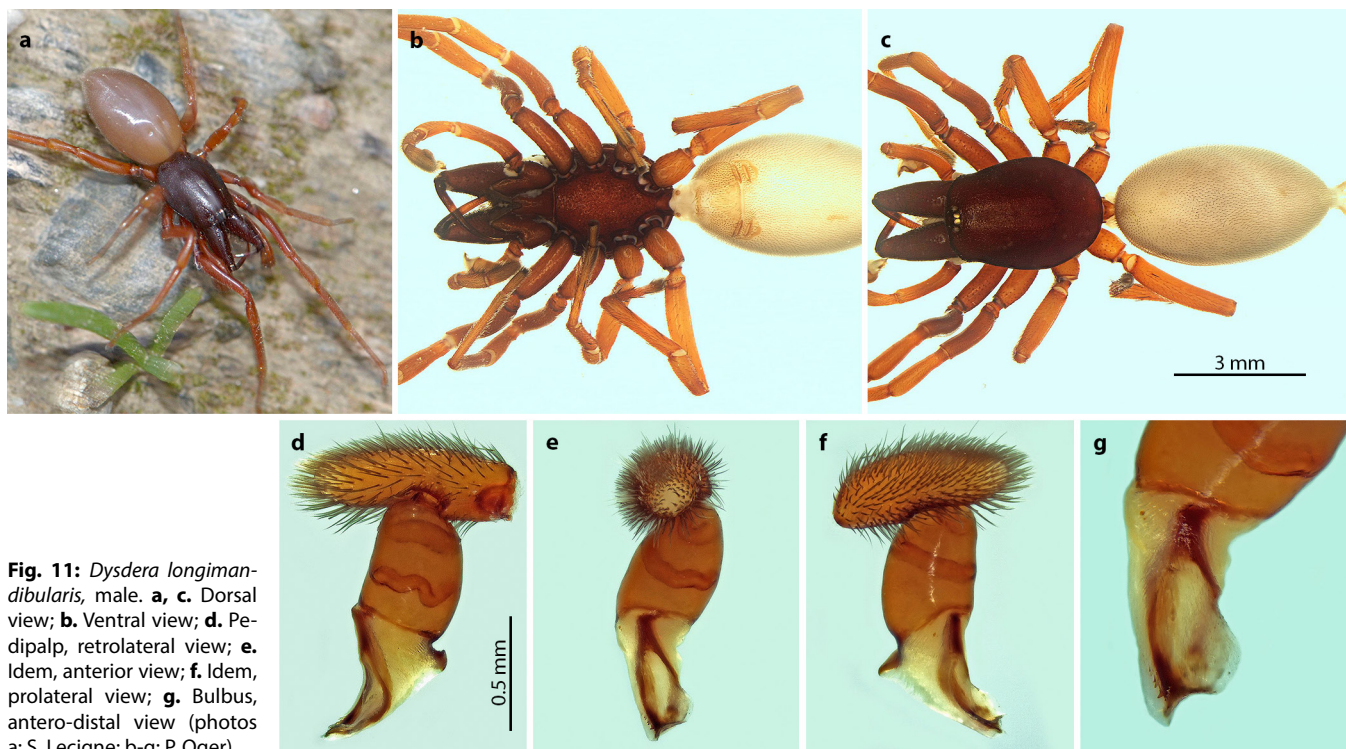
**Identification.** Deeleman-Reinhold & Deeleman (1988): p. 163, figs 39–41.

**New record.** Beldibi, under a stone, on the edge of a country lane (30.56321°E, 36.70945°N, 5 m a.s.l.), 1 ♂, hand collecting, 15. Apr. 2019.



**Fig. 10:** *Cyclosa algerica*. **a.** Female, dorsal view; **b.** Epigyne; **c.** Male, dorsal view; **d.** Male pedipalp, retrolateral view (photos a-b: S. Lecigne; c-d: P. Oger)





**Fig. 11:** *Dysdera longiman-dibularis*, male. **a, c.** Dorsal view; **b.** Ventral view; **d.** Pedipalp, retrolateral view; **e.** Idem, anterior view; **f.** Idem, prolateral view; **g.** Bulbus, antero-distal view (photos a: S. Lecigne; b-g: P. Oger)



**Fig. 12:** *Evarcha jucunda*, female, epigyne (photo: S. Lecigne)

**Comments.** The species is only known from Cyprus and Turkey. Le Peru (2011) stated that this species is usually found in the forest, under stones. This is consistent with my observation and with Bosmans et al. (2019). Found in altitudes up to 1300 m.

***Evarcha jucunda* (Lucas, 1846)** (Fig. 12) (Salticidae)

**Identification.** Logunov (2015)

**New record.** Beldibi, shrub, on the edge of a man-made path on a wasteland (30.56277°E, 36.70944°N, 8 m a.s.l.), 1 subad. ♀ (raised to maturity), beating, 18. Apr. 2019.

**Comments.** *Evarcha jucunda* is not yet included in the na-

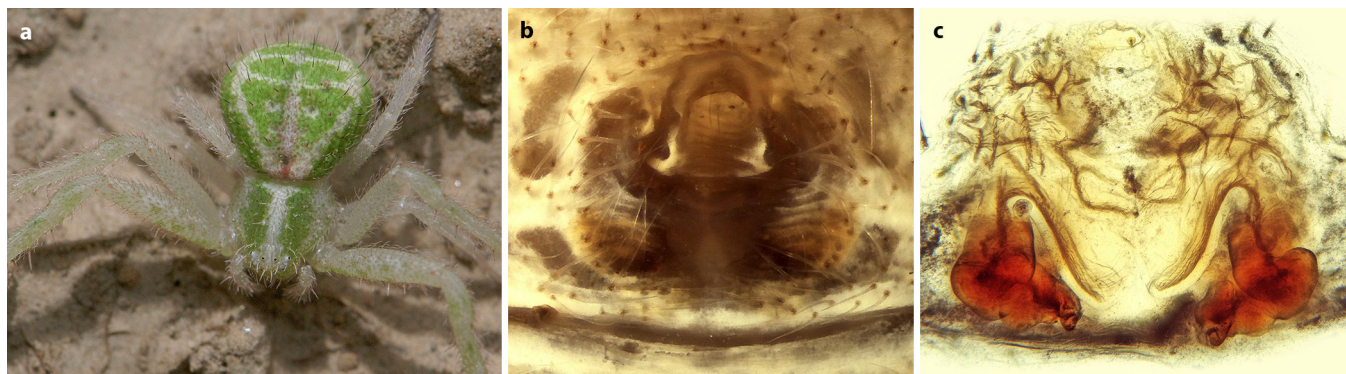
tional checklist (Danışman et al. 2021), but has already been mentioned several times for Turkey (Logunov 2015). For differentiation from the closely related species *Evarcha patagiata* (O. Pickard-Cambridge, 1872), see Logunov (2015).

***Heriaeus setiger* (O. Pickard-Cambridge, 1872)** (Fig. 13a-c) (Thomisidae)

**Identification.** Loerbroks (1983): p. 110, figs 41-42; Levy (1985): p. 49, figs 65-66.

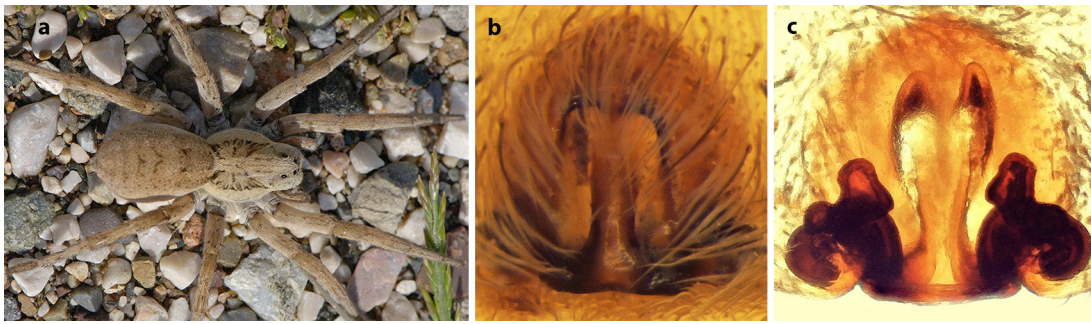
**New records.** Göynük, coastal area, in coniferous branches (thuyas) (30.56939°E, 36.68153°N, 2 m a.s.l.), 1 subad. ♀ (raised to maturity), beating, 19. Apr. 2019. Tekirova, site of Phaselis, pine forest (30.55277°E, 36.52342°N, 3 m a.s.l.), 1 subad. ♀ (raised to maturity), hand collecting, 18. Apr. 2019.

**Comments.** The distribution of *Heriaeus setiger* is currently under discussion, e.g. with regard to its presence in Romania and in Ukraine (Nentwig et al. 2020). In addition, Loerbroks (1983) demonstrated that literature records of *H. setiger* from North Africa belong to *Heriaeus numidicus* Loerbroks, 1983. According to Levy (1973), *H. setiger* is quite common in the northern and central parts of Israel. Specimens examined by Loerbroks (1983) are only known from Israel and Lebanon.



**Fig. 13:** *Heriaeus setiger*, female. **a.** Dorsal view; **b.** Epigyne; **c.** Vulva, dorsal view (photos a: S. Lecigne; b-c: P. Oger)





**Fig. 14:** *Hogna effera*, female. **a.** Dorsal view; **b.** Epigyne; **c.** Vulva, dorsal view (photos a: S. Lecigne; b-c: P. Oger)

Demircan & Topçu (2016) reported the first record of the species for Turkey (locality of Tekirdağ: Saray).

Very little data are available on its ecology. Only Pickard-Cambridge (1872) provides the following indication of a habitat: “found on the ground in barren places near the sea”. The two recent observations from Turkey were made in beachside environments, found on coniferous branches.

***Hogna effera* (O. Pickard-Cambridge, 1872)** (Fig. 14a-c) (Lycosidae)

**Identification.** Logunov (2020): p. 354, figs 39-43.

**New record.** Antalya, on the parking area of an urban building, at the foot of a hedge under a stone (30.66100°E, 36.87953°N, 32 m a.s.l.), 1 ♀, 1 subad. ♀, hand collecting, 17. Apr. 2019.

**Comments.** The taxonomy of several species of the genus *Hogna* and in particular *H. effera* has been clarified recently by Logunov (2020), who also specified that this species is very close to *H. ferox*. The author’s diagnosis of *H. effera* allows assigning the specimen observed in Antalya to this species. The species seems to be relatively widespread, from the eastern Mediterranean to Western Asia (Iran) and the United Arab Emirates (Zamani et al. 2020). The species is new to Turkey. Errata: a specimen from Crete recorded under *Hogna ferox* (Lucas, 1838) (Lecigne 2016) should be assigned to *H. effera*; its citation in the WSC (2020) and in Nentwig et al. (2020) needs to be corrected. Another specimen from Spain was initially recorded as *Hogna* cf. *ferox* (Lecigne 2012, figs 3, 10-11; Fig. 41a-b). It appears to be close to *Hogna effera*; I propose

to list this record for the moment as *Hogna* sp. (close to *effera/ferox*) until both sexes can be sampled and the distribution of *H. ferox* is clarified.

