

ARTÍCULO:

Taurolaena, a new genus of Phalangidae (Opiliones)

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ARTÍCULO:

Taurolaena, a new genus of Phalangidae (Opiliones)

Nataly Yu. Snegovaya & Wojciech Staręga

Abstract:

A new genus of Phalangidae is established for a species *Rilaena crimeana* Chemeris & Kovblyuk, 2005 from Crimea (Ukraine). The diagnoses of several near related genera are given: *Phalangium* Linnaeus, *Metaphalangium* Roewer, *Graecophalangium* Roewer, *Rilaena* Šilhavý and *Zachaeus* C.L.Koch – all of them, as *Taurolaena* gen. nov. – from the Mediterranean Region and the Middle East. *Bactrophalangium* Šilhavý, 1966 is „officially“ synonymized with *Phalangium* Linnaeus, 1758, thus giving the combinations *Phalangium jakesi* (Šilhavý, 1966), comb. nov. and *Ph. ghissaricum* Gricenko, 1976, comb. rest.

Key words: Opiliones, Phalangiinae, *Taurolaena*, *Bactrophalangium*, harvestmen, Taxonomy, Mediterranean Region, Ukraine.

Taxonomy: *Taurolaena* gen. nov., *Taurolaena crimeana* (Chemeris et Kovblyuk, 2005), comb. nov., *Bactrophalangium* Šilhavý, 1966 = *Phalangium* Linnaeus, 1758, syn. nov., *Phalangium jakesi* (Šilhavý, 1966), comb. nov., *Phalangium ghissaricum* Gricenko, 1976, comb. rest.

Taurolaena, nuevo género de Phalangidae (Opiliones)

Resumen:

Se establece un nuevo género de Phalangidae para la especie *Rilaena crimeana* Chemeris & Kovblyuk, 2005 de Crimea (Ucrania). Se ofrece la diagnosis de varios géneros emparentados de forma próxima: *Phalangium* Linnaeus, *Metaphalangium* Roewer, *Graecophalangium* Roewer, *Rilaena* Šilhavý and *Zachaeus* C.L.Koch, todos ellos – como *Taurolaena* gen. nov. – de la Región Mediterránea y del Oriente Medio. *Bactrophalangium* Šilhavý, 1966 es „oficialmente“ sinonimizado con *Phalangium* Linnaeus, 1758, dando lugar a las combinaciones *Phalangium jakesi* (Šilhavý, 1966), comb. nov. y *Phalangium ghissaricum* Gricenko, 1976, comb. rest.

Palabras clave: Opiliones, Phalangiinae, *Taurolaena*, *Bactrophalangium*, taxonomía, Región Mediterránea, Ucrania.

Taxonomía: *Taurolaena* gen. nov., *Taurolaena crimeana* (Chemeris et Kovblyuk, 2005), comb. nov., *Bactrophalangium* Šilhavý, 1966 = *Phalangium* Linnaeus, 1758, syn. nov., *Phalangium jakesi* (Šilhavý, 1966), comb. nov., *Phalangium ghissaricum* Gricenko, 1976, comb. rest.

Introduction

Quite recently, when working out the harvestman material collected in Crimea (Ukraine), Chemeris & Kovblyuk (2005) described a very handsome species which they called *Rilaena crimeana* Chemeris et Kovblyuk, 2005. The species belongs undoubtedly to Phalangiinae (sensu Staręga 1976a and Crawford 1992), but has some different characters which enable establishment of a new genus. The new genus shares many characters with other genera – surely related – from the Mediterranean Region (in broadest sense). We give therefore – as far as possible – the comparison of all these genera to show the differences between them.

