

## **A contribution to the knowledge of the species *Rafalskia olympica* (KULCZYŃSKI, 1903) (Opiliones, Phalangiidae, Phalangiinae)**

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**Abstract:** Balkan populations of *Rafalskia olympica* (KULCZYŃSKI, 1903) are distinguished as separate subspecies *Rafalskia olympica bulgarica* STAREGA, 1963 **nov. stat.**. Certain novel details of the *R. olympica* female body structure are presented. It is stated that *Metaplatybunus drensii* ŠILHAVÝ, 1965 is not a synonym of *R. olympica*.

**Keywords:** Phalangiinae, *Rafalskia olympica*, Serbia, Bulgaria, Turkey

### **INTRODUCTION**

Among the genera of the subfamily Phalangiinae (Phalangiidae) with insufficiently outlined differential characters the genus *Rafalskia* STAREGA, 1963 also occupies a prominent position. It was characterized on the basis of a number of characters, which are more widely distributed among species of the subfamily and not restricted to the group in question. Considering the incomplete knowledge of a number of species described to date and their final taxonomic status, it is difficult to discuss the validity and relationships of the individual genera of the subfamily Phalangiinae. Therefore, I tried to elucidate the position of the genus *Rafalskia* using some new data on the species *R. olympica*.

The genus was established in 1963 as a subgenus by STAREGA (1963), who described a new species *Paropilio* (*Rafalskia*) *bulgaricus* based on one male specimen from Bulgaria. ŠILHAVÝ (1965) raised *Rafalskia* from subgenus to the rank of genus and in addition to *R. bulgarica* he also included the species *Eudasylobus insularis* ROEWER, 1956 in this genus (the latter species was synonymized with *Metaplatybunus rhodiensis* ROEWER, 1927 by MARTENS 1965). STAREGA (1976) synonymized

the species *Rafalskia bulgarica* with *Platybunus strigosus olympicus* KULCZYŃSKI, 1903 (described from NW Asia Minor, again based on one male specimen) as *Rafalskia olympica* (KULCZYŃSKI, 1903). ROEWER (1923) already raised *P. strigosus olympicus* on species rank as *Metaplatybunus olympicus* (KULCZYŃSKI, 1903). STAREGA (1976) synonymized *Metaplatybunus dremskii* ŠILHAVÝ, 1965, known only on the basis of a female specimen, with *R. olympica*. He also attributed characteristics of *M. dremskii* to unknown females of *Rafalskia olympica*. STAREGA (1976, 1980) in addition to a nominate species also included in this genus *Metaplatybunus petrophila* MARTENS, 1965 and *Metaplatybunus creticus* ROEWER, 1923 (synonymizing the later one with *Metaplatybunus rhodiensis* ROEWER, 1924).

By surveying the material collected in western Serbia and also the specimens from Bulgaria and Asia Minor, I found that the description of *M. dremskii* could not be matched to females of *R. olympica*. Furthermore, I found stability within certain characters in the geographically widely separated populations of western Serbia and different localities in Bulgaria. These data served as the basis for distinguishing the Balkan populations of this species from the specimens of Asia Minor by separating them here into a separate subspecies: *Rafalskia olympica bulgarica* STAREGA, 1963.

The detailed descriptions of the species given by ŠILHAVÝ (1965) (as *R. bulgarica*) and STAREGA (1976) are herein completed with certain new data. In the following description characteristics deemed important to define the species and to differentiate between the two subspecies are also mentioned.