***Improphantes turok* Tanasevitch, 2011** (Fig. 15a-g) (Linyphiidae)

**Identification.** Tanasevitch (2011): p. 69, figs 65-69; Bosmans et al. (2019): p. 18, figs 9g-k, 10c-g.

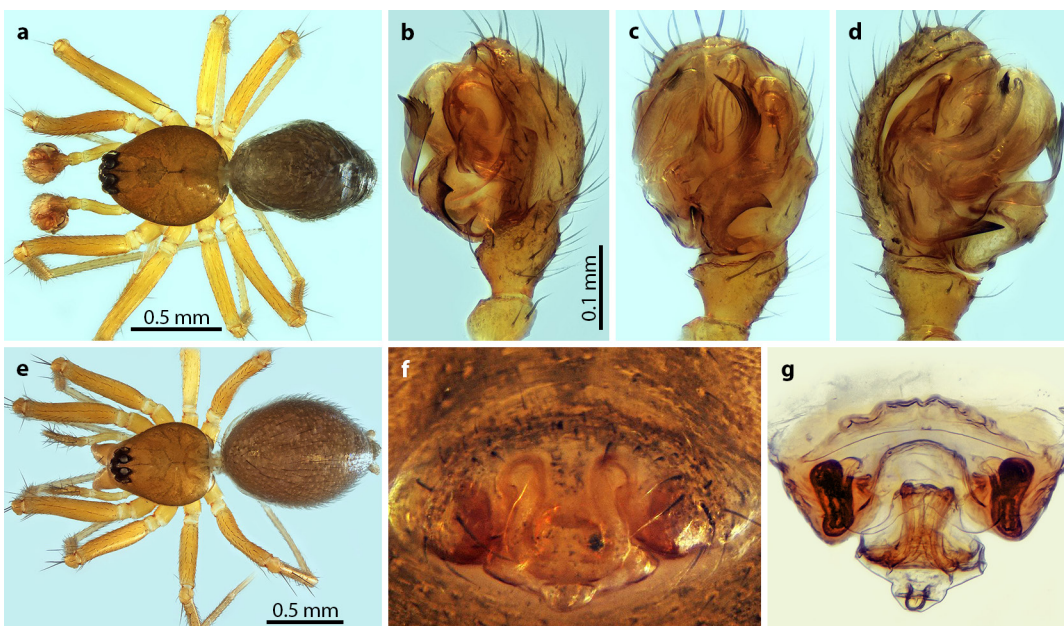
**New records.** Beldibi, grove of a park hotel, in the litter of pine needles (30.56720°E, 36.71018°N, 5 m a.s.l.), 1 ♀, hand collecting, 14. Apr. 2019; Beldibi, pine forest, in the litter of pine needles (30.56277°E, 36.70944°N, 8 m a.s.l.), 1 ♂, 1 ♀, hand collecting, 14. Apr. 2019. Beşkonak, under a rock by the river “Köprüçay” (31.19735°E, 37.13813°N, 173 m a.s.l.), 1 ♀, hand collecting, 16. Apr. 2019.

**Comments.** So far, *Improphantes turok* is only known from Turkey (one record) and Cyprus from where the female has been described recently (Bosmans et al. 2019). Most of the records (including a new one from Turkey) comes from (pit-fall traps, sifting) litter or under stones in pine forest. It was also caught occasionally in the following habitats: peat marsh, former carob plantation, mixed *Pinus* and *Quercus* forest, deciduous wood. Found on altitudes up to 1900 m.

***Leptyphantes magnesiae* Brignoli, 1979** (Fig. 16a-d) (Linyphiidae)

**Identification.** Brignoli (1979), Thaler (1986)

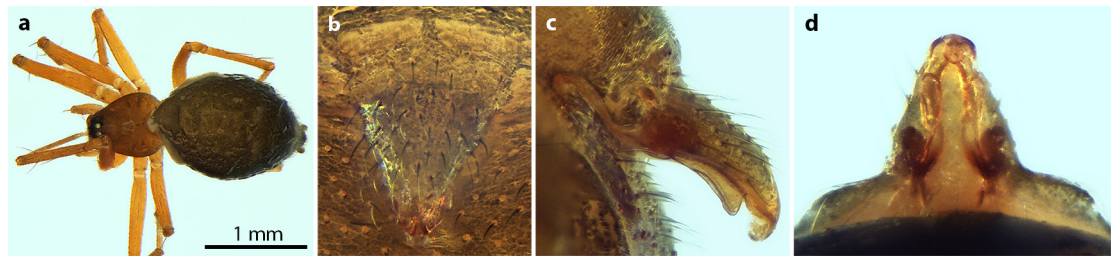
**New record.** Tekirova, site of Phaselis, undergrowth of a pine forest, on the ground under a stone ledge in a dark place of



**Fig. 15:** *Improphantes turok*. **a.** Male, dorsal view; **b.** Male pedipalp, retrolateral view; **c.** Idem, ventral view; **d.** Idem, prolateral view; **e.** Female, dorsal view; **f.** Epigyne; **g.** Vulva, dorsal view; (photos: P. Oger)



**Fig. 16:** *Leptyphantes magnesia*, female. **a.** Dorsal view; **b.** Epigyne, ventral view; **c.** Idem, lateral view; **d.** Idem, aboral view (photos: P. Oger)



a ruined stone troglodyte shelter (30.55071°E, 36.52772°N, 3 m a.s.l.), 1 ♀, hand collecting, 18. Apr. 2019.

**Comments.** *Leptyphantes magnesia*, currently known only from Albania and Greece, is new to Turkey.

There are very few records for this species, which is close to *L. notabilis*. Brignoli (1979) and Thaler (1986) each reported two observations of *L. magnesia* in caves, and the new record for Turkey in an artificial underground environment suggests that the species may be troglophilic. Several other records correspond to dark and/or shaded (micro-)habitats: Thaler (1986) also indicated one observation of the species on a forest edge (pines, firs) in mountainous areas, under stones in a limestone environment and Helsdingen & IJland (2015) mention its presence both on very steep slopes with unstable stony debris and coniferous trees, and in a stony riverbed with a vegetation belt (*Platanus orientalis*). Found on altitudes up to 1200 m.

***Mermessus denticulatus* (Banks, 1898)** (Fig. 17) (Linyphiidae)

**Identification.** van Helsdingen (2009)

**New record:** Antalya, on the ground, in parking areas (30.67963°E, 36.88474°N, 55 m a.s.l.), 1 ♂, hand collecting, 17. Apr. 2019; Antalya, same habitat (30.66100°E, 36.87953°N, 32 m a.s.l.), 1 ♂, hand collecting, 17. Apr. 2019.

**Comments.** Recently, *Mermessus denticulatus* has been mentioned for the first time from Turkey (Muğla Province, in a garden) (Danışman & Coşar 2019). The new records are the first for the province of Antalya. *Mermessus denticulatus* is an alien species that continues to expand its range since its introduction to Europe.



**Fig. 17:** *Mermessus denticulatus*, male pedipalp, retrolateral view (photo: P. Oger)

***Nomisia orientalis* Dalmás, 1921** (Fig. 18) (Gnaphosidae)

**Identification:** Seyyar et al. (2009): 65, figs 19–20.

**New record:** Tekirova, site of Phaselis, undergrowth of a pine forest, in pine needles (30.55277°E, 36.52342°N, 3 m a.s.l.),



**Fig. 18:** *Nomisia orientalis*, female, epigyne (photo: P. Oger)

1 ♀, 1 subad. ♀, hand collecting, 18. Apr. 2019; Tekirova, site of Phaselis, same habitat (30.55071°E, 36.52772°N, 3 m a.s.l.), 1 ♀, hand collecting, 18. Apr. 2019.

**Comments.** *Nomisia orientalis* is a poorly known species. It is so far only mentioned from Turkey and the only available records (WSC 2020) are those of Dalmás (1921) for which no locality nor habitat is specified, and those of Seyyar et al. (2009). The latter reported the occurrence of *N. orientalis* in the provinces of Osmaniye, Mersin and Adana. The new record extends the known range of the species towards the south-west of the country. Concerning its ecology, there is very scarce information to assess possible ecological preferences; the species has already been found among litter under oaks, under stones, among litter under pines. Found on altitudes up to 1200 m.

***Oecobius navus* Blackwall, 1859** (Fig. 19) (Oecobiidae)

**Identification.** Roberts (1995)

**New record:** Beldibi, on the perimeter wall of a hotel park (30.56581°E, 36.71052°N, 6 m a.s.l.), 1 ♀, hand collecting, 14. Apr. 2019.



**Fig. 19:** *Oecobius navus*, female, epigyne (photo: S. Le-cigne)





**Fig. 20:** *Philodromus femurostriatus*, female. **a.** Dorsal view; **b.** Epigyne; **c.** Vulva, dorsal view (photos a: E. Lecigne; b-c: P. Oger)

**Comments.** *Oecobius navus* is a widely distributed species with a still expanding range. It is already known from several countries close to Turkey (e.g. Greece, Cyprus, Georgia, Azerbaijan) (Nentwig et al. 2020). The species is new to Turkey.

***Philodromus femurostriatus* Muster, 2009** (Fig. 20a-c) (Philodromidae)

**Identification.** Muster (2009): 152, figs 12a-c, 29a-b.

**New record.** Tekirova, site of Phaselis, coastal area, on the trunk of a pine tree (30.55277°E, 36.52342°N, 3 m a.s.l.), 1 ♀, hand collecting, 18. Apr. 2019.