Material

MATERIAL STUDIED: *Phalangium opilio*: Poland, Osowicze N Białystok, open-air museum, on paths, 3.11.1996, leg. W. Starega – 2 ♂, 3 ♀ (RCWS – II/0027). *Metaphalangium cirtanum*: Cyprus, Agia Napa, 10.12.2001, leg. J. Sawoniewicz – 1 ♂, 1 ♀, 1 juv. (RCWS – II/0020). *Graecophalangium atticum*: see Mitov 2003. *Rilaena balcanica*: Bulgaria, West Rhodope Mts, Bachkovo, „Chervenata stena”, 22.05.2005, leg. P. Mitov – 1 ♂ (MiIZ PAN). *Zachaeus crista*: Hungary, Budapest, coll. W. Kulczyński – 3 ♂, 2 ♀ (MiIZ PAN); *Rilaena crimeana*: Ukraine, Crimea, Simferopol Distr., Orlinoe Gorge in Chatyr-Dag Massif, maple-cornelian cherry, 28.06.–17.07.2000, leg. N.M. Kovblyuk – 1 ♂, 1 ♀ (paratypes, IZB).

REPOSITORIES OF THE MATERIAL. IZB – Zoological Institute NAS of Azerbaijan, Baku; MiIZ PAN – Museum and Institute of Zoology, Polish Academy of Sciences, Warszawa; RCWS – Reference collection of W. Starega, Warszawa.

Results

CHARACTERISTICS OF THE RELATED GENERA OF PHALANGIINAE

The subfamily Phalangiinae is the largest within the whole family Phalangidae. It contains, however, so many species (and some genera), whose relationships are not quite clear. So, it is too early to distinguish any tribes, as it has been recently done within Opilioninae (Snegovaya & Starega 2008a). One can distinguish among this subfamily only some groups of closer related genera. One of them includes the following taxa: *Phalangium* Linnaeus, 1758, *Metaphalangium* Roewer, 1911, *Graecophalangium* Roewer, 1923, *Bunochelis* Roewer, 1923, *Rilaena* Šilhavý, 1965, *Zachaeus* C.L. Koch, 1839 and *Taurolaena* gen. n.. They all live in the Mediterranean Region in broadest sense, i.e. from Morocco and Iberian Peninsula to Kazakhstan, Afghanistan and Saudi Arabia. Only *Bunochelis* is endemic of the Canary Islands and will therefore omitted in the present paper, moreover the genus has been relatively recently revised (Starega 1972). All this genera share parts of their characteristics and could be distinguished by the different combinations of the following characters. 1. Shape, position and armature of eye mound. 2. Body coloration. 3. Shape of (male) chelicerae. 4. Pedipalps: apophyses, armature, etc. 5. Length of legs, shape and armature of the first pair. 6. Shape of penis.

The group is different from the numerous African genera, though without doubt they are parts of the same subfamily. There are even character sharing between genera belonging here and to the other groups, e.g. between *Rilaena* and *Dasylobus* Simon, 1880, between *Zachaeus* and *Guruia* Loman, 1902 or between *Metaphalangium* and *Dacnopilio* Roewer, 1911 (Starega 1984).

Taxonomy

Phalangium Linnaeus, 1758

Figs 1, 7, 13, 19–21

DIAGNOSIS. Eye mound relatively high (height = length = width), front and back surface nearly of equal width, deeply furrowed, with distinct denticles on eye rings.

Body (Fig. 1) coloration yellowish with distinct brown/blackish saddle.

Chelicerae (Fig. 7): 1st segment without modifications, 2nd with dorsal horn, sometimes thin, sometimes strong and very long, sometimes lacking.

Pedipalps (Fig. 13): no apophyses (if any on patella then very short), femur with weak armature mainly on dorsal side, sometimes whole pedipalp leg-like elongate and very thin.

Legs mostly long, femora with rows of denticles, 1st pair thicker than the others.

