

A new member of the genus *Graecophalangium* Roewer, 1923 and the first generic record for the Turkish harvestman fauna (Arachnida: Opiliones)

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Abstract. *Egaenus marenzelleri* Nosek, 1905 is redescribed and transferred to the genus *Graecophalangium* Roewer, 1923 as *Graecophalangium marenzelleri*, **comb. n.** This species is also the first representative of its genus for the Turkish fauna. Male external and genital morphology of this species is illustrated for the first time.

Keywords: *Egaenus marenzelleri*, redescription, taxonomy, Anatolia

During the revision of Turkish opilionid material, including type material deposited in the Arachnid Collection of the Natural History Museum Vienna, Austria (NHMW), it became clear that the phalangid *Egaenus marenzelleri*, described by Nosek (1905) mainly on the basis of its penis structure and the presence of a small cheliceral apophysis, belongs to the genus *Graecophalangium* Roewer, 1923 (for details on this genus, see Murányi 2015, and references therein). This observation resulted in proposing a new combination *Graecophalangium marenzelleri* (Nosek, 1905) **comb. n.**, justified by a detailed redescription, including illustrations of the previously unknown male external and genital morphology. The genus *Graecophalangium* currently contains 6 species (Murányi 2015). One of them, *G. karakalense* Tcheremis & Snegovaya, 2010, belongs in my opinion (based on the structure of the penis, pedipalps and ocularium described in Tcheremis & Snegovaya 2010: figs 10, 14-23) to the genus *Rilaena* Šilhavý, 1965 and thus merits revision.

Taxonomy

Graecophalangium Roewer, 1923

Type species: *Graecophalangium atticum* Roewer, 1923, by subsequent designation by Crawford (1992: 22).

***Graecophalangium marenzelleri* (Nosek, 1905) comb. n.**

Egaenus Marenzelleri Nosek, 1905: 152-153;

Egaenus Marenzelleri: Roewer 1911: 11;

Egaenus marenzelleri: Roewer 1912: 202; Roewer 1923: 869, Bayram *et al.* 2010: 572; Kurt *et al.* 2010: 36, Murányi 2015: 4-6;

Graecophalangium marenzelleri: Kurt 2014: 1622 (invalid proposal for new combination).

Diagnosis. A relatively small (body length ca. 4.0 mm) and ‘unarmed’ member of genus *Graecophalangium*, that differs by the outline of the shaft and glans of the penis (Figs 16-18). Chelicerae frontal with only one small, bluntly conical apophysis on the fixed finger base (Figs 10, 12). Ocularium low and smooth, with only a few denticles and short setae (Fig. 4); pedipalps unarmed, with a very weak mediobasal apophysis on the patella; tarsal segments slightly curved (Figs 13-15). Legs smooth, only with setae; femur and tibia of the first leg weakly spindle-shaped (Fig. 7).

Affinities According to the penis type (more slender and less sclerotized) and its structure, *G. marenzelleri* belongs most probably to the group of species related to *G. cretaeum* Martens, 1966 (from Crete) and *G. punicum* Starega, 1973 (from Lebanon). In lateral view, the thickness of the penis trunk increases evenly (without narrowing) from the distal to the basal part, as observed in both holotypes of *G. cretaeum* (NHMW inv. № 4355) and *G. punicum* (inv. № 46/51, Museum and Institute of Zoology in Warszawa, Poland, MIZW). In the terms of its habitus *G. marenzelleri* is closest to *G. punicum*.