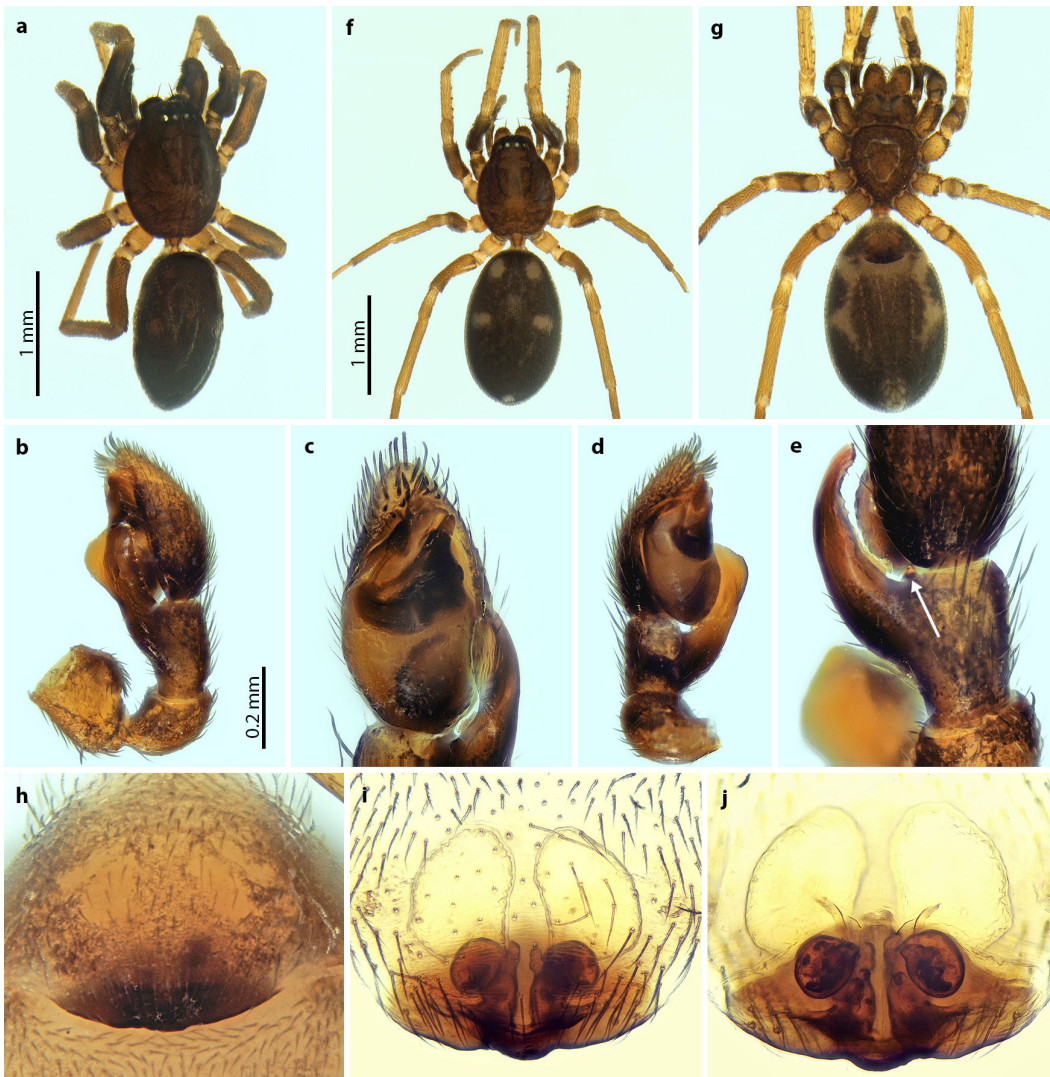
**Comments.** To date, *Philodromus femurostriatus* is only known from northern Greece and Turkey (provinces of Muğla, Adana and Mersin; holotype from 1964, no further details for the

other material mentioned) and had not been cited again since. It is a cryptic species (Fig. 20a) and possibly rare, but perhaps also undersampled. As with the type material, the specimen found at the Phaselis site was observed on *Pinus* bark.

I noted a difference with the description given by Muster (2009): the specimen found at the Phaselis site shows conspicuous prolateral-ventral parallel black stripes that are not limited to the femora but, although they are less contrasted and less broad, they extend down to the metatarsi.

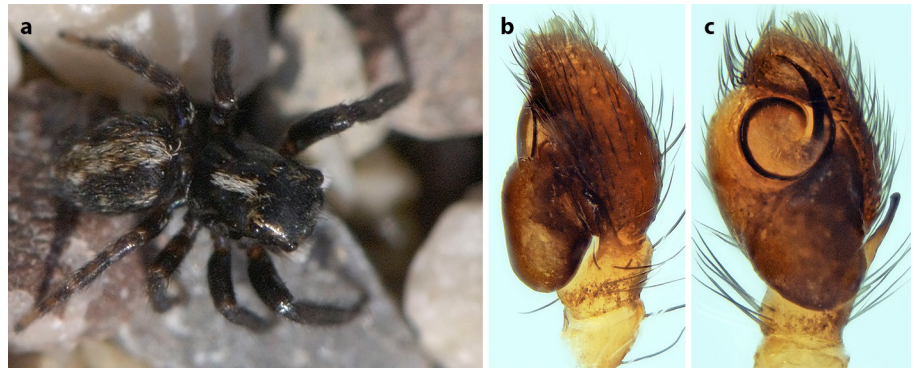
***Phrurolithus azarkinae* Zamani & Marusik, 2020** (Fig. 21a-j) (Phrurolithidae)

**Identification.** Zamani & Marusik (2020): p. 313, figs 1A-F, 2A-F, 3A-D.



**Fig. 21:** *Phrurolithus azarkinae*. **a-e.** Male: **a.** Dorsal view; **b.** Pedipalp, retrolateral view; **c.** Idem, ventral view; **d.** Idem, prolateral view; **e.** Idem, tibial apophyses, dorsal view (arrow: retro-lateral apophysis); **f-j.** Female: **f.** Dorsal view; **g.** Ventral view; **h.** Epigyne; **i.** Vulva, ventral view; **j.** Idem, dorsal view (Photos: P. Oger)





**Fig. 22:** *Pseudeuophrys rhodiensis*, male. **a.** Dorsal view; **b.** Pedipalp, retrolateral view; **c.** Idem, ventral view (photos a: S. Lecigne; b-c: P. Oger)

**New records.** Tekirova, site of Phaselis, on the banks of a reed bed (30.55016°E, 36.52669°N, 0 m a.s.l.), 1 ♂, 2 ♀♀, hand collecting, 18. Apr. 2019.

**Comments.** The species has recently been described from Iran and Azerbaijan where it is relatively widely distributed (Zamani & Marusik 2020); the new record greatly extends its known range eastwards. To date, there is insufficient data to characterize its ecology. Found on altitudes up to 2000 m. The species is new to Turkey.

*Pseudeuophrys rhodiensis* Schäfer, 2018 (Fig. 22a-c) (Salticidae)

**Identification.** Schäfer & Breitling (2018): p. 65, figs 1-3, 4a-b, 5a-c, 6b, 7b.

**New record.** Tekirova, site of Phaselis, scattered pine forest by the sea, on a stone (30.55277°E, 36.52342°N, 3 m a.s.l.), 1 ♂, hand collecting, 18. Apr. 2019.

**Comments.** *Pseudeuophrys rhodiensis*, which has only recently been described (Schäfer 2018) from the male, was so far only known from Greece (Rhodes). The species is new to Turkey; the new record extends its range eastwards. The female remains unknown.

*Tegenaria faniapollinis* Brignoli, 1978 (fig. 23a-e) (Agelenidae)

**Identification.** Deltshev (2008): p. 40, figs 9-16.



**Fig. 23:** *Tegenaria faniapollinis*, male. **a.** Dorsal view; **b, c.** Pedipalp, retrolateral view; **d.** Idem, ventral view; **e.** Idem, dorsal view (photos a: S. Lecigne; b-e: P. Oger)

**New record.** Tekirova, site of Phaselis, undergrowth of a pine forest, on the ground under a stone ledge in a dark place of a ruined stone troglodyte shelter (30.55071°E, 36.52772°N, 3 m a.s.l.), 1 ♂, hand collecting, 18. Apr. 2019.

**Comments.** *Tegenaria faniapollinis* is probably a troglomorphic species, so far only known from caves or artificial cavities in Greece (East Rhodopy Mountains) (Deltshev 2008), Italy (Sicilia, Catania) (Nicolisi & Isaia 2017), Northern Macedonia (Galichitsa Mountain) (Deltshev et al. 2013) and Turkey (Province of Hatay: surroundings of Harbiye, Harbiye cave; Province of İstanbul: İstanbul, Fatih, Yedikule Dungeon) (Brignoli 1978, Demircan & Topçu 2016). The discovery in the Osogovo Mt. Range is the only record of this species outside caves (one specimen captured in a xerophytic steppe-like vegetation on limestone, by pitfall traps) (Komnenov 2014). Bolzern et al. (2013) did not specify any localities or habitats for their observations from Greece and Turkey. The new record for Turkey confirms the preference of this species to caves and similar habitats. Found on altitudes up to 1000 m.

*Tegenaria vankeerorum* Bolzern, Burckhardt & Hänggi, 2013 (Fig. 24a-g) (Agelenidae)

**Identification.** Özkütük et al. (2017): p. 179, figs 2b, 2d, 4a-d. **New record.** Tekirova, site of Phaselis, undergrowth of a pine forest, between boulders and on a pine trunk (30.55071°E, 36.52772°N, 3 m a.s.l.), 1 ♀, 1 subad. ♂ (raised to maturity), hand collecting, 18. Apr. 2019.

**Comments.** *Tegenaria vankeerorum* is only known from Greece (Rhodes: Aghia Nikolaos Fountoukli) and Turkey (provinces of Antalya: Patara and Geyikova Island and Muğla: Kızılkışlacık) The female was recently described by Özkütük et al. (2017). To date, the species is infrequently recorded; the area of its current range is very small, extending at most about 300 km from the Turkish locality of Kızılkışlacık (district of Marmaris) in the west, the historical site of Phaselis (district of Kemer) in the east and Rhodes in the south.

Its ecology remains poorly known; the only available description of the habitat is the one provided by Bolzern et al. (2013; “crevices in caves”) and that of the new record, which both suggest that the species may prefer dark and shaded environments.

*Theridion belena* Wunderlich, 2011 (Fig. 25a-c) (Theridiidae)

**Identification.** Nentwig et al. (2020)

**New records.** Beldibi, in a hotel park, on a metal cupboard (30.56890°E, 36.70985°N, 5 m a.s.l.), 1 ♂, 1 ♀, hand collecting, 13. Apr. 2019. Beldibi, under the rim of a hotel perimeter wall (30.56581°E, 36.71052°N, 6 m a.s.l.), 7 ♂♂, 4 ♀♀,





**Fig. 24:** *Tegenaria vankeerorum*: a-e. Male: a. Dorsal view; b. Pedipalp, ventral view; c. Idem, retrolateral view; d. Idem, prolateral view; e. Idem, tibial apophysis, ventro-retrolateral view; f-g. Female: f. Dorsal view; g. Vulva, dorsal view (photos a-f: S. Lecigne; g: P. Oger)

1 j, hand collecting, 14. Apr. 2019. Göynük, coastal area, in tall grass of a meadow, in a pine forest clearing, under pine bark (30.56939°E, 36.68153°N, 2 m a.s.l.) and in bushes (30.57016°E, 36.68408°N, 0 m a.s.l.), 4 ♂♂, 5 ♀♀, beating and hand collecting, 19. Apr. 2019. Tekirova, site of Phaselis, pines and shrubs on the edge of a reed bed (30.55016°E, 36.52669°N, 3 m a.s.l.) and under a pine bark (30.55071°E, 36.52772°N, 3 m a.s.l.), 2 ♀♀, beating and hand collecting, 18. Apr. 2019.

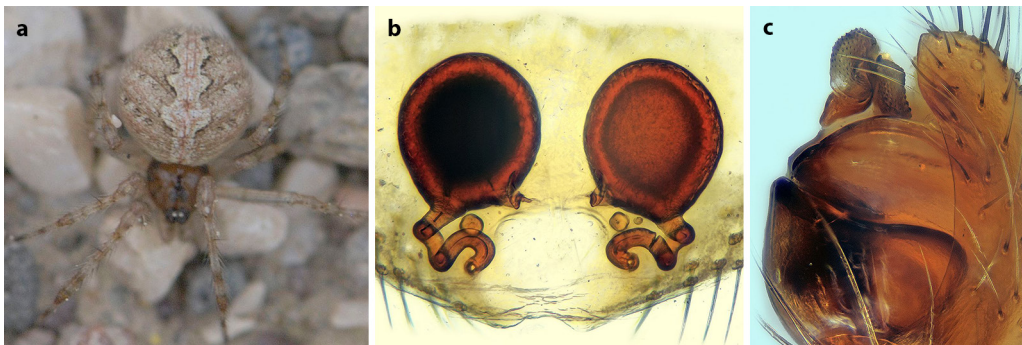
**Comments.** Until now, *Theridion helena* was only known from Greece (Crete) (Lecigne 2016, WSC 2020) and Cyprus, where it is very common (Bosmans et al. 2019). The species is new to Turkey. The numerous records suggest that the species is quite common in Turkey as well, colonizing a wide variety of natural and anthropogenic habitats. It is closely related to several species of the *melanurum* group (and particularly *T. melanurum*) and was most likely previously misidentified in many cases.