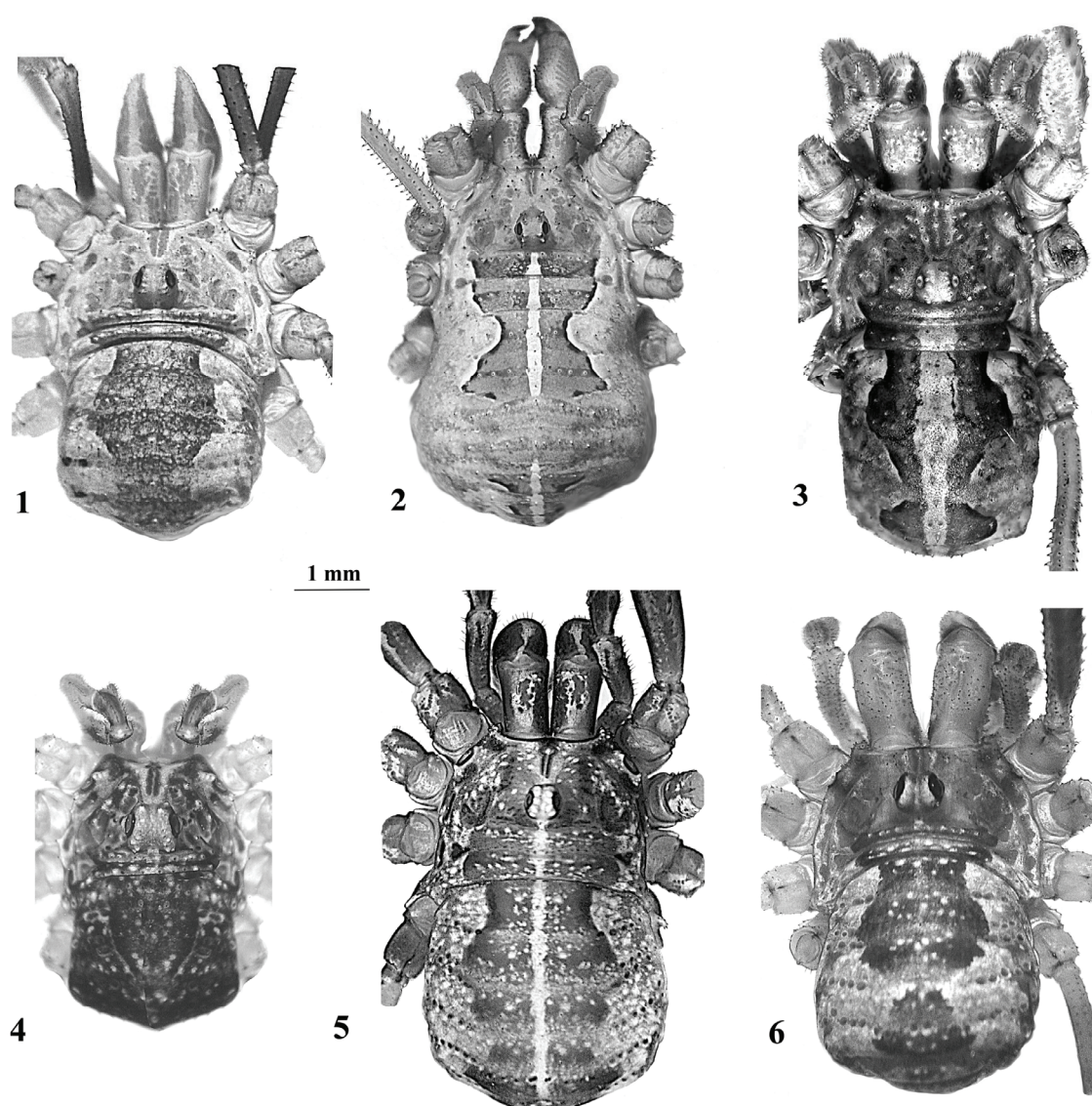
Penis (Figs 19–21): shaft thick, narrowing gradually from the broadened base and subapically with distinct “spoon”, glans in profile triangular.

DISTRIBUTION. Mediterranean Region, Caucasus, Central Asia. Only *Phalangium opilio* Linnaeus, 1758 is widely distributed in nearly whole Holarctic and introduced to New Zealand.