### ***Rafalskia olympica olympica* (KULCZYŃSKI, 1903)**

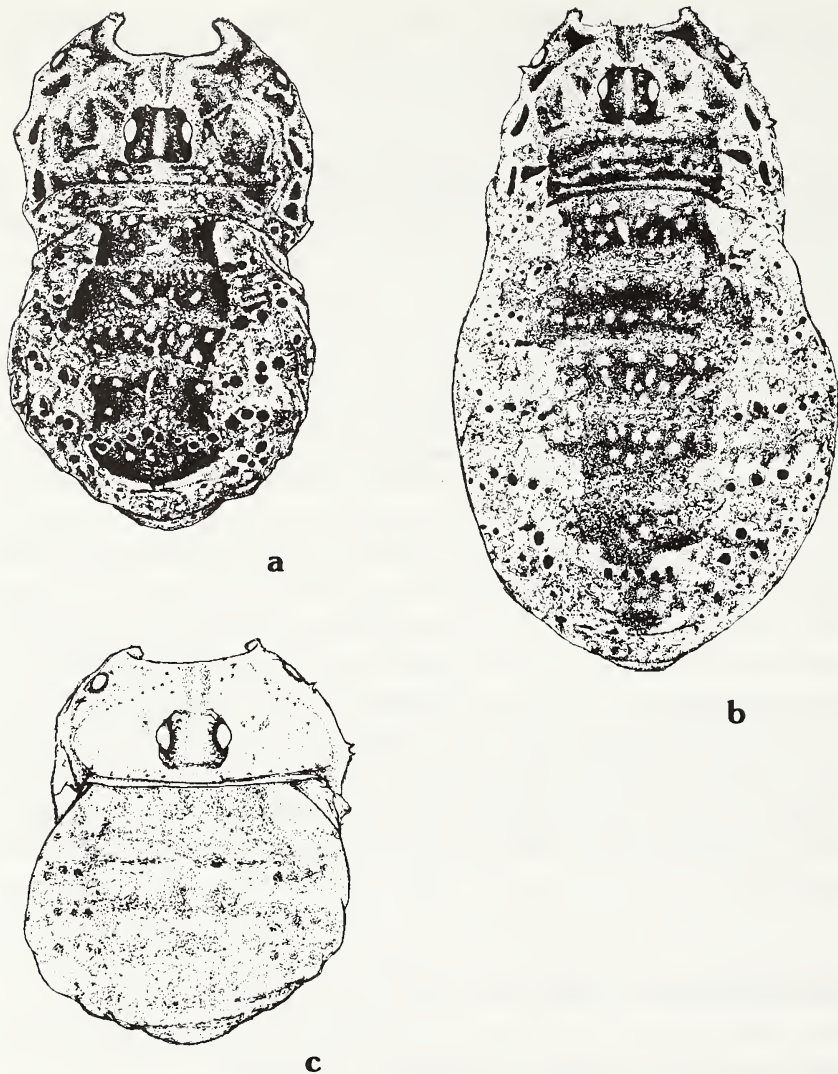
*Platybunus strigosus* (?) *olympicus* - KULCZYŃSKI 1903: 632, 667-670.

*Metaplatybunus olympicus* - ROEWER 1923: 852.

*Rafalskia olympica* - STAREGA 1980: 525 (data from Turkey).

Material examined:

Turkey: Uludag (Olympus Bithynicus): 1 male (holotype), 1900, (leg. F.WERNER), NMW Inv.-Nr. 11.701; 1 male, 1 female, 11.06.1969, (leg. O.PAGET – E.KRITSCHER – K.BILEK), NMW Inv.-Nr. 11.703.