***Xysticus thessalicoides* Wunderlich, 1995** (Fig. 26a-c) (Thomisidae)

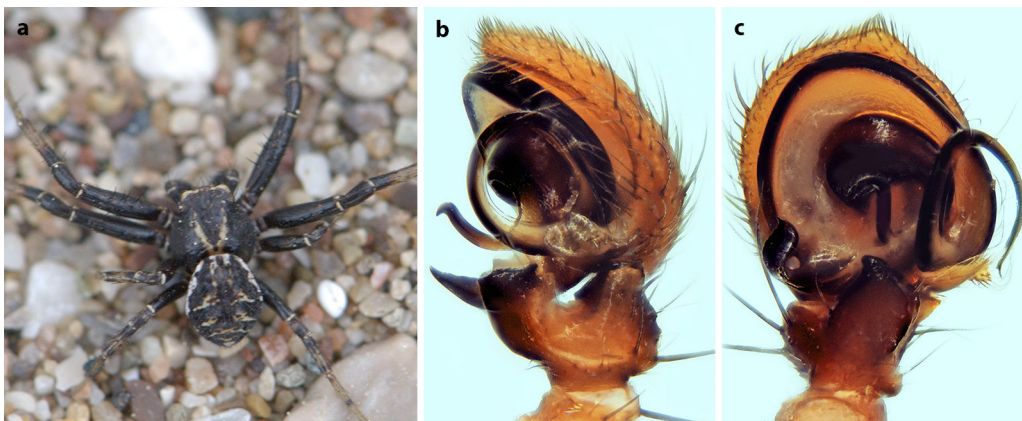
**Identification.** Wunderlich (1995): p. 753, figs 8-15.

**New record.** Beldibi, on the edge of an alleyway in a hotel park, near a lawn (30.57077°E, 36.70955°N, 1 m a.s.l.), 1 ♂, hand collecting, 14. Apr. 2019.

**Comments.** *Xysticus thessalicoides* is also a species whose previously known distribution is limited to Greece (Chios, Crete, Lesbos, Santorin and Greek mainland) (Wunderlich 1995, Logunov & Demir 2006, Bosmans et al. 2009, Russel-Smith et al. 2011) and Turkey (Antalya Province, Kalkan; Ballidag Gecidi, Kastamonu; Bolu Province, Abant Mountains; Trabzon, Hamsikoy) (Logunov & Demir 2006). *Xysticus thessalicoides* appears to be very common on Chios and Lesbos. Found on altitudes up to 1270 m.



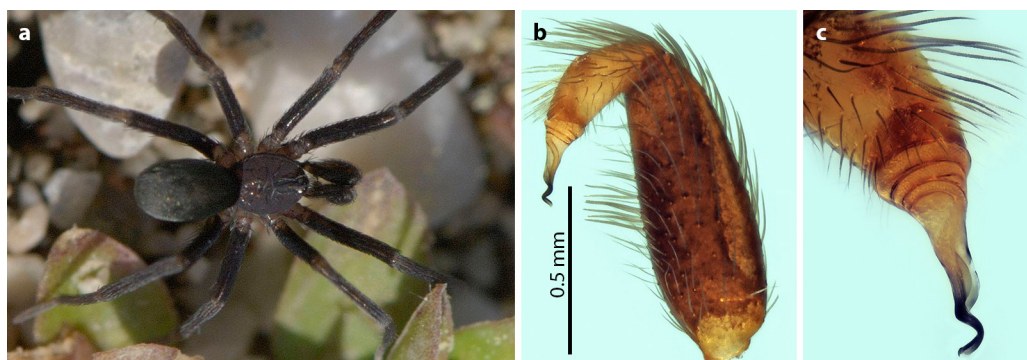
**Fig. 25:** *Theridion helena*. a. Female, dorsal view; b. Vulva, dorsal view; c. Male bulbus, retrolateral view (photos a: S. Lecigne; b-c: P. Oger)



**Fig. 26:** *Xysticus thessalicoides*, male. a. Dorsal view; b. Pedipalp, ventro-retrolateral view; c. Idem, ventral view (photos a: S. Lecigne; b-c: P. Oger)



**Fig. 27:** *Zaitunia kunti*, male. **a.** Dorsal view; **b.** Pedipalp, retro-lateral view; **c.** Idem, prolateral view (photos a: S. Lecigne; b-c: P. Oger)

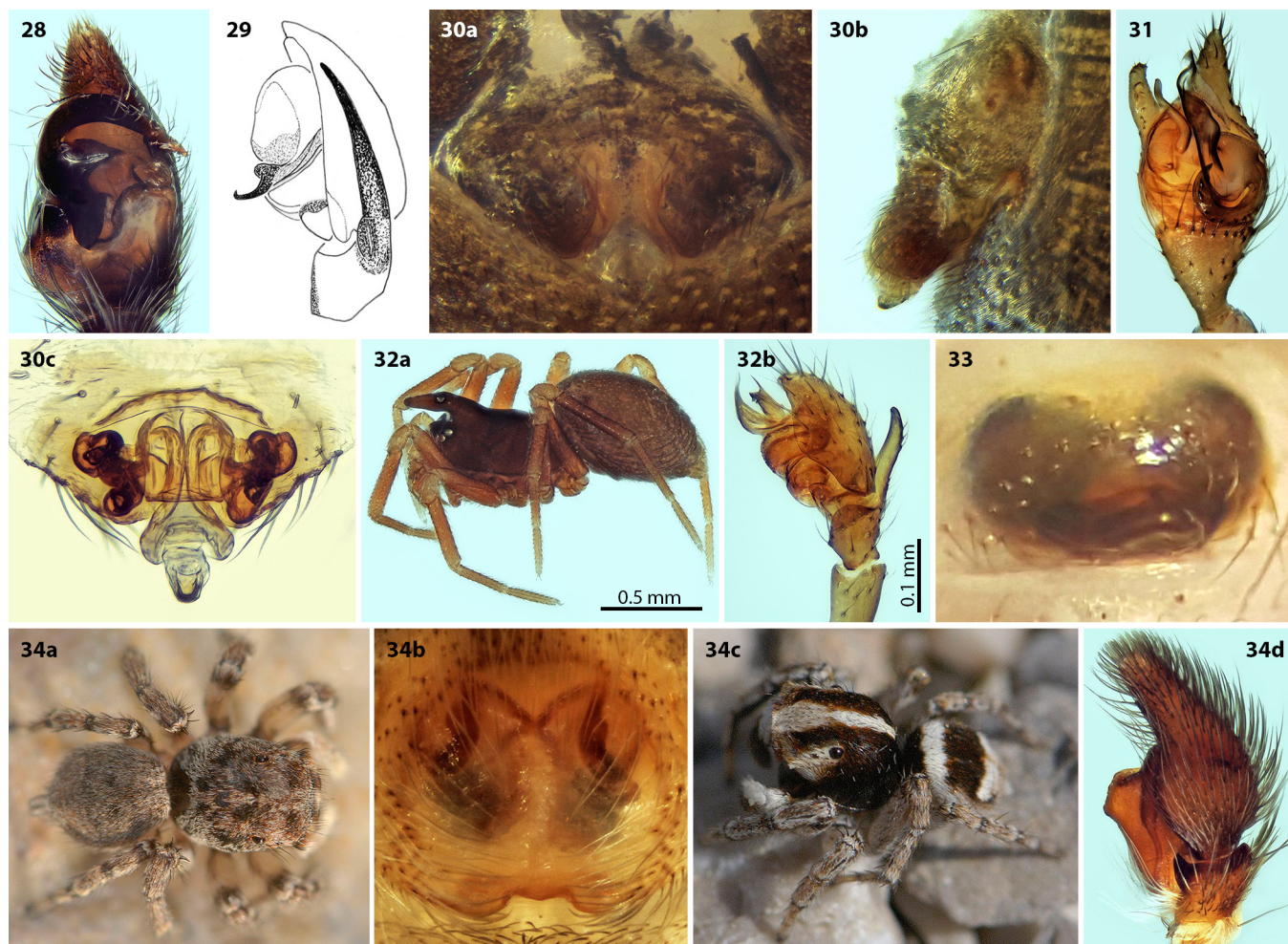


*Zaitunia kunti* Zonstein & Marusik, 2016 (Fig. 27a-c)  
(Filistatidae)

**Identification.** Zonstein & Marusik (2016): p. 20, figs 10I-J, 43C.

**New record.** Tekirova, site of Phaselis, pine forest, on a stone, on a grassy slope (30.55252°E, 36.52397°N, 3 m a.s.l.), 1 ♂, hand collecting, 18. Apr. 2019.

**Comments.** *Zaitunia kunti* is only known from Cyprus (mainly from *Pinus* forests) and Turkey (Zonstein & Marusik 2016, Bosmans et al. 2019). In Turkey its distribution appears to be limited (Province of Antalya, Alanya and Kemer districts), but there is only a small number of records.