REMARKS. The genus *Bactrophalangium* Šilhavý, 1966 differs from *Phalangium* in one character only: the “horn” on 2nd segment of male chelicerae is much thinner as the article itself (strongly constricted). But the variability of shape of this “horn” is in this genus very broad: from massive “horns” longer than the body (*Ph. savignyi*, some populations of *Ph. opilio*) till nearly none (*Ph. punctipes*, *Ph. riedeli*). So the diagnostic character fits well within this range and therefore we put *Bactrophalangium* into synonymy of *Phalangium* (**syn. n.**).

INCLUDED SPECIES (16): *Ph. opilio* Linnaeus, 1758, sp. typ., *Ph. savignyi* Audouin, 1826, *Phalangium targionii* (Canestrini, 1871), *Ph. punctipes* (L. Koch, 1878), *Phalangium clavipus* Roewer, 1911 (probably should be transferred to *Metaphalangium*), *Phalangium ligusticum* (Roewer, 1923), *Phalangium licenti* Schenkel, 1953 ? (species inquirenda), *Phalangium wahrmanni* Roewer, 1953, *Phalangium jakesi* (Šilhavý, 1966), comb. nov., *Ph. riedeli* Starega, 1973, *Phalangium ghissaricum* Gricenko, 1976, comb. rest., *Phalangium armatum* Snegovaya, 2005, *Phalangium staregai* Snegovaya, 2005, *Phalangium zuvandicum* Snegovaya, 2005, *Phalangium bakuense* Snegovaya, 2006 and *Phalangium venustum* Snegovaya, 2008.

MAIN LITERATURE. Roewer 1912, 1923, 1953; Šilhavý 1966; Starega 1973; Gricenko 1976; Martens 1978; Snegovaya 2005, 2006, 2008.



Figures 1–6. Male body, dorsal view: 1. *Phalangium opilio*; 2. *Metaphalangium cirtanum*; 3. *Graecophalangium atticum*; 4. *Rilaena balcanica*, 5. *Zachaeus crista*, 6. *Taurolaena crimeana*.

***Metaphalangium* Roewer, 1911**

Figs 2, 8, 14, 22–24

DESCRIPTION. Eye mound as in *Phalangium*; denticles very large and sharp.

Body (Fig. 2) coloration sandy-yellowish with distinct dark brown saddle and white or yellowish longitudinal stripe.

Chelicerae (Fig. 8): 1st and 2nd segment strong, denticulated, but without any special features.

Pedipalps (Fig. 14): short, with sharp granules or small denticles dorsally on femur.

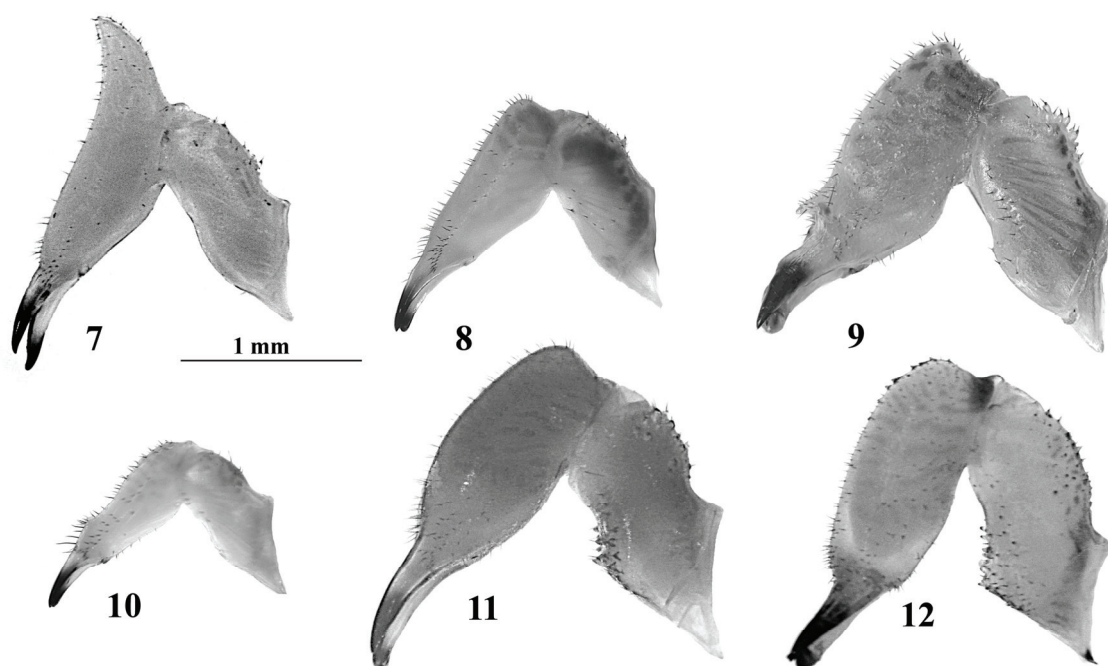
Legs heavy armed, 1st pair distinctly thickened.