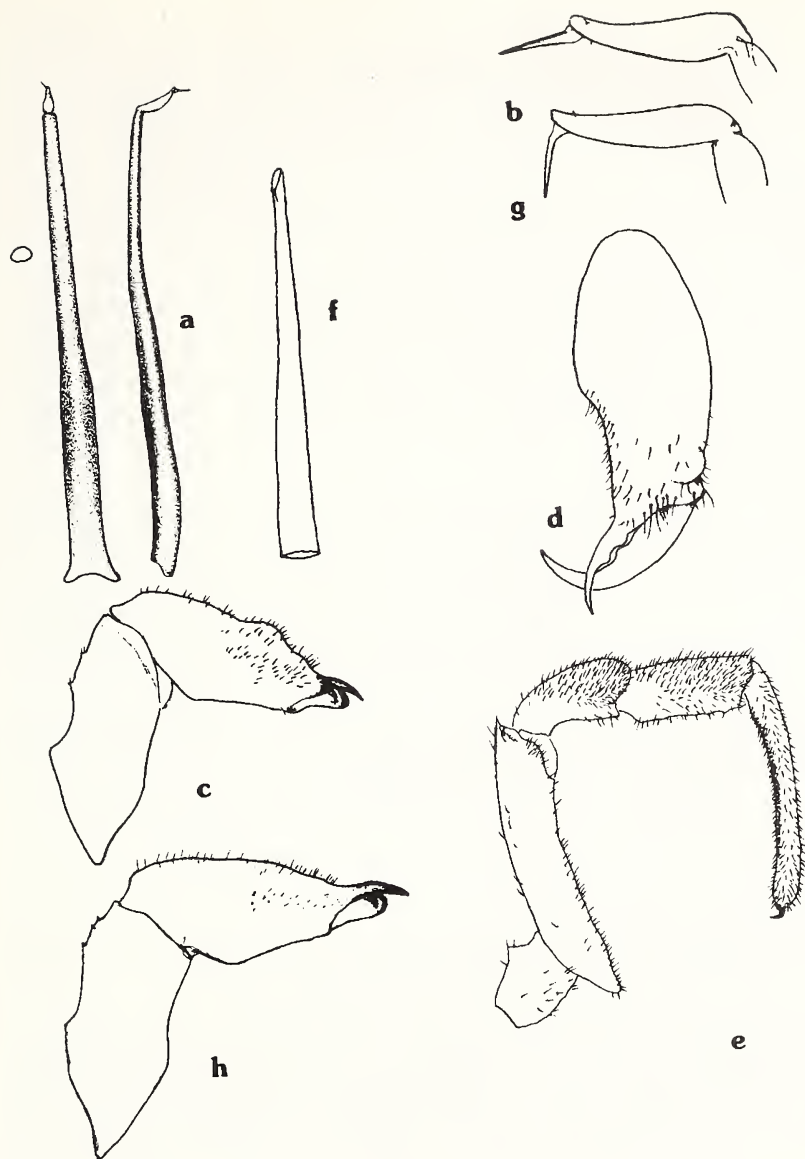


**Fig. 1:** dorsal body view : **a-b** *Rafalskia olympica bulgarica* STAREGA, 1963 :

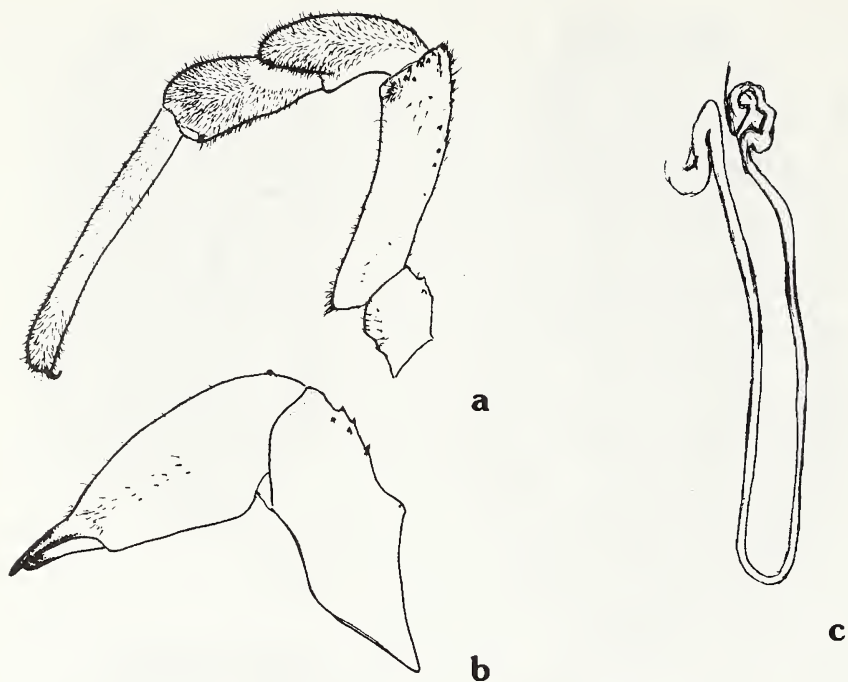
**a)** male from Šargan (5,1 mm), Zlatibor Mt., Serbia