**Figs 28-34:** **28.** *Aulonina kratochvili*, male pedipalp, ventral view; **29.** *Berinda ensigera*, male pedipalp, ventro-retrolateral view; **30a-c.** *Canariphantes nanus*, female. **a.** Epigyne, ventral view; **b.** Idem, lateral view; **c.** Vulva, dorsal view; **31.** *Crustulina scabripes*, male pedipalp, ventral view; **32a-b.** *Dactylopiastes digiticeps*, male; **a.** Lateral view; **b.** Pedipalp, retrolateral view; **33.** *Ero flammeola*, epigyne; **34a-d.** *Habrocestum latifasciatum*; **a.** Female, dorsal view; **b.** Epigyne; **c.** Male, dorsal view; **d.** Male pedipalp, retrolateral view (photos 33, 34a,c: S. Lecigne; 28, 30-32, 34b,d: P. Oger)





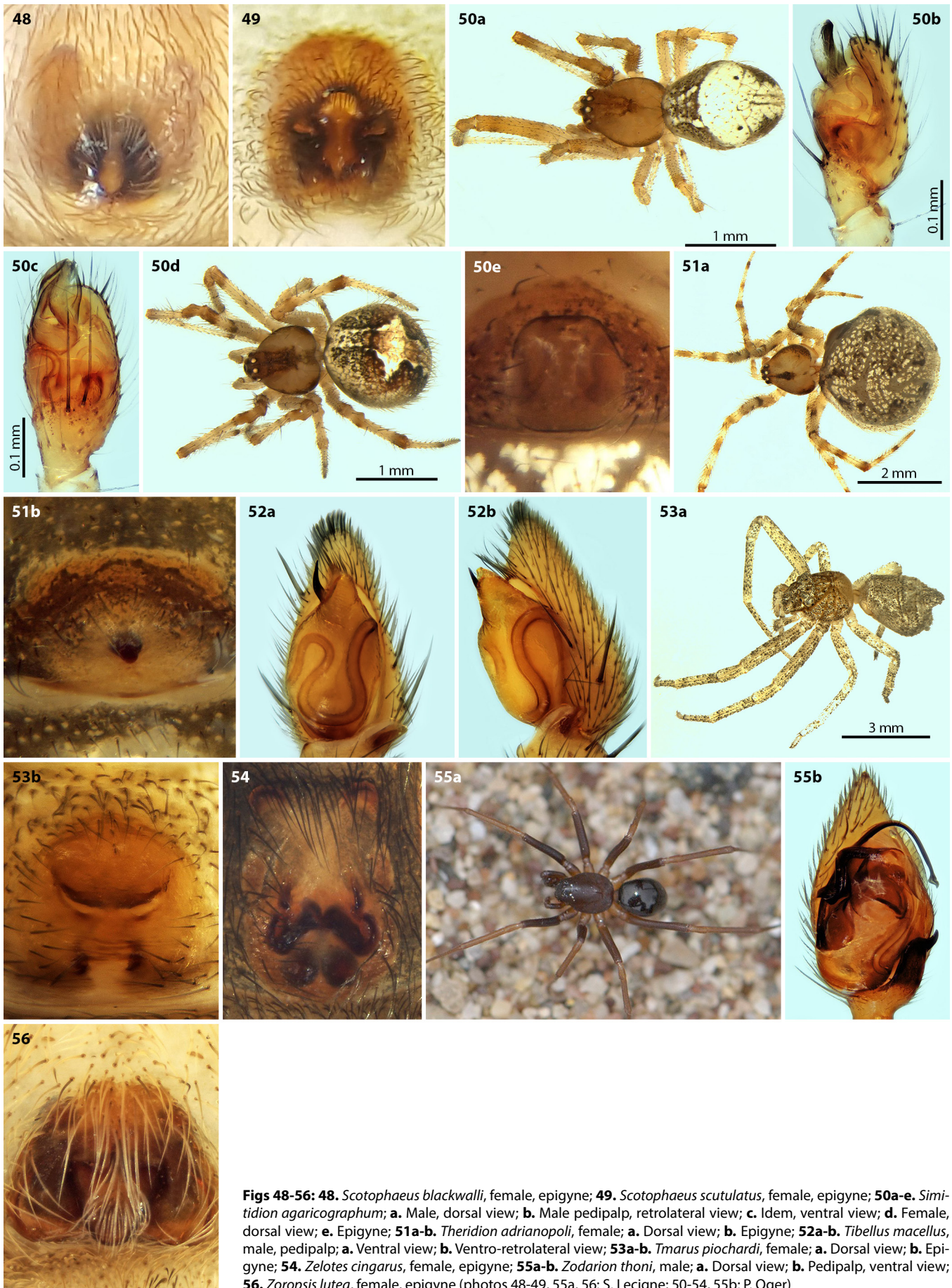
**Figs 35-41:** 35a-c. *Harpactea sturanyi*, male; **a.** Dorsal view; **b.** Bulbus, retrolateral view; **c.** Bulbus, tip, anterior view; 36a-c. *Heliophanus edentulus*, male; **a.** Dorsal view; **b.** Pedipalp, ventral view; **c.** Pedipalp, tibial apophyses, retrolateral view; 37. *Macaroeris nidicolens*, female, dorsal view; 38. *Menemerus semilimbatus*, female, dorsal view; 39a-b. *Mimetes laevigatus*, male; **a.** Dorsal view; **b.** Pedipalp, ventral view; 40a-b. *Neottiura herbigrada*, male; **a.** Dorsolateral view; **b.** Pedipalp, retrolateral view; 41a-b. *Hogna* sp., vulva (specimen from Spain); **a.** Ventral view; **b.** Dorsal view (photos 35a, 36a, 37, 38, 39a, 40a, 41: S. Lecigne; 35b-c, 36b-c, 39b, 40b: P. Oger)





**Figs 42-47:** 42a-g. *Palliduphantes byzantinus*; a. Male, dorsal view; b. Male pedipalp, retrolateral view; c. Female, dorsal view; d. Epigyne, ventral view; e. Idem, lateral view; f. Idem, aboral view; g. Vulva, dorsal view; 43a-b. *Palpimanus* sp., female; a. Dorsal view; b. Epigyne; 44a-c. *Pardosa roscai*, female; a. Dorsal view; b. Epigyne; c. Vulva, dorsal view; 45a-b. *Pardosa tatarica*, female; a. Dorsal view; b. Epigyne; 46. *Pisaura mirabilis*, female, epigyne; 47. *Platnickina nigropunctata*, female, dorsal view (photos 43, 44a, 47: S. Lecigne; 42, 44b-c, 45, 46: P. Oger)





**Figs 48-56:** 48. *Scotophaeus blackwalli*, female, epigyne; 49. *Scotophaeus scutulatus*, female, epigyne; 50a-e. *Simitidion agaricographum*; a. Male, dorsal view; b. Male pedipalp, retrolateral view; c. Idem, ventral view; d. Female, dorsal view; e. Epigyne; 51a-b. *Theridion adrianopoli*, female; a. Dorsal view; b. Epigyne; 52a-b. *Tibellus macellus*, male, pedipalp; a. Ventral view; b. Ventro-retrolateral view; 53a-b. *Tmarus piochardi*, female; a. Dorsal view; b. Epigyne; 54. *Zelotes cingarus*, female, epigyne; 55a-b. *Zodarion thoni*, male; a. Dorsal view; b. Pedipalp, ventral view; 56. *Zoropsis lutea*, female, epigyne (photos 48-49, 55a, 56: S. Lecigne; 50-54, 55b: P. Oger)



## Conclusion

The Turkish fauna currently includes 1129 spider species in 54 families (Danışman et al. 2021). The survey, carried out in April 2019 over a very short period (7 days) and a very reduced area in Kemer district, recorded nearly one hundred species from 28 families.

Among them:

- two species are new to science: *Sintula karineae* **spec. nov.** described in the present manuscript and *Philodromus musteri* Lecigne & Oger, 2020 (see Lecigne & Oger 2020). A third species, in the genus *Canariphantes*, requires verification and comparison with other material and might therefore be the subject of a later paper;
- some appear to be very infrequently found or even rare. This is probably the case for *Berinda cooki*, *Impropantes turok* or *Heriaeus setiger* which are possibly well distributed on a local scale, but whose distribution is still unclear. The case of *Cyclosa algerica* is somewhat different. This species also seems to be locally well distributed, but is already known from several western European countries; the first record for Turkey extends its range considerably eastward. Several other cases concern recently described species such as *Pseuduophrys rhodiensis* or *Phrurolithus azarkinae*, for which the already known range extends from southwestern Turkey to Azerbaijan and Iran.

For such species, undersampling, difficult detection due to rather effective camouflage (e.g. *Philodromus femurostriatus*) or confusion with closely related species may partially explain this apparent rarity.

Other species are probably indeed rare, mainly because of a very narrow ecological valence in relation to a strong habitat specialization. This concerns for example *Leptyphantes magnesiae* (whose known range appears to be limited) or *Tegenaria faniapollinis*, both species which are probably of troglomorphic affinity, *Tegenaria vankeererorum* which could be at least troglomorphic, *Nomisio orientalis* and *Zaitunia kunti*, both species of forest environments. These hypotheses might be confirmed when more data can be analysed and in particular when the survey efforts can be considered sufficient.

The new findings give an impression of the still incompletely known richness of the spider fauna of Turkey. New species as well as new species records still remain to be found. The diversity in Turkey is probably very high, at the junction between Europe and Asia. This is caused by several geographical and geological characteristics of the country (e.g. by the diverse relief, sheer size, different altitude levels, and the length of coasts) and the great diversity of biogeographical units.

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## References

- Bayram A, Danışman T, Bolu H & Özgen İ 2007 Two records new for the Turkish araneofauna: *Tmarus piochardi* (Simon, 1866) and *Monaeses israeliensis* Levy, 1973 (Araneae: Thomisidae). – *Munis Entomology and Zoology* 2: 129–136
- Bolzern A, Burckhardt D & Hänggi A 2013 Phylogeny and taxonomy of European funnel-web spiders of the *Tegenaria-Malthonica* complex (Araneae: Agelenidae) based upon morphological and molecular data. – *Zoological Journal of the Linnean Society* 168: 723–848 – doi: [10.1111/zoj.12040](https://doi.org/10.1111/zoj.12040)
- Bosmans R 1991 Le genre *Sintula* Simon en Afrique du Nord (Araneae, Linyphiidae): Etudes sur les Linyphiidae nord-africaines, VI. – *Revue Arachnologique* 9: 103–117
- Bosmans R, Baert L, Bosselaers J, De Koninck H, Maelfait JP & Van Keer J 2009 Spiders of Lesbos (Greece). – *Nieuwsbrief van de Belgische Arachnologische Vereniging* 24 (Suppl.): 1–70
- Bosmans R, Van Keer J, Russell-Smith A, Hadjiconstantis M, Komnenov M, Bosselaers J, Huber S, McCowan D, Snazell R, Decae A, Zoumides C, Kielhorn KH & Oger P 2019 Spiders of Cyprus (Araneae). A catalogue of all currently known species from Cyprus. – *Newsletter of the Belgian Arachnological Society* 34, Suppl. 1: 1–173
- Bosselaers J 2018 Spiders (Arachnida, Araneae) of the Gavarres (Catalonia, Spain) and the adjacent coastal region – part I: 2012–2013. – *Newsletter of the Belgian arachnological Society* 33 (Suppl.): 1–103
- Breitling R 2019 A barcode-based phylogenetic scaffold for *Xysticus* and its relatives (Araneae: Thomisidae: Coriaraehnini). – *Ecologica Montenegrina* 20: 198–206 – doi: [10.37828/em.2019.20.16](https://doi.org/10.37828/em.2019.20.16)
- Brignoli PM 1978 Ragni di Turchia IV. Leptonetidae, Dysderidae ed Agelenidae nuovi o interessanti di grotte della Turchia meridionale (Araneae). – *Quaderni di Speleologia, Circolo Speleologico Romano* 3: 37–54
- Brignoli PM 1979 Ragni di Grecia XI. Specie nuove o interessanti, cavernicole ed epigee. – *Revue Suisse de Zoologie* 86: 181–202 – doi: [10.5962/bhl.part.82285](https://doi.org/10.5962/bhl.part.82285)
- Brignoli PM 1985 On the correct dates of publication of the arachnid taxa described in some works by C. W. Hahn and C. L. Koch (Arachnida). – *Bulletin of the British Arachnological Society* 6: 414–416
- Bristowe WS 1935 The spiders of Greece and the adjacent islands. – *Proceedings of the Zoological Society of London* 104: 733–788 – doi: [10.1111/j.1096-3642.1934.tb01665](https://doi.org/10.1111/j.1096-3642.1934.tb01665)
- Dalmas R de 1921 Monographie des araignées de la section des *Pterotricha* (Aran. Gnaphosidae). – *Annales de la Société Entomologique de France* 89: 233–328
- Danışman T & Coşar İ 2019 Occurrence of the alien spider *Mermessus denticulatus* (Banks, 1898) (Araneae: Linyphiidae) in Turkey. – *Munis Entomology and Zoology* 14: 80–82
- Danışman T, Kunt KB and Özkütük RS 2021 The checklist of the spiders of Turkey. Version 2021. – Internet: <http://www.spider-softturkey.info> (3. Feb. 2021)
- Deeleman-Reinhold CL & Deeleman PR 1988 Revision des Dysderinae (Araneae, Dysderidae), les espèces méditerranéennes occidentales exceptées. – *Tijdschrift voor Entomologie* 131: 141–269
- Deltshev C 2008 Two new spider species, *Malthonica bozhkovii* sp. nov. and *Tegenaria paragamiani* sp. nov. from Rhodopy Mountains (Bulgaria and Greece) (Araneae: Agelenidae). – *Zootaxa* 1872: 37–44 – doi: [10.11646/zootaxa.1872.1.3](https://doi.org/10.11646/zootaxa.1872.1.3)
- Deltshev C, Komnenov M, Blagoev G, Georgiev T, Lazarov S, Stojkoska E & Naumova M 2013 Faunistic diversity of spiders (Araneae) in Galichitsa Mountain (FYR Macedonia). – *Biodiversity Data Journal* 1 (e977): 1–70 – doi: [10.3897/BDJ.1.e977](https://doi.org/10.3897/BDJ.1.e977)
- Demircan N & Topçu A 2016 First records for spider fauna of the European part of Turkey (Araneae). – *Serket* 15: 85–91