Penis (Figs 22–24): shaft narrowest in about half its length, subapical „spoon” broad and deep, glans in profile of triangular-rounded irregular shape.

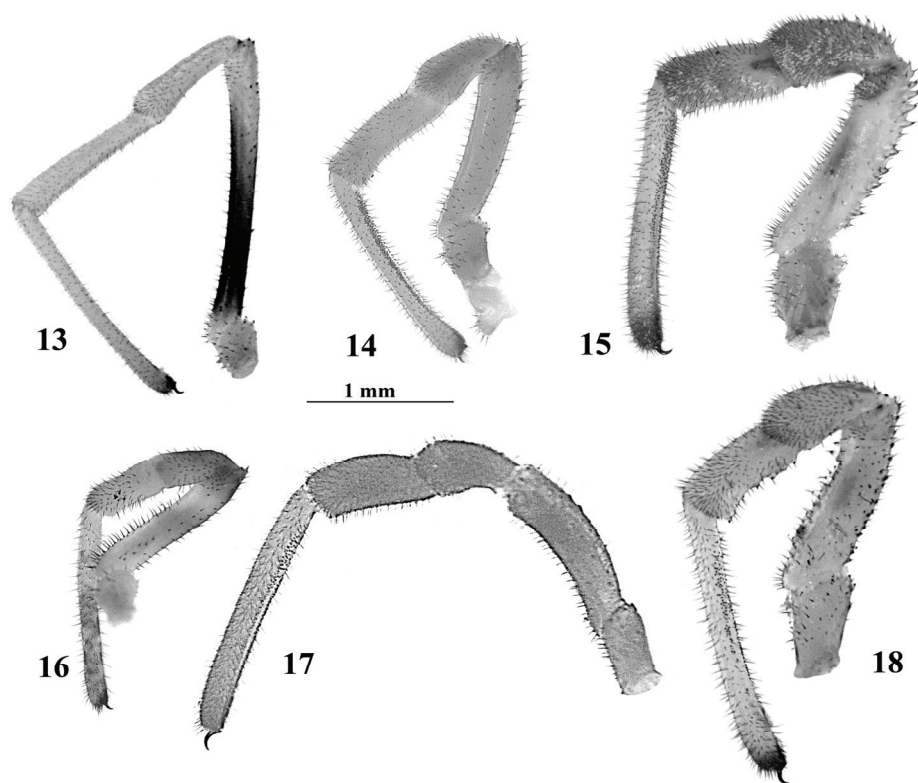
DISTRIBUTION. Mediterranean Region, Sudan, Saudi Arabia.

REMARKS. Included species (8): *Metaphalangium cirtanum* (C.L. Koch, 1839) [sp. typ. is *Phalangium propinquum* Lucas, 1846, junior synonym of *M. cirtanum*], *Metaphalangium albiunilineatum* (Lucas, 1846), *Metaphalangium tuberculatum* (Lucas, 1846), *Metaphalangium bispinifrons* (Roewer, 1911), *Metaphalangium abruptum* (Roewer, 1911), *Metaphalangium corsicum* (Roewer, 1956), *Metaphalangium lusitanicum* (Roewer, 1956) and *Metaphalangium sudanum* Roewer, 1961.