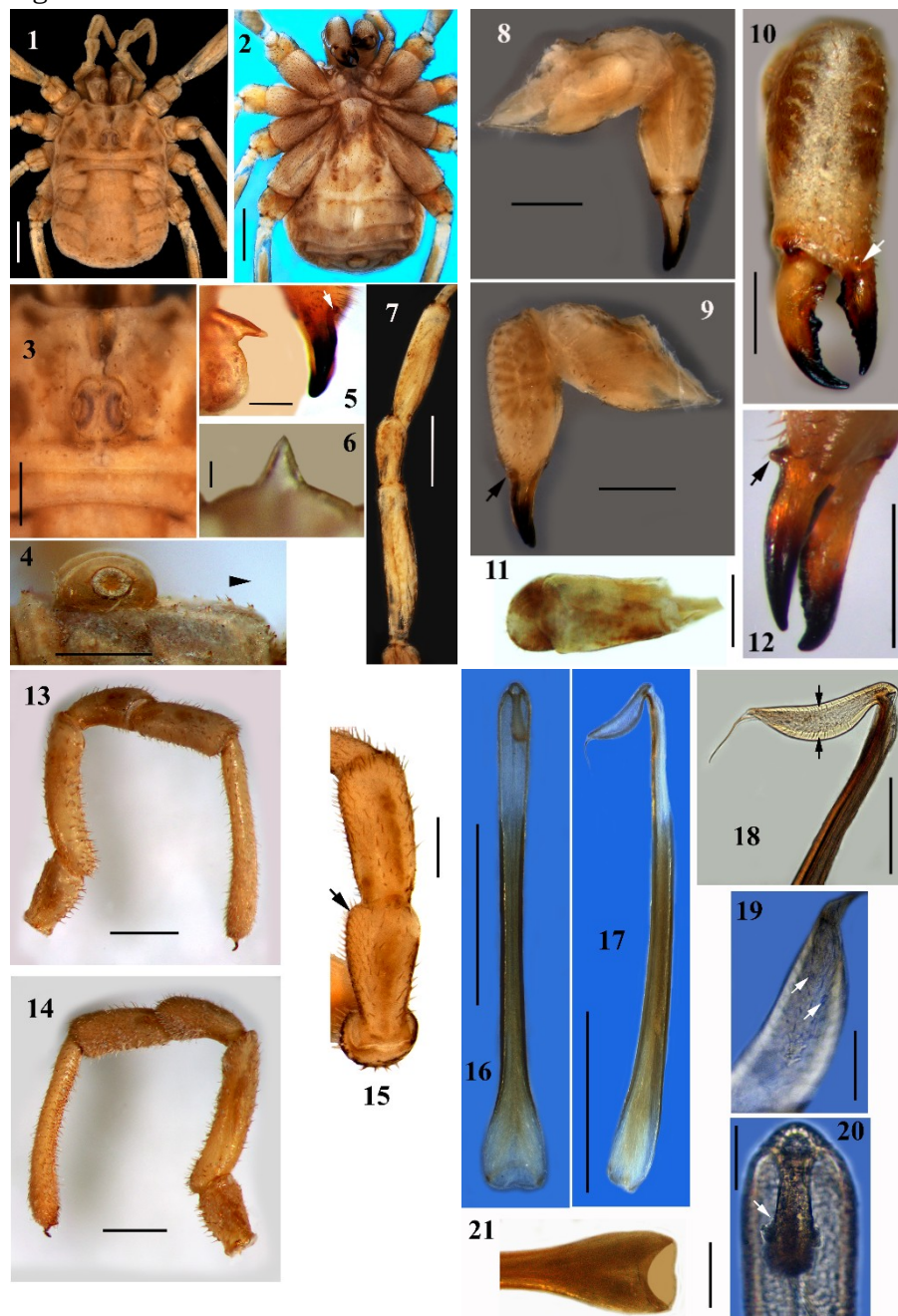
Redescription (Figs 1-21)

The following redescription is based on a single male specimen, labelled as the holotype of *Egaenus marenzelleri* Nosek, 1905 (NHMW inv. № 4355); Type locality: Turkey, Central Anatolia: "Erciyas Dag (Nordseite)" (=Mount Erciyes, 38°31'51.6"N, 35°26'49.2"E), "Ende V. 1902", leg. A. Penther, det. Nosek (1905). All measurements are in mm. In square brackets are the figures from Nosek's (1905) original species description.