- Dondale CD & Redner JH 1978 The insects and arachnids of Canada, Part 5. The crab spiders of Canada and Alaska, Araneae: Philodromidae and Thomisidae. – Research Branch Agriculture Canada Publication 1663: 1-255
- Gnelitsa VA 2012 The genus *Sintula* (Aranei, Linyphiidae) in Ukraine, with the description of a new species. – Vestnik Zoologii 46: 29-36
- Hadjissarantos H 1940 Les araignées de l'Attique. Athens. 132 pp.
- IJland S, Helsdingen PJ van & Miller J 2012 On some spiders from Gargano, Apulia, Italy. – Nieuwsbrief SPINED 32: 2-20
- Helsdingen PJ van & IJland S 2015 A quick scan of the spider fauna in the surroundings of Përmet, Albania (Arachnida, Araneae) – preliminary report. – Nieuwsbrief SPINED 35: 15-33
- Hepner M & Paulus H F 2009 Contributions on the wolf spider fauna (Araneae, Lycosidae) of Gran Canaria (Spain). – Bulletin of the British Arachnological Society 14: 339-346 – doi: [10.13156/arc.2009.14.8.339](https://doi.org/10.13156/arc.2009.14.8.339)
- Hippa H, Koponen S & Oksala I 1986 Revision and classification of the Holarctic species of the *Ozyptila rauda* group (Araneae, Thomisidae). – Annales Zoologici Fennici 23: 321-328
- Koch CL 1839 Die Arachniden. Sechster Band. C. H. Zeh'sche Buchhandlung, Nürnberg. pp. 1-156, pl. 181-216 – doi: [10.5962/bhl.title.43744](https://doi.org/10.5962/bhl.title.43744)
- Kommenov M 2014 Spider fauna of the Osogovo Mt. Range, North-eastern Macedonia. – Fauna Balkana 2: 1-267
- Kulczyński W 1911 Fragmenta Arachnologica. XVI, XVII. – Bulletin International de l'Académie des Sciences de Cracovie 1911: 12-75
- Lecigne S 2016 Contribution à la connaissance de l'araneofaune (Araneae) de Crète (Grèce) et description de la femelle inconnue de *Neaetha absheronica* Logunov & Guseinov, 2002 (Salticidae). – Nieuwsbrief van de Belgische Arachnologische Vereniging 30: 95-118
- Lecigne S & Oger P 2020 *Philodromus musteri* spec. nov. of the *Philodromus aureolus* group from Turkey (Araneae: Philodromidae). – Arachnologische Mitteilungen 60: 30-33 – doi: [10.30963/aramit6006](https://doi.org/10.30963/aramit6006)
- Le Peru B 2011 The spiders of Europe, a synthesis of data: Volume 1, Atypidae to Theridiidae. – Bulletin mensuel Société Linnéenne de Lyon 2: 1-522
- Lehtinen PT 1967 Classification of the cribellate spiders and some allied families, with notes on the evolution of the suborder Araneomorpha. – Annales Zoologici Fennici 4: 199-468
- Lehtinen PT 2002 Generic revision of some thomisids related to *Xysticus* C.L.Koch, 1835 and *Ozyptila* Simon, 1864. In: Toft S & Scharff N (eds) European Arachnology 2000: Proceedings of the 19th European Colloquium of Arachnology. Aarhus University Press, pp. 315-327
- Levy G 1973 Crab-spiders of six genera from Israel (Araneae: Thomisidae). – Israel Journal of Zoology 22: 107-141
- Levy G 1985 Araneae: Thomisidae. In: Fauna Palaestina, Arachnida II. Israel Academy of Sciences and Humanities, Jerusalem. 115 pp.
- Levi HW 1977 The American orb-weaver genera *Cyclosa*, *Metazygia* and *Eustala* north of Mexico (Araneae, Araneidae). – Bulletin of the Museum of Comparative Zoology 148: 61-127
- Loerbroeks A 1983 Revision der Krabbenspinnen-Gattung *Heriaeus* Simon (Arachnida: Araneae: Thomisidae). – Verhandlungen des Naturwissenschaftlichen Vereins in Hamburg 26: 85-139
- Logunov DV 2012 Notes on a small spider collection from Turkey (Arachnida: Aranei). – Arthropoda Selecta 21: 375-377 – doi: [10.15298/arthsel.21.4.08](https://doi.org/10.15298/arthsel.21.4.08)
- Logunov DV 2015 Taxonomic-faunistic notes on the jumping spiders of the Mediterranean (Aranei: Salticidae). – Arthropoda Selecta 24: 33-85 – doi: [10.15298/arthsel.24.1.03](https://doi.org/10.15298/arthsel.24.1.03)
- Logunov DV 2020 On three species of *Hogna* Simon, 1885 (Aranei: Lycosidae) from the Near East and Central Asia. – Arthropoda Selecta 29: 349-360 – doi: [10.15298/arthsel.29.3.08](https://doi.org/10.15298/arthsel.29.3.08)
- Logunov DV & Demir H 2006 Further faunistic notes on *Cozyptila* and *Xysticus* from Turkey (Araneae, Thomisidae). – Arachnologische Mitteilungen 31: 40-45 – doi: [10.5431/aramit3105](https://doi.org/10.5431/aramit3105)
- Marusik YM 2008 Synopsis of the *Ozyptila rauda*-group (Araneae, Thomisidae), with revalidation of *Ozyptila balkarica* Ovtsharenko, 1979. – Zootaxa 1909: 52-64 – doi: [10.11646/zootaxa.1909.1.5](https://doi.org/10.11646/zootaxa.1909.1.5)
- Marusik YM, Lehtinen PT & Kovblyuk MM 2005 *Cozyptila*, a new genus of crab spiders (Aranei: Thomisidae: Thomisinae: Coriarchnini) from the western Palearctic. – Arthropoda Selecta 13: 151-163
- Marusik YM, Esyunin SL & Tuneva TK 2015 A survey of Palearctic Dictynidae (Araneae). 1. Taxonomic notes on Dictynomorpha Spassky, 1939, *Brigittea* Lehtinen, 1967 and *Lathys* Simon, 1884. – Zootaxa 3925: 129-144 – doi: [10.11646/zootaxa.3925.1.9](https://doi.org/10.11646/zootaxa.3925.1.9)
- Muster C 2009 Phylogenetic relationships within Philodromidae, with a taxonomic revision of *Philodromus* subgenus *Artanes* in the western Palearctic (Arachnida: Araneae). – Invertebrate Systematics 23: 135-169 – doi: [10.1071/is08044](https://doi.org/10.1071/is08044)
- Nentwig W, Blick T, Bosmans R, Gloor D, Hänggi A & Kropf C 2020 araneae Spiders of Europe. Version 08.2020. – Internet: <http://www.araneae.nmbe.ch> (31. Aug. 2020) – doi: [10.24436/1](https://doi.org/10.24436/1)
- Nicolosi G & Isaia M 2017 Segnalazioni Faunistiche Italiane: 613 – *Tegenaria faniapollinis* Brignoli, 1978 (Araneae Agelenidae). – Bollettino della Società Entomologica Italiana 149: 96
- Oger P 2020 Les araignées de Belgique et de France. – Internet: <http://arachno.piwigo.com/> (31. Aug. 2020)
- Özkütük RS, Elverici M, Kunt KB & Kiliç G 2017 First faunistic record of *Tegenaria vankeerorum* Bolzern, Burckhardt & Hänggi, 2013 (Araneae: Agelenidae) from Turkey with description of unknown female. – Biological Diversity and Conservation 10: 178-183
- Pickard-Cambridge O 1872 General list of the spiders of Palestine and Syria, with descriptions of numerous new species, and characters of two new genera. – Proceedings of the Zoological Society of London 40: 212-354, pl. 13-16 – doi: [10.1111/j.1469-7998.1872.tb00489.x](https://doi.org/10.1111/j.1469-7998.1872.tb00489.x)
- Pickard-Cambridge O 1876 Catalogue of a collection of spiders made in Egypt, with descriptions of new species and characters of a new genus. – Proceedings of the Zoological Society of London 44: 541-630, pl. 58-60 – doi: [10.1111/j.1096-3642.1876.tb02595.x](https://doi.org/10.1111/j.1096-3642.1876.tb02595.x)
- Pocock RI 1903 Arachnida. In: Forbes HO (ed.) The Natural History of Sokotra and Abd-el-Kuri. Special Bulletin of the Liverpool Museum. pp. 175-208
- Prószyński J 2003 Salticidae (Araneae) of the Levant. – Annales Zoologici, Warszawa 53: 1-180
- Řezáč M, Arnedo MA, Opatova V, Musilová J, Řezáčová V & Král J 2018 Taxonomic revision and insights into the speciation mode of the spider *Dysdera erythrina* species-complex (Araneae: Dysderidae): sibling species with sympatric distributions. – Invertebrate Systematics 32: 10-54 – doi: [10.1071/IS16071](https://doi.org/10.1071/IS16071)
- Roberts MJ 1995 Collins Field Guide: Spiders of Britain & Northern Europe. HarperCollins, London, 383 pp.
- Russell-Smith A, Allison R, Askins M, Blumsom W, Snazell R & Spilling C 2011 A provisional checklist and gazetteer of the spiders of Chios, Greece (Arachnida: Araneae). – Arachnology 15: 133-167 – doi: [10.13156/arc.2010.15.5.133](https://doi.org/10.13156/arc.2010.15.5.133)
- Schäfer M & Breitling R 2018 Ein Beitrag zur Springspinnenfauna (Araneae, Salticidae) der griechischen Dodekanes-Insel Rhodos mit der Neubeschreibung von *Pseudeuophrys rhodiensis* und sechs weiteren Erstnachweisen. – Arachnologische Mitteilungen 55: 64-74 – doi: [10.30963/aramit5512](https://doi.org/10.30963/aramit5512)
- Seyyar O, Ayyıldız N & Topçu A 2009 Description of a new species of the genus *Nomisia* Dalmas, 1921 (Araneae: Gnaphosidae) from Turkey with some faunistic remarks. – Zootaxa 2006: 62-68 – doi: [10.11646/zootaxa.2006.1.5](https://doi.org/10.11646/zootaxa.2006.1.5)
- Simon E 1932 Les arachnides de France. Synopsis générale et catalogue des espèces françaises de l'ordre des Araneae. Tome VI. 4e partie. Roret, Paris. pp. 773-978
- Spassky S 1952 Pauki Turanskoi zoogeograficheskoi provincii. – Entomologicheskoe Obozrenie 32: 192-205
- Strand E 1914 Zweite Mitteilung über Spinnen aus Palästina, gesammelt von Herrn Dr J. Aharoni. – Archiv für Naturgeschichte 80 (A3): 173-186