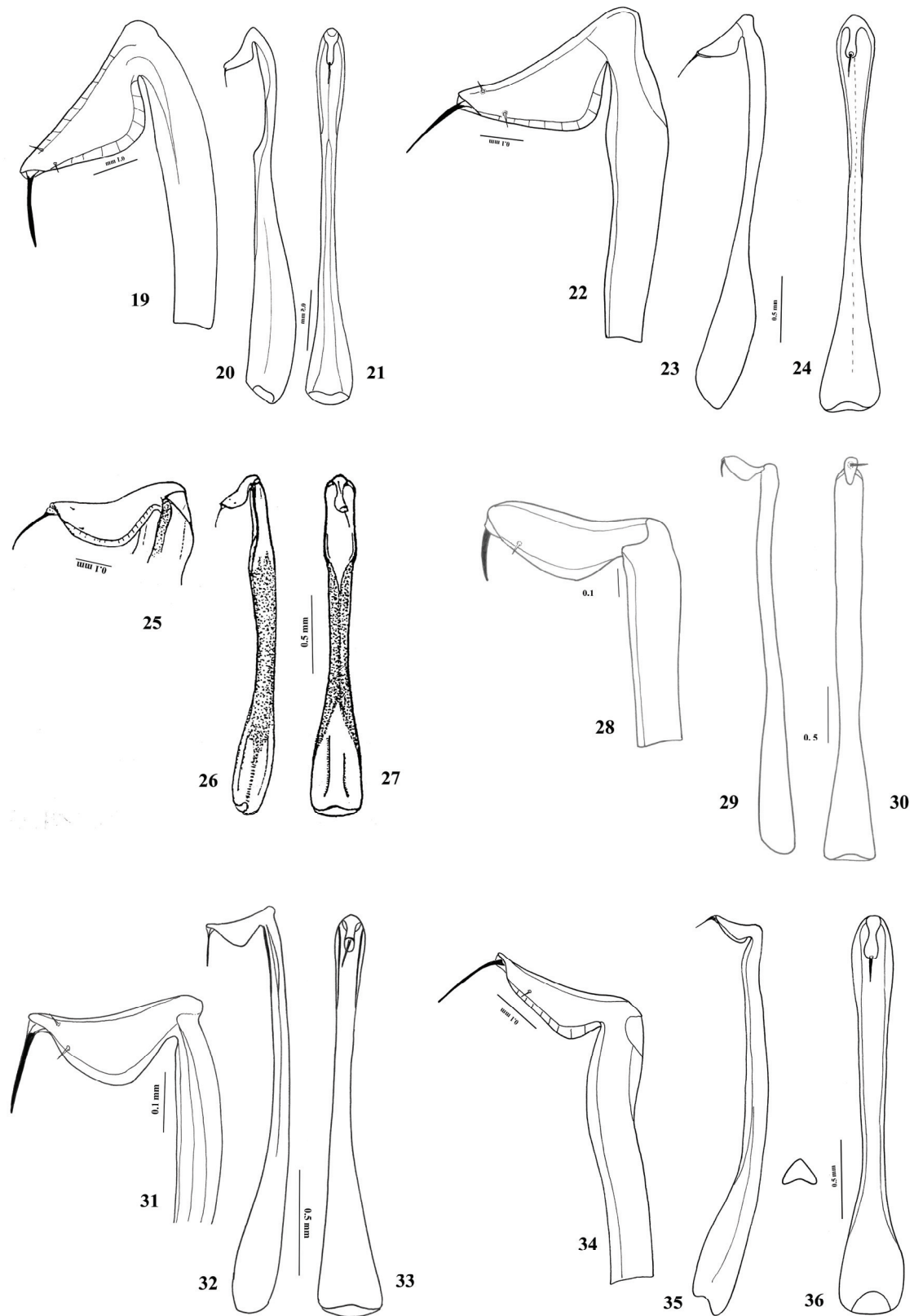
MAIN LITERATURE. Roewer, 1912, 1923, 1956; Martens, 1978; Starega, 1973, 1984, 2004.