**b)** female ibid. (6,7 mm)

**c)** *Rafalskia olympica olympica* (KULCZYŃSKI, 1903), male from Mt. Uludag, Turkey (4,1 mm).



**Fig. 2:** **a-e:** *R. o. bulgarica*, Šargan, Zlatibor Mt., Serbia, male (5,1 mm): **a)** penis, dorsal and lateral view; **b)** glans of penis; **c)** chelicerae, inner face; **d)** chelicerae frontal view; **e)** pedipalp, inner face. **f-h:** *R. o. olympica*, Mt. Uludag, Turkey, male (holotype): **f)** penis, dorsal view; **g)** glans of penis; **h)** chelicerae, inner face.



**Fig. 3.** *R. o. bulgarica*, Šargan, Zlatibor Mt., Serbia, female (6,7 mm): **a)** chelicerae, inner face; **b)** pedipalp, inner face; **c)** receptaculum seminis.

#### Male:

Body (3.8-5.3 mm) completely pale (yellowish) in type specimen while in the other pale yellowish, marbled yellowish brown (Fig. 1c).

Penis (3.8-4.1 mm) yellowish with narrow glans penis (Figs. 2f-g).

Chelicerae yellowish with characteristic secondary sexual characters (Fig. 2h). Frontal humps of second article distinct, but smaller than in ssp. *bulgarica*. Tips of chelae fingers elongated, strongly pointed and characteristically decussated, less so than in ssp. *bulgarica* (Fig. 2d).

Pedipalps yellowish with conical elongated apophysis at base of femur (refer to Fig. 2e) and ventrobasal projection of tibia.

Legs yellowish, articles cylindrical. Tibia with somewhat flattened sides, almost pentagonal in cross section. Femur II: 6.4-6.5 mm.



**Female:**

Body (5.4 mm) yellowish with yellowish brown marbled dorsal pattern. Receptacula seminis in rings 5-7 of ovipositor, subsidiary ampulla present but not clearly visible, no significant differences when compared with spp. *bulgarica* (Fig. 3c).

Chelicerae yellowish, without frontal apophysis and with normally shaped chelae.

Pedipalps yellowish, without strong spines. Femora and tibiae short compared with males. Conical apophysis on femur basis less distinct than in males. Patella and tibia with distinct medial apophyses (refer to Fig. 3b).

Legs yellowish as in males. Femur II: 6.0 mm.

Distribution: known so far from Uludag Mt., NW Asia Minor.

***Rafalskia olympica bulgarica* STAREGA, 1963 nov. stat.**

*Paropilio (Rafalskia) bulgaricus* - STAREGA 1963: 289-292.

*Rafalskia bulgarica* - ŠILHAVÝ 1965: 397-400.

*Rafalskia olympica* - STAREGA 1976: 393-396.

*Rafalskia olympica* - STAREGA 1980: 525 (data from Bulgaria).