- Tanasevitch AV 2011 On linyphiid spiders from the eastern and central Mediterranean kept at the Muséum d'histoire naturelle, Geneva. – *Revue Suisse de Zoologie* 118: 49-91 – doi: [10.5962/bhl.part.117799](https://doi.org/10.5962/bhl.part.117799)
- Thaler K 1986 Vier bemerkenswerte *Leptyphantes*-Arten aus dem Mittelmeergebiet und aus Vorderasien (Arachnida: Aranei, Linyphiidae). – *Sitzungsberichte der Österreichischen Akademie der Wissenschaften (I)* 194: 311-325
- Uyar Z & Dolejš P 2017 New records and notes on some spiders (Araneae: Lycosidae, Salticidae, Theridiidae) from Turkey. – *Entomological News* 127: 51-63 – doi: [10.3157/021.127.0107](https://doi.org/10.3157/021.127.0107)
- van Helsdingen PJ 2009 *Mermessus denticulatus* (Banks, 1898) and *Mermessus trilobatus* (Emerton, 1882), adventive species in the Netherlands (Araneae, Linyphiidae). – *Contributions to Natural History* 12: 617-626
- Wesołowska W 1986 A revision of the genus *Heliophanus* C. L. Koch, 1833 (Aranei: Salticidae). – *Annales Zoologici, Warszawa* 40: 1-254
- WSC (World Spider Catalog) 2020 World spider catalog. Version 21.5. Natural History Museum Bern. – Internet: <http://wsc.nmbe.ch> (31. Aug. 2020) – doi: [10.24436/2](https://doi.org/10.24436/2)
- Wunderlich J 1995 Zur Kenntnis west-paläarktischer Arten der Gattungen *Psammitis* Menge 1875, *Xysticus* C. L. Koch 1835 und *Ozyptila* Simon 1864 (Arachnida: Araneae: Thomisidae). – *Beiträge zur Araneologie* 4: 749-774
- Zamani A & Marusik YM 2020 A survey of Phrurolithidae (Arachnida: Araneae) in southern Caucasus, Iran and Central Asia. – *Zootaxa* 4758: 311-329 – doi: [10.11646/zootaxa.4758.2.6](https://doi.org/10.11646/zootaxa.4758.2.6)
- Zamani A, Dimitrov D, Weiss I, Alimohammadi S, Rafei-Jahed R, Esyunin SL, Moradmam M, Chatzaki M & Marusik YM 2020 New data on the spider fauna of Iran (Arachnida: Araneae), part VII. – *Arachnology* 18: 569-591 – doi: [10.13156/arac.2020.18.6.569](https://doi.org/10.13156/arac.2020.18.6.569)
- Zonstein S & Marusik YM 2016 A revision of the spider genus *Zaitunia* (Araneae, Filistatidae). – *European Journal of Taxonomy* 214: 1-97 – doi: [10.5852/ejt.2016.214](https://doi.org/10.5852/ejt.2016.214)

**Annex:** species list

The species are presented in alphabetical order of family and genus. The name of the locality, number, sex, developmental stage and habitat of the species are also specified.

The marked species are those which are new for the fauna of Turkey (\*) and those which have already been mentioned at least once for the country but not yet included in the national list (Danışman et al. 2021)(#).

Family: species	Location, habitat, number gender, date
<b>Agelenidae</b>	
<i>Lycosoides coarctata</i> (Dufour, 1831)	Beldibi, in a grove of a hotel park, under stones in the pine needle litter, 3 ♀♀
<i>Tegenaria faniapollinis</i> Brignoli, 1978	See above
<i>Tegenaria vankeererorum</i> Bolzern, Burckhardt & Hänggi, 2013	See above
<b>Anyphaenidae</b>	
<i>Anyphaena sabina</i> L. Koch, 1866	Beldibi, ancient orange grove, in dead branches, 1 ♀. Göynük, shore, in bushes and in coniferous branches, 3 ♀♀. Tekirova, site of Phaselis, pines and shrubs on the edge of a reed bed, 1 ♀
<b>Araneidae</b>	
<i>Cyclosa algerica</i> Simon, 1885	* See above
<i>Mangora acalypha</i> (Walckenaer, 1802)	Beldibi, anthropic wasteland, in grasses and inflorescences, 10 jj
<i>Zilla diodia</i> (Walckenaer, 1802)	Beldibi, in <i>Juniperus</i> sp. in a hotel park, 1 ♀. Tekirova, site of Phaselis, pine forest, 1 ♀
<b>Cheiracanthiidae</b>	
<i>Cheiracanthium mildei</i> L. Koch, 1864	Beldibi, under the rim of a hotel perimeter wall, 1 ♂. Göynük, shore, in bushes, 1 ♂
<i>Cheiracanthium pelagicum</i> group	See above
<b>Dictynidae</b>	
<i>Brigittea innocens</i> (O. Pickard-Cambridge, 1872)	See above
<i>Lathys humilis</i> (Blackwall, 1855)	Tekirova, site of Phaselis, in the branches of pines and shrubs, 2 ♀♀
<b>Dysderidae</b>	
<i>Dysdera longimandibularis</i> Nosek, 1905	See above
<i>Harpactea sturanyi</i> (Nosek, 1905)	Beldibi, pine forest, under a stone in a meadow, 1 ♂ (Fig. 35a-c).
<b>Filistatidae</b>	
<i>Zaitunia kunti</i> Zonstein & Marusik, 2016	See above
<b>Gnaphosidae</b>	
<i>Berinda cooki</i> Logunov, 2012	See above
<i>Berinda ensigera</i> (O. Pickard-Cambridge, 1874)	Göynük, coastal area, on a rocky slope, under a stone, 1 ♂. Taşağıl, under a stone in a gravel parking lot on the side of the road, 1 subad. ♂, 1 subad. ♀ (raised to maturity) (Fig. 29)



Family: species	Location, habitat, number gender, date
<i>Drassodes lapidosus</i> (Walckenaer, 1802)	Taşagül, under a stone in a gravel parking lot on the side of the road, 1 ♂. Tekirova, site of Phaselis, reed bed, under a piece of wood, 1 ♂
<i>Marinarozelotes lyonneti</i> (Audouin, 1826)	Beldibi, under a stone, on the edge of a path near a wasteland, 1 subad. ♂ (raised to maturity)
<i>Nomisia orientalis</i> Dalmas, 1921	See above
<i>Scotophaeus blackwalli</i> (Thorell, 1871)	Göynük, coastal area, in coniferous branches (thuyas), 1 ♀, (Fig. 48)
<i>Scotophaeus scutulatus</i> (L. Koch, 1866)	Beşkonak, under a rock by the river Köprüçay, 1 ♀. Göynük, coastal area, under a pine bark scale, 1 ♀ (Fig. 49)
<i>Zelotes cingarus</i> (O. Pickard-Cambridge, 1874)	Beldibi, pine forest, under a stone in the meadow of a clearing, 1 ♀ (Fig. 54)
<b>Linyphiidae</b>	
<i>Canariphantes nanus</i> (Kulczyński, 1898)	* See above
<i>Bathypantes gracilis</i> (Blackwall, 1841)	Tekirova, site of Phaselis, reed bed, 1 ♀, 1 subad. ♂
<i>Dactylopiastes digiticeps</i> (Simon, 1881)	Tekirova, site of Phaselis, reed bed, 6 ♂♂ (Fig. 32a-b), 7 ♀♀
<i>Improphantes turok</i> Tanasevitch, 2011	See above
<i>Lepthyphantes magnesia</i> Brignoli, 1979	* See above
<i>Mermessus denticulatus</i> (Banks, 1898)	# See above
<i>Palliduphantes byzantinus</i> (Fage, 1931)	Beldibi, in a grove in a hotel park, in the pine needle litter and on the ground, under a shrub, on the edge of a man-made path on a wasteland, 2 ♂♂, 1 ♀ (Fig. 42a-g)
<i>Sintula karineae</i> <b>sp. nov.</b>	* See above
<i>Tenuiphantes tenuis</i> (Blackwall, 1852)	Beldibi, under a stone on the edge of a meadow, 1 ♀; id., prairie, in an ancient orange grove, 2 ♀♀
<i>Tenuiphantes zimmermanni</i> (Bertkau, 1890)	Beldibi, on a stony path on the edge of a pine forest, 1 ♀; id., wasteland, on bare ground, 1 ♀
<b>Lycosidae</b>	
<i>Alopecosa albofasciata</i> (Brullé, 1832)	Beldibi, prairie, 1♂, 1♀. Tekirova, site of Phaselis, reed bed and pine forest litter, 1♂, 3♀♀
<i>Arctosa leopardus</i> (Sundevall, 1833)	Tekirova, site of Phaselis, reed bed, 2♂♂, 1 subad. ♂
<i>Aulonia kratochvili</i> Dunin Buchar & Absolon, 1986	Beldibi, prairie, in an old orange grove, 10 ♂♂, pitfall; id., pine forest, in the meadow of a clearing, 1 ♂ (Fig. 28). Tekirova, site of Phaselis, reed bed, 1 ♀
<i>Hogna effera</i> (O. Pickard-Cambridge, 1872)	* See above
<i>Pardosa hortensis</i> (Thorell, 1872)	Tekirova, site of Phaselis, reed bed, 4 ♂♂
<i>Pardosa roscai</i> (Roewer, 1951)	Tekirova, site of Phaselis, reed bed, 5 ♀♀ (Fig. 44a-c)
<i>Pardosa tatarica</i> (Thorell, 1875)	Beşkonak, river bank ("Köprüçay"), 1 ♀ (Fig. 45a-b)
<i>Pirata piraticus</i> (Clerck, 1757)	Tekirova, site of Phaselis, reed bed, 1 ♀, 2 jj
<b>Mimetidae</b>	
<i>Ero flammeola</i> Simon, 1881	Beldibi, highway underpass, 1 ♀
<i>Mimetus laevigatus</i> (Keyserling, 1863)	Göynük, coastal area, in coniferous branches (thuyas), 1 ♂, 2 subad. ♂♂ (Fig. 39a-b)
<b>Oecobiidae</b>	
<i>Oecobius maculatus</i> Simon, 1870	Antalya, on the parking lot of an urban building, at the foot of a hedge under a stone, 2 ♀♀. Beldibi, on a stone of a low wall, on the edge of the beach., 1♂
<i>Oecobius navus</i> Blackwall, 1859	* See above
<b>Palpimanidae</b>	
<i>Palpimanus</i> sp.	Beldibi, under the bark of a pine trunk, 1 ♀ (Fig. 43a-b)
<b>Philodromidae</b>	
<i>Philodromus femurostriatus</i> Muster, 2009	See above
<i>Thanatus vulgaris</i> Simon, 1870	Taşagül, on the ground of a gravel parking lot, on the side of the road, 1 ♂
<i>Tibellus macellus</i> Simon, 1875	Beldibi, wasteland, in tall grass, 1 ♀. Göynük, coastal area, in coniferous branches (thuyas), 1 subad. ♀ (raised to maturity). Tekirova, site of Phaselis, undergrowth of a pine forest, on the ground under a board of wood, 1 ♂ (Fig. 52a-b)
<b>Pholcidae</b>	
<i>Holocnemus pluchei</i> (Scopoli, 1763)	Beldibi, under the ceiling of a highway underpass, at one of the openings, 5 ♂♂, 5 ♀♀. Taşagül, under a stone on a gravel parking lot, on the side of the road, 1 j