Figures 7–12. Male right chelicera, prolateral view: 7. *Phalangium opilio*; 8. *Metaphalangium cirtanum*; 9. *Graecophalangium atticum*; 10. *Rilaena balcanica*; 11. *Zachaeus crista*; 12. *Taurolaena crimeana*.



Figures 13–18. Male right pedipalpus, prolateral view: 13. *Phalangium opilio*; 14. *Metaphalangium cirtanum*; 15. *Graecophalangium atticum*; 16. *Rilaena balcanica*; 17. *Zachaeus crista*; 18. *Taurolaena crimeana*.



Figures 19–36. Penis, lateral (19, 22, 25, 28, 31, 34) and dorsal (20, 23, 26, 29, 32, 35) view, glans lateral view (21, 24, 27, 30, 33, 36): **19–21.** *Phalangium opilio*; **22– 24.** *Metaphalangium cirtanum*; **25–27.** *Graecophalangium atticum* (after Mitov 2003); **28–30.** *Rilaena balcanica*; **31–33.** *Zachaeus crista*; **34–36.** *Taurolaena crimeana*.

***Graecophalangium* Roewer, 1923**

Figs 3, 9, 15, 25–27

DESCRIPTION. Eye mound as in *Metaphalangium*.Body (Fig. 3) coloration from yellowish till dark brown, saddle distinct but often visible only its dark margins.Chelicerae (Fig. 9): 1st segment normal, 2nd often with even several hook-like apophyses.Pedipalps (Fig. 15): short, normal, femur with dorsal and ventral denticles.Legs mostly heavy armed, 1st pair thickened.Penis (Figs 25–27): shaft with distinct broad basis, then rounded like a stick, subapical „spoon” very long (nearly ¼ of shaft length) and narrow, glans in profile banana-shaped.**DISTRIBUTION.** Eastern Mediterranean Region: Montenegro, Makedonia, Greece and Crete, Lebanon.**REMARKS.** Included species (5): *Graecophalangium atticum* Roewer, 1923 sp. typ., *Graecophalangium militare* (C.L. Koch, 1839), *Graecophalangium cretaeum* Martens, 1966, *Graecophalangium punicum* Starega, 1973 and *Graecophalangium drenskii* Mitov, 1995.**MAIN LITERATURE.** Roewer 1923; Martens 1966; Starega 1973; Mitov 1995, 2003.***Rilaena* Šilhavý, 1965**

Figs 4, 19, 16, 28–30

DESCRIPTION. Eye mound trapezoid, narrower in front, with deep furrow and distinct denticles, sometimes broadened.Body (Fig. 4) coloration from yellowish or even silvery till deep brown; saddle always darker: from light grey to black.Chelicerae (Fig. 10): 1st segment normal, 2nd either normal or thickened, sometimes with hook-like or conical apophysis.Pedipalps (Fig. 16): femur mostly with ventral denticles or even thorns, patella with distinct, long apophysis, tibia and femur thickened apically.Legs mostly long, with small denticles, 1st pair not at all or only slightly thickened.Penis (Figs 28–30): shaft with slightly broadened basis, then with nearly equal width up to the subapical „spoon”, glans banana-shaped.**DISTRIBUTION.** Italy, Serbia, Bulgaria, Turkey, Caucasus, Iraq (?), Iran (?), Afghanistan (?). Only *Rilaena triangularis* (Herbst, 1799) is distributed from Western Europe till Urals, introduced to USA.**REMARKS.** Included species (13): *Rilaena balcanica* Šilhavý, 1965, sp. typ., *Rilaena triangularis* (Herbst, 1799), *Rilaena hyrcana* (Thorell, 1876) ? (incertae sedis), *Rilaena atrolutea* (Roewer, 1915), *Rilaena picta* (Mcheidze, 1952) ? (incertae sedis), *Rilaena pusilla* (Roewer, 1952) ? (incertae sedis), *Rilaena anatolica* (Roewer, 1956) ? (incertae sedis), *Rilaena buresi*(Šilhavý, 1965), *Rilaena gruberi* Starega, 1973 ? (incertae sedis), *Rilaena augusti* Chemini, 1986, *Rilaena serbica* Karaman, 1992, *Rilaena zakatalica* Snegovaya & Chemeris, 2005 ? (incertae sedis), *Rilaena lenkoranica* Snegovaya, 2007.**MAIN LITERATURE.** Šilhavý 1965; Starega 1973, 1976a, 1976b; Martens 1978; Chemini 1986; Karaman 1992; Snegovaya 2007.***Zachaeus* C.L. Koch, 1839**