Body (Figs 1-3) length (L): 3.97 (with anterior carapace edges = 4.15) [4.3]; prosoma L: 1.6 [1.6] and width (W): 2.76 [2.8]; abdomen L: 2.4 [2.7] and W: 2.75 [3.0]; carapace armed with a few acute black-tipped tubercles (bearing strong setae) at the frontal corners, laterally and in front of ocularium; similar tubercles arranged in lines are found on meso- and metapeltidium; on abdominal dorsum they are only a few; body venter with black-brown, sparse setae. Color (after more than 100 years in alcohol): body light brown/yellow-brown, brown saddle margins are clearly visible (Fig 1); its natural color is described by Nosek (1905: 39). Supracheliceral lamellae are small, bearing one small tubercle. **Ocular tubercle** (Figs 3-4) is smooth with a few denticles (5/6) and short setae (3/3) only; low (height=0.26) [0.3], length-width=0.52 [0.6]; with shallow longitudinal furrow; inner distance between the eyes 0.32 [0.3]; distance from the front of cephalothorax = 0.57. Epistome (Figs 5-6) L: 0.15-0.2; **Chelicerae** (Figs 8-12) light yellow-brown, frontally with brown spots and with only one small bluntly conical apophysis on the fixed finger base (Figs 5, 9-10, 12); basal segment L: 1.47 [0.5] and maximum W (in dorsal view, Fig. 11): 0.58, dorsally and ventrally with several spine-tipped tubercles; distal segment L: 1.70 [1.8] and W (in frontal view): 0.54, frontally covered with stout spine-like setae; movable finger L: 0.71 [0.5]. **Pedipalps** unarmed, white-yellowish (Figs 13-15); segment lengths: trochanter (Tr): 0.60, femur (Fe): 1.28 [1.3], patella (Pa): 0.71 [0.7], tibia (Ti): 0.83 [0.7], tarsus (Ta): 1.50 [1.6], total: 5.0; patella (0.37) and tibia (0.33) maximum width, in dorsal view (Fig. 15); claw L: 0.142. All segments bear setae. Tr ventrally with spine-tipped tubercles, Fe ventrally with stout spine-like setae; Pa with a very weak mediobasal apophysis (Fig. 15); Ti ventrally with several denticles; Ta slightly curved, ventrally with a field of micro-denticles. **Legs** yellow with brown spots on patella and tibia; cylindrical (first leg femur and tibia weakly spindle-shaped, Figs 1, 7), smooth, with setae only; tarsi ending with a single claw. Ti I. distally on ventral side with small denticles and micro-denticles. Fe I. width (in lateral view): 0.6; segment lengths: Leg I. Tr: 0.53, Fe: 2.73 [2.5+0.2], Pa: 1.06 [1.2], Ti: 2.16 [2.1], metatarsus (Mt): 2.33 [2.4], Ta: 3.9, total: 12.71; Leg II. Tr: 0.50, Fe: 3.7 [3.5+0.3], Pa: 1.33 [1.3], Ti: 2.96 [2.8], Mt: 2.90 [3.0], Ta: 7.1, total: 18.49; Leg III. Tr: 0.43, Fe: 2.56 [2.2+0.25], Pa: 1.06 [1.1], Ti: 1.91 [1.75], Mt: 2.66 [2.9], Ta: 4.3, total: 12.92; Leg IV. Tr: 0.63, Fe: 3.83 [3.4+0.3], Pa: 1.26 [1.3], Ti: 2.6 [2.5], Mt: 4.23 [4.2], Ta: 6.0, total: 18.55. **Penis** (Figs 16-21) light yellow to yellow-brown, L: 2.76 (= prosoma width); shaft L: 2.71; shaft (in dorsal view) with a distinct broad basis (W: 0.36; dorsally without a pronounced ridge and furrows, Fig. 21); distal part of the shaft forms long (0.61) 'wing paddle' (! not a 'spoon,' such as in *Rilaena*) with distal W: 0.186 (= stylus length), thereafter shaft narrows slightly towards the middle (0.13), then again widens slightly (0.17) to its extended basal part. In profile, the thickness of the penis-trunk increases evenly from its distal (0.07) towards the basal part (0.24). Glans elongated (L: 0.486), slightly concave dorsally (W: 0.114, in lateral view), with a relatively wide/thick upper (0.021) and lower (the keel) (0.027) glans wall (Fig. 18); glans with two pairs of setae

(here hidden under artifacts) (Figs 18-20), distance between the base of setae ca. 0.04; stylus L: 0.186. Female is unknown.

Remarks: *Graecophalangium marenzelleri* is known at present only from the type locality and is the seventh member of the genus. I reported in a conference presentation (Mitov 2008), that *Eganeus marenzelleri* has to be regarded as species of *Graecophalangium*; however, the latter communication had not meet the criteria for publication of the International Code of Zoological Nomenclature (4th edition). Kurt (2014) inadvertently included this combination (without justification) in a published checklist, which is regarded here as an invalid taxonomic act since the transfer has not been proposed in a taxonomically valid publication. Thus, the present article is the first formal transfer of this species to the genus *Graecophalangium* as *G. marenzelleri* **comb. n.** Kurt (2014), in the same checklist for the genus *Graecophalangium*, also inadvertently included a species name for Turkish material mentioned in a conference presentation by Mitov (2009), which is nomen nudum as it has not yet been formally described. Therefore *G. marenzelleri* is formally the first generic record for the Turkish harvestman fauna.