Family: species	Location, habitat, number gender, date
<i>Pholcus phalangioides</i> (Fuesslin, 1775)	Beldibi, on the perimeter wall of a hotel, 1 ♂
<i>Spermophora senoculata</i> (Dugès, 1836)	Beldibi, under the ceiling of a highway underpass, at one of the openings, 1 ♂
<b>Phrurolithidae</b>	
<i>Phrurolithus azarkinae</i> Zamani & Marusik, 2020	* See above
<b>Pisauridae</b>	
<i>Pisaura mirabilis</i> (Clerck, 1757)	Beldibi, pine forest, in the meadow of a clearing, 1 ♂, 1 ♀ (Fig. 46). Tekirova, site of Phaselis, pine forest, on the ground on a grassy slope, 1 ♀
<b>Salticidae</b>	
<i>Bianor albobimaculatus</i> (Lucas, 1846)	Tekirova, site of Phaselis, reed bed, 1 ♀
<i>Cyrba algerina</i> (Lucas, 1846)	Tekirova, site of Phaselis, pine forest, 1 j
<i>Euophrys rufibarbis</i> (Simon, 1868)	Tekirova, site of Phaselis, sparse pine forest by the sea, on the ground on a stone, 1 ♀
<i>Evarcha jucunda</i> (Lucas, 1846)	# See above
<i>Habrocestum latifasciatum</i> (Simon, 1868)	Tekirova, site of Phaselis, pine forest and reed bed, 3 ♂♂, 3 ♀♀, 1 j (Fig. 34a-d)
<i>Heliophanus edentulus</i> Simon, 1871	Tekirova, site of Phaselis, reed bed, 2 ♂ (Fig. 36a-c)
<i>Heliophanus flavipes</i> (Hahn, 1832)	Beldibi, shrub, on the edge of a man-made path on a wasteland, 1 ♀ Antalya, on the car park of a shop, in a small grassy area at the foot of a palm tree and on a stone of a path on the edge of a cliff, 2 ♂♂. Beldibi, pine, on the edge of a grove and under a stone at the entrance of a highway underpass lined with pine forests, 1 ♂, 1 ♀. Göynük, coastal area, in tall grasses in a pine forest clearing, under a stone and on a rocky slope, under a stone, 4 ♀♀, 1 subad. ♀, 1 j. Tekirova, site of Phaselis, pine forest, on the ground on a grassy slope, 1 ♂, 1 ♀
<i>Heliophanus kochii</i> Simon, 1868	
<i>Macaroeris nidicolens</i> (Walckenaer, 1802)	Göynük, coastal area, in coniferous branches (thuyas), 1 subad. ♀ (raised to maturity) (Fig. 37)
<i>Marpissa nivoyi</i> (Lucas, 1846)	Antalya, on the parking lot of an urban building, at the foot of a hedge under a stone, 1 ♀
<i>Menemerus semilimbatus</i> (Hahn, 1829)	Beldibi, on the perimeter wall of a hotel, 1 ♀, 2 jj (Fig. 38)
<i>Myrmarachne formicaria</i> (De Geer, 1778)	Tekirova, site of Phaselis, reed bed, 1 ♀
<i>Philaeus chrysops</i> (Poda, 1761)	Beldibi, under a stone in a wasteland and in a pine forest, 4 jj. Tekirova, site of Phaselis, pine forest, on a stone, in the vegetation, in the shrubs and in the branches of the pines, 5 ♂♂, 5 ♀♀, 1 subad. ♂
<i>Phlegra lineata</i> (C. L. Koch, 1846)	Beldibi, pine forest, under a stone in a meadow, 1 subad. ♀ (raised to maturity)
<i>Plexippus paykulli</i> (Audouin, 1826)	Antalya, on the parking lot of an urban building, at the foot of a hedge under a stone, 1 ♀, 1 j. Taşağıl, on the ground of a gravel parking lot, on the side of the road, 1 subad. ♂ (raised to maturity)
<i>Pseudeuophrys rhodiensis</i> Schäfer, 2018	* See above
<b>Scytodidae</b>	
<i>Scytodes thoracica</i> (Latreille, 1802)	Beldibi, pine forest, under a stone in a meadow, 1 ♂
<b>Sicariidae</b>	
<i>Loxosceles rufescens</i> (Dufour, 1820)	Beldibi, under a stone, on the edge of a man-made path on a wasteland and in a highway underpass, 1 ♀, 1 j
<b>Sparassidae</b>	
<i>Eusparassus dufouri</i> Simon, 1932	Tekirova, site of Phaselis, undergrowth of a pine forest, under a stone, 1 subad. ♂
<b>Tetragnathidae</b>	
<i>Metellina mingei</i> (Blackwall, 1869)	Beldibi, at the entrance of a highway underpass lined with pine forests, 1 ♀
<i>Tetragnatha obtusa</i> C. L. Koch, 1837	Beldibi, shrub, on the edge of a man-made path on a wasteland, 1 ♂. Tekirova, site of Phaselis, pines and shrubs at the edge of the reed bed, 5 ♂♂, 7 jj.
<b>Theridiidae</b>	
<i>Anelosimus vittatus</i> (C. L. Koch, 1836)	Göynük, coastal area, in coniferous branches (thuyas), 2 ♂♂, 1 j. Tekirova, site of Phaselis, undergrowth of a pine forest, in shrubs, 1 ♀
<i>Crustulina scabripes</i> Simon, 1881	Tekirova, site of Phaselis, sparse pine forest by the sea, on the ground under a stone, 1 ♂ (Fig. 31), 2 jj.
<i>Euryopis episinoides</i> (Walckenaer, 1847)	Beldibi, in the grove of a hotel park, in the litter of pine needles, 1 ♂, 1 subad. ♂, 1 subad. ♀; id., prairie, in an old orange grove, under a stone, 1 ♀. Tekirova, site of Phaselis, sparse pine forest by the sea, on the ground under a stone, 1 ♀



Family: species	Location, habitat, number gender, date
<i>Kochiura aulica</i> (C. L. Koch, 1838)	Göynük, coastal area, in coniferous branches (thuyas), 2 ♂♂
<i>Neospintharus syriacus</i> (O. Pickard-Cambridge, 1872)	Beldibi, under the ceiling, at the entrance of a highway underpass lined with pine forests, 1 ♂, 1 ♀, 1 j. Göynük, coastal area, in dry bushes, 1 j. Tekirova, site of Phaselis, undergrowth of a pine forest, in shrubs, 1 j
<i>Neottiura herbigrada</i> (Simon, 1873)	Beldibi, pine forest, in pine needle litter, 1 ♂ (Fig. 40a-b)
<i>Neottiura cf. uncinata</i> (Lucas, 1846)	Beldibi, high grass, on the edge of a man-made path on a wasteland, in a shaded area, 1 j
<i>Parasteatoda simulans</i> (Thorell, 1875)	Tekirova, site of Phaselis, pines and shrubs, 1 ♂, 1 ♀, 1 subad. ♂
<i>Platnickina nigropunctata</i> (Lucas, 1846)	Beldibi, on the frame of a metal panel, on the edge of a path near a wasteland, 1 ♀; id., ancient orange grove, in dead branches, 1 ♂, 1 ♀, 2 jj. Göynük, coastal area, in coniferous branches (thuyas), 1 ♀. Tekirova, site of Phaselis, pine forest, under a wooden fence, in shrubs, 3 ♀♀
<i>Simitidion agaricographum</i> (Levy & Amitai, 1982) #	Göynük, coastal area, on a rocky slope, in dry, young coniferous bushes, 1 ♂, 2 ♀♀ (Fig. 50a-e) <i>S. agaricographum</i> has recently been recorded from Turkey in the province of Bursa (Orhaneli, Sadagı canyon) (Üyar & Dolejš 2017).
<i>Steatoda paykulliana</i> (Walckenaer, 1806)	Taşagıl, under a stone of a gravel parking lot, on the side of the road, 2 ♀♀. Tekirova, site of Phaselis, sparse pine forest by the sea, on the ground under a stone, 1 ♂, 1 ♀
<i>Steatoda triangulosa</i> (Walckenaer, 1802)	Beldibi, on the perimeter wall of a hotel, 1 ♀
<i>Theridion adrianopoli</i> Drensky, 1915	Göynük, coastal area, in coniferous branches (thuyas), 1 ♀ (Fig. 51a-b)
<i>Theridion helena</i> Wunderlich, 2011	* See above
<b>Thomisidae</b>	
<i>Heriaeus setiger</i> (O. Pickard-Cambridge, 1872)	See above
<i>Monaeses cf. israeliensis</i> Levy, 1973	Beldibi, ancient orange grove, in dead branches, 1 subad. ♂
<i>Ozyptila</i> sp.	? See above
<i>Tmarus piochardi</i> (Simon, 1866)	Beldibi, ancient orange grove, in dead branches, 2 subad. ♀♀ (raised to maturity) (Fig. 53a-b)
<i>Xysticus thessalicoides</i> Wunderlich, 1995	See above
<b>Uloboridae</b>	
<i>Uloborus plumipes</i> Lucas, 1846	Beldibi, at the entrance of a highway underpass lined with pine forests, 4 ♀♀. Tekirova, site of Phaselis, undergrowth of a pine forest, in shrubs, 2 ♀♀
<b>Zodariidae</b>	
<i>Zodarion thoni</i> Nosek, 1905	Beldibi, on a gravel path between a pine forest and an ancient orange grove, 3 ♂♂; id., pine forest, under a stone in a meadow, 1 ♂ (Fig. 55a-b)
<b>Zoropsidae</b>	
<i>Zoropsis lutea</i> (Thorell, 1875)	Beldibi, under a stone, on the edge of an ancient orange grove, 1 ♀ (Fig. 56)