Figs 5, 11, 17, 31–33

DESCRIPTION. Eye mound nearly hemispherical, with strong denticles on eye rings.Body (Fig. 5) coloration from light brown to nearly black, saddle always darker, with whitish bordering and whitish longitudinal stripe. Chelicerae (Fig. 11): segments heavy built, 2nd often strongly swollen [extremely variable!].Pedipalps (Fig. 17): short, normal, nearly not armed. Legs short, 1st pair very often strongly thickened, armature very variable.Penis (Figs 31–33): basal part of the shaft long-triangular, then constricted and in distal about ⅔ of equal width, „spoon” relatively shallow, glans nearly banana-shaped.**DISTRIBUTION.** S Czechia, Hungary, Slovakia, Romania, Bosna and Hercegovina, Bulgaria, Greece, Ukraine, S Russia, Caucasus, Turkey, Syria and Israel.**REMARKS.** Included species (9): *Zachaeus crista* (Brullé, 1832) [sp. typ. is *Zachaeus mordax* C.L. Koch, 1839, junior synonym of *Z. crista*], *Zachaeus lupatus* (Eichwald, 1830), *Zachaeus hebraicus* (Simon, 1884), *Zachaeus anatolicus* (Kulczyński, 1903), *Zachaeus kervillei* (Sörensen, 1912) ? (species inquirenda), *Zachaeus birulai* Redikorzev, 1936, *Zachaeus redikorzevi* Starega & Chevrizov, 1978, *Zachaeus simferopolensis* Chemeris & Kovblyuk, 2005, *Zachaeus shachdag* Snegovaya & Starega, 2008.**MAIN LITERATURE.** Redikorzev 1936; Šilhavý 1965; Starega 1967, 1976b, 1978; Martens 1978; Starega & Chevrizov 1978; Chemeris & Kovblyuk 2005; Snegovaya & Starega 2008b.***Taurolaena* gen. nov.**

Figs 6, 12, 18, 34–36

ETYMOLOGY. The genus name comes from parts of the words Tauris – the ancient name of the recent Crimea and *Rilaena* – the genus in which it has been originally described. Its gender is feminine.**DESCRIPTION.** Eye mound not very large, hemispherical, with small denticles on eye rings.Body (Fig. 6) coloration: anterior part brown, posterior yellowish with well visible dark brown saddle.

Chelicerae (Fig. 12): 1st segment distinctly elongate, 2nd normal, with small ectal apophysis at base.

Pedipalps (Fig. 18): short, patella with small apophysis, femur dorsally with denticles.

Legs short, 1st pair thickened, sparsely armed with denticles and granules. Penis (Fig. 34–36): basal part of the shaft slightly broadened, in a cross section looks like a triangle, glans banana-shaped.

DISTRIBUTION. Ukraine (Crimea).

REMARKS. Included species (1): *Taurolaena crimeana* (Chemeris & Kovblyuk, 2005), comb. nov., sp. typ.

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The authors wish to thank Dr. P. Mitov for his help with obtaining the photographs and drawings of *Graecophalangium atticum*. Any material of this species was inaccessible to us. Dr. W. Tomaszewska lent us the comparative material from the collection of the Museum and Institute of the Polish Academy of Sciences in Warsaw. We thank also Dr. Carlos Prieto and the three anonymous referees for valuable critical comments, which can be used in the final draft of the paper.

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