Figures 1-21 (see previous page). *Graecophalangium marenzelleri* (Nosek, 1905), **comb. n.**, male, holotype (NHMW): 1. body, dorsal; 2. body, ventral; 3. prosoma, dorsal; 4. ocularium, lateral; 5. epistome, lateral view with part of left chela, apophysis arrowed; 6. epistome, ventral; 7. 1st right leg, lateral; 8. right chelicera, lateral; 9. same, medial, apophysis arrowed; 10. same, distal segment and finger, frontal, apophysis arrowed; 11. same, basal and distal segments, dorsal; 12. fingers of right chela (ventro-medial), apophysis arrowed; 13. right pedipalp, retrolateral; 14. same, prolateral; 15. patella and tibia of right pedipalp, dorsal, apophysis arrowed; 16. penis, dorsal; 17. penis, lateral; 18. glans penis lateral, walls arrowed; 19. same, arrows indicate position of setae; 20. glans frontal, seta arrowed; 21. base of penis shaft (color is modified), dorsal. Scale bars: 1 mm for Figs 1, 2, 7, 16, 17; 0.5 mm for Figs 3, 4, 8-14; 0.3 mm for Figs 15, 18, 21; 0.1 mm for Figs 5, 6, 19, 20.

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References

- Bayram, A., Çorak, İ., Danişman, T., Sancak, Z. & Yiğit, N. (2010) Checklist of the harvestmen of Turkey (Arachnida: Opiliones). *Munis Entomology & Zoology*, 5 (2): 563-585.
- Crawford, R. L. (1992) Catalogue of the genera and type species of the harvestman superfamily Phalangioidea (Arachnida). *Burke Museum Contributions in Anthropology and Natural History*, 8: 1-60.
- Kurt, K. (2014) Updated checklist of harvestmen (Arachnida: Opiliones) in Turkey. *Archives of Biological Sciences*, 66 (4): 1617-1631.
- Kurt, K., Eman, Ö. K., Demir, H. & Seyyar, O. (2010) The Turkish Harvestmen (Opiliones) with zoogeographical remarks. *Serket*, 12 (2): 33-44.
- Mitov, P. G. (2008) *Graecophalangium marenzelleri* comb. nov. a new systematic position for *Egaenus marenzelleri* Nosek, 1905 (Opiliones, Phalangiidae). In: Nentwig, W., Schmidt, M. & Kropf, C. (Eds.), *24th European Congress of Arachnology 25.-29. August 2008 in Bern, Switzerland, Book of abstracts*. Natural History Museum Bern, University of Bern, Bern, p. 134.
- Mitov, P. G. (2009) On the genus *Graecophalangium* Roewer, 1923 (Opiliones, Phalangiidae). In: Chatzaki, M., Spiridopoulou, K. & Stathi, I. (Eds.), *25th European Congress of Arachnology, 16-21 August 2009, Alexandroupoli, Greece, Book of abstracts*. Democritus University of Thrace, Natural History Museum of Crete, p. 81.
- Murányi, D. (2015) First record of the genus *Graecophalangium* Roewer, 1923 (Opiliones: Phalangiidae) from Albania, with redescription of *G. militare* (C.L. Koch, 1839). *Ecologica Montenegrina*, 4: 4-13.
- Nosek, A. (1905) Araneiden, Opilionen und Chernetiden. In: Penther, A., Zederbauer, E. (Eds.), *Ergebnisse einer naturwissenschaftliche Reise zum Erdschais-Dagh (Kleinasien)*. *Annalen des Naturhistorischen Museums in Wien*, 20: 114-154.
- Roewer, C.-F. (1911) Übersicht der Genera der Subfamilie der Phalangiini der Opiliones Palpatores nebst Beschreibung einiger neuer Gattungen und Arten. *Archiv für Naturgeschichte* (Berlin) I, 77 (Supplementheft 2): 1-106.
- Roewer, C.-F. (1912) Revision der Opiliones Palpatores (= Opiliones Plagiostethi). II. Teil: Familie der Phalangiidae. (Subfamilien: Sclerosomini, Oligolophini, Phalangiini). *Abhandlungen aus dem Gebiete der Naturwissenschaften, herausgegeben vom Naturwissenschaftlichen Verein in Hamburg*, 20 (1): 1-295.
- Roewer, C.-F. (1923) *Die Weberknechte der Erde. Systematische Bearbeitung der bisher bekannten Opiliones*. Gustav Fischer, Jena, 1116 pp.
- Tchemeris, A. N. & Snegovaya, N. Y. (2010) Three new species of Phalangiidae (Arachnida: Opiliones) from Turkmenistan. *Acta Arachnologica*, 59 (2): 67-72.