**Material examined:**

Bulgaria: 1 female, 1 male, East Rhodopi Mts., Gugutka 250-300 m, 23.04.1995, leg. B.PETROV & B.BUREV; 4 males, Rila Mt., Suchoto ezero, 1900-2460 m, pitfall traps, 11.1993–11.1994, leg. S.TONKOV; 1 female, 1 male, W. Rhodope Mts., Smolyan, Zagrazhden, 1050-1100 m, 11.06.1985, leg. P.MITOV; 2 females, W. Rhodope Mts., Smolyan Distr., Banite, 720 m, 18.04. 1993, leg. P.MITOV; 1 male, Rhodope Mts., Smolyan Distr. above Banite, 1100 m, 03.05.1991, leg. P.MITOV; 1 female, Rhodope Mts., above Smolyan, “Soskovche”, 1550 m, 09.06.1995, leg. P.MITOV; 1 female, W. Rhodope Mts., Hvoyna, 1992, leg. P.MITOV; 1 male, Strandzha Mt., Res. Vitanovo, 26.05.1995, leg. P.MITOV

Serbia: Zlatibor Mt.: 7 males Tornik, 1300 m., 08.07.1995, leg. I.KARAMAN; 4 females, 7 males 3 subad. Tornik, 09.06.1996, leg. I.KARAMAN; 1 female Šargan, 14.06.1991, leg. B.TALOSI & I.KARAMAN; 2 males, Šargan, 7.07.1995, leg. I.KARAMAN; 2 males, Šargan, 08.06.1996, leg. I.KARAMAN

**Diagnosis:**

*R. o. bulgarica* differs from the nominative subspecies in having a stronger apophysis on the male chelicerae, a longer penis truncus, the colour of body and appendages colour, and a distinct dorsal pattern.

#### Male:

Body (4.9-6.3 mm) light yellowish to light brown with more or less distinct dark brown (to almost black) dorsal saddle-like pattern and body sides (Fig. 1a). In specimens with completely dark brown dorsal side no saddle-like pattern.

Penis with light brown to dark brown truncus and yellow glans. Truncus 4.5-5.6 mm long (Figs. 2a, b)

Chelicerae (Fig. 2c) yellowish marbled with brown to completely dark brown. Distinct frontal apophysis on second article (Fig. 2d). Chelae with strongly elongated and pointed fingers, characteristically decussated (Fig. 2d).

Pedipalps (Fig. 2e) yellowish with marbled brown parts to completely dark brown articles. No other differential characteristics except coloration when compared with ssp. *olympica*.

Legs with cylindrical articles. Tibia with somewhat flattened sides, almost pentagonal in cross section. Femur II: 7.3-9.5 mm. Colour varies from yellowish marbled with light brown to dark brown.

#### Female:

Body 4.9-7.9 mm. Somewhat lighter coloured than male, dorsal saddle-like pattern less distinct than in males (Fig. 1b).

Position of receptacula seminis (Fig. 3c) variable: in surveyed specimens in rings 5-7, 6-8, 6-9 and 7-11. Legs as in males, yellowish marbled with brown to light brown. Femur II: 6-7.2 mm.

#### Distribution:

Extended range in the Bulgarian mountains, i.e. in southeastern, south, and southwestern Bulgaria and in west Serbia on Mt. Zlatibor. No detailed data on localities in Greece (STAREGA 1976, 1980). I presume its occurrence in northern Greece too.

#### Ecology:

On the Mt. Zlatibor, specimens were collected exclusively from conifer trunks and branches (*Pinus*, *Picea*), females by shaking branches only, therefore indicating the true arboricoulous nature of the species. At the same sites and times a greater number of specimens of *Rilaena serbica serbica* KARAMAN, 1992 were found on bushes and denser herbaceous

vegetation while the species *Platybunus bucephalus* (C.L. KOCH, 1835) was less commonly present.

