

*CARNIELLA MIHAILI* (GEORGESCU, 1994) – NEW  
COMBINATION OF GENUS AND DESCRIPTION OF THE MALE  
(ARANEAE, THERIDIIDAE)

AUGUSTIN NAE

*Abstract:* The author gives a new taxonomic combination of *Theonoe mihaili* (Georgescu, 1989) based on the discovery of the unknown male up to the present paper. The description of the male and the discussion on the new taxonomic combination are made.

*Key words:* Araneae, Theridiidae, taxonomy, *Carniella*, *Theonoe*, *Marianana*, Rumania.

### 1 INTRODUCTION

The discovery of the Movile Cave near Mangalia, led to the description of many taxa, new for the science, including a small spider species belonging to the Theridiidae family.

The species was described after one female only (designate as Holotype) and published under the name of *Marianana mihaili*, Georgescu 1989, while the male remained unknown.

Afterwards J. WUNDERLICH (2008) synonymies the genus *Marianana* with *Theonoe* Simon 1881, the main argument of the author being “epigyne with a pair genital openings”.

After two faunal investigations into the Movile Cave made in March 2008 and May 2010, when we collected 3 males and one female, we can finally clarify the taxonomic situation of this species. The species belongs to the genus *Carniella* and it is the only species of this genus from the Rumanian fauna.

The genus *Carniella* was first described by THALER & STEINBERGER 1988, with the description of the species *C. brignolii* from Austria. From a total of 10 species of the genus, 7 are known from South-Eastern Asia (KNOFLACH, 1996, WUNDERLICH, 1995, BRIGNOLI, 1979 and ONO, CHANG & TSO, 2007); one species occurs in Africa (MILLER, 1970) and one in Polynesia (WUNDERLICH, 1995).

*C. mihaili* is the second European species of the genus *Carniella*.

ABBREVIATION: E – embolus, EB – embolar base, Pc – paracymbium, S – subtegulum, T – tegulum, TA – tegular apophysis. ISER – Institute of Speleology “Emile Racovitza” Bucharest.

## 2. MATERIAL AND METHOD

The material was conserved in 70% ethylic alcohol. The dissections were made in glycerol at an Stemi 2000 stereomicroscope and mounted for observation in a mixture of gelatin Merk and glycerol anhydrous. An Olympys CH2 with drawing attachment was used for microscopic examination and drawings.

## 3. RESULTS

### *Carniella mihaili* (Georgescu, 1989) nov. comb.

**Material examined:** Allotype: 1 ♂ (ISER), Movile Cave, 14-17.03.2008; Topotypes: 2 ♂♂ (ISER), Movile Cave, 1-2.06.2010; Neotype: 1 ♀ (ISER), Movile Cave, 14-17.03.2008. All specimens are collected by the author from Dobrogea, Rumania.

**Diagnosis:** ♂ clypeus modified (Figs. 1-3), six eyes. *C. mihaili* can be recognized by genital characters, cymbium split distally, terminal apparatus (♂), (Figs. 8-11), epigyne/vulva (♀) (for description of female, see GEORGESCU, 1989) and the number of eyes.

**Description:** ♂ Measurements (mm): carapace 0.52 long, 0.403 wide. Length of abdomen 0.52, sternum 0.33 long.

Colour: Carapace, sternum and legs, trochanters and patellae yellow-ochre. Abdomen yellowish-white, epigaster yellow-ochre.

Small size spider. Clypeal projection of carapace conspicuous (Figs. 1-3), covered with short hairs. It has 6 eyes, the anterior median pair had disappeared. The lateral ones – anterior, posterior-lateral and median-posterior are grouped as 3 eyes on both sides of the cephalothorax. Chelicerae: 0.208 long (Figs. 5, 6); have 3 teeth on the ventral margin and 2 denticles on the posterior margin. Sternum (Fig. 4) pointed behind, without exceeding coxa IV. Labium fused with sternum, not rebordered. Stridulatory organ present, hardly visible (visible at 100x). Spherical abdomen, weakly sclerotised around pedicel, colulus visible, with 2 setae. Legs short, tarsi longer than metatarsi.

Leg measurements (mm):

	Fe	Pa	Ti	Mt	Ta	Total
Palp	0.234	0.13	0.182	-	0.26	0.806
I	0.364	0.13	0.247	0.156	0.26	1.137
II	0.312	0.13	0.208	0.143	0.234	1.027
III	0.26	0.117	0.169	0.123	0.221	0.89
IV	0.364	0.117	0.286	0.156	0.247	1.17

Legs: IV, I, II, III.

Legs short. Metatarsi I–II with trichobothrium (0.30; 0.45). All tarsi with tarsal organ visible. Tarsal organ I–IV. Tarsi longer than metatarsi. Tarsi I (III) 1.46–1.7 times longer than metatarsi. Tarsi I–IV ventrally with 2 rows of 6 serrate bristles (Fig. 7).

Serrate bristle IV 0.057 mm long. Metatarsi ventrally with few weakly serrate bristles (I – 3 pairs; II – 3 pairs; III – 2 pairs; IV – 3 pairs). Tarsal claw with 1 minute teeth.

♂ Palp: Figs. 8–12. Tibia cone-shaped, without trichobothrium.

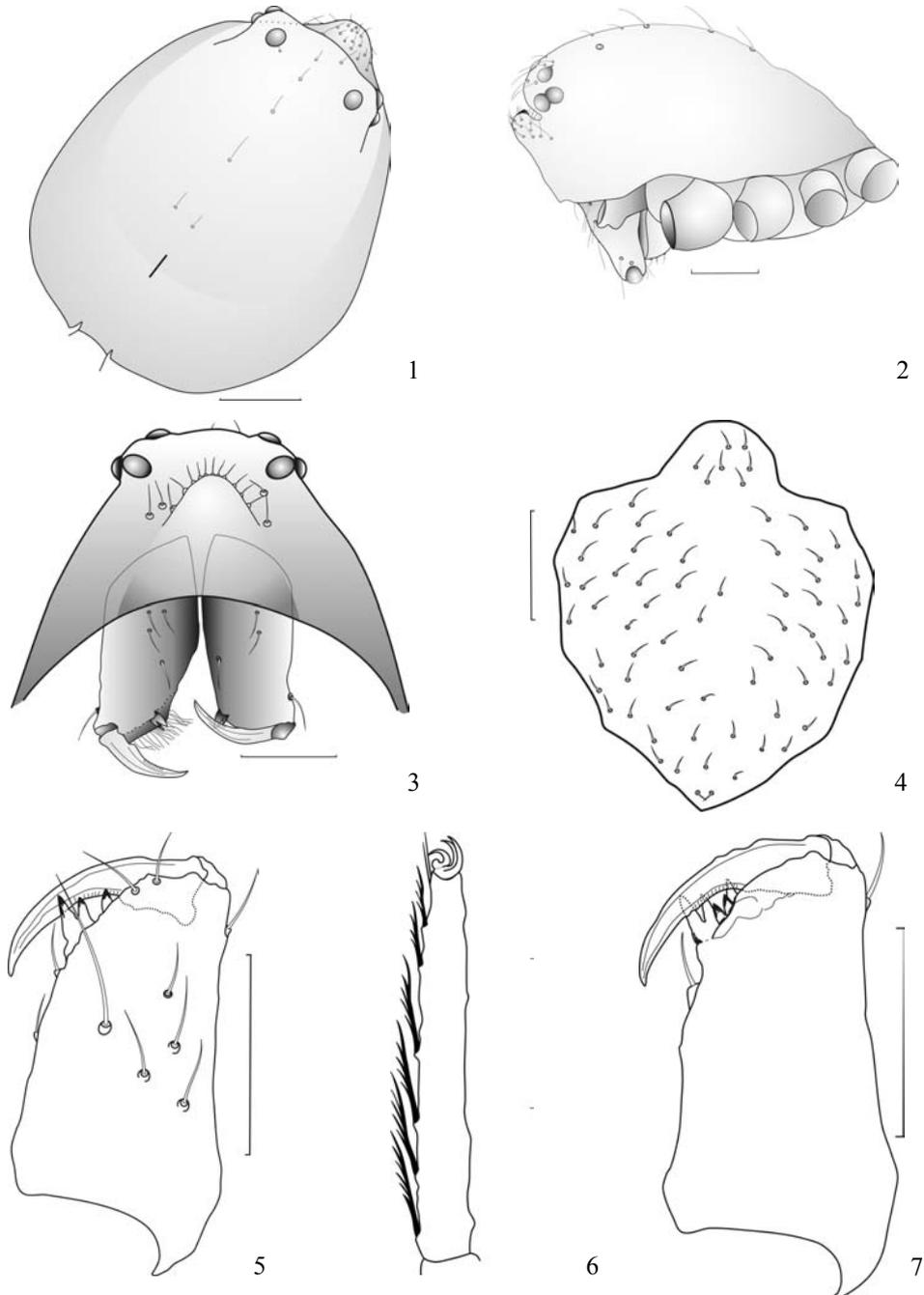