## REMARKS

The structure of pedipalps would be a shared feature and the main inclusion criterion of the species included by STAREGA (1980) in the genus *Rafalskia*. In these species the pedipalps (especially femora) are not armed with larger spines, the femora possess a more or less distinct conical apophysis at the basis, while the tibia in males has a characteristic more or less distinct ventrobasal widening. This shape of the male tibia is possibly correlated with a specific mode of immobilization of females during copulation. In these species, eye tubercles are mostly of “normal” size. I believe that there is possibly also similarity in the organization of the female receptacula seminis, with an additional spherical-lobate accessory ampulla at the basis of the main ampulla.

The characteristics cited above are also applicable to the species *Platybunoides argaea* ŠILHAVÝ, 1955, known on the basis of one male specimen only, and representing a monotypic genus. I assume that the species of the genus *Rafalskia* cited by STAREGA (1980) and *P. argaea* are closely related and that they probably belong to the same genus. In that case the genus *Rafalskia* would be a junior synonym of the genus *Platybunoides*. Knowledge of the female of *P. argaea* would be needed for a definitive conclusion.

Close to the above cited species, primarily in certain characteristics of pedipalp shape, is *Metaplatybunus strigosus* (L. KOCH, 1867) and also close to it and far less known is *Stankiella montana* HADŽI, 1973 (*Stankiella pretneri* HADŽI, 1973 is a synonym of *M. strigosus* (KARAMAN 1995)). The organization of the receptacula seminis of *R. olympica* resembles that of *M. strigosus*.

Some misinterpretation occurred in consequence of the synonymization of the species *M. drenskii* (described after one female from Bulgaria) (STAREGA, 1976). Following this interpretation and the overlooking of a less well known paper by ŠILHAVÝ (1974) wherein the species *M. drenskii* was recorded from western Serbia (Kablar Mt.) (again based only on female specimens), I described the species *Rilaena serbica* from the Serbian region (with two subspecies) (KARAMAN 1992). The features



characterizing *M. drenskii* correspond in large part to those of females of *R. serbica*, indicating possible conspecificity. At least, *M. drenskii* is very close to *R. serbica*, furthermore to *R. buresi* (ŠILHAVÝ, 1965). Following the present diagnosis of the genus, *M. drenskii* probably belongs to the genus *Rilaena*. To solve the problem, *M. drenskii* males are needed.

On the basis of sporadically collected material from some mountains in northern Montenegro, western, southern, and eastern Serbia, and a mountain from western Macedonia, as well as on the basis of the material from some Bulgarian mountains (MITOV pers. comm.), it could be concluded that there is a *Rilaena* species or subspecies complex in the Balkan mountains. This complex includes *R. buresi* and *R. serbica* (or *M. drenskii*, or both). The populations from certain mountains show specific characteristics whose status is not easy to define on the basis of our incomplete knowledge of this complex. A definitive picture and a judgment of the status of populations of this complex is only possible on the basis of a detailed knowledge of the populations of extensive mountainous regions of the central and eastern Balkan Peninsula. This task is made additionally difficult by a frequent, evidently local occurrence of populations of this complex, as well as by the minor taxonomical usefulness of females.

## ZUSAMMENFASSUNG

Beitrag zur Kenntnis der Art *Rafalskia olympica* (KULCZYŃSKI, 1903) (Opiliones, Phalangiidae, Phalangiinae)

Die Populationen der Balkanhalbinsel von *Rafalskia olympica* werden zu einer gesonderten Unterart *R. olympica bulgarica* gestellt. Einige neue Details der Morphologie des Weibchens von *R. olympica* werden dargestellt. *Metaplatybunus drenskii* ist kein Synonym von *R. olympica*.

**Acknowledgements:** The author is grateful to Dr. J. Gruber (Naturhistorisches Museum, Wien) and Dr. P. Mitov (Faculty of Biology, Sofia) for providing the material used in preparing the manuscript.

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Autor(en)/Author(s): Karaman Ivo M.

Artikel/Article: [A contribution to the knowledge of the species \*Rafalskia olympica\* \(KULCZYNSKI, 1903\) \(Opiliones, Phalangiidae, Phalangiinae\) 62-71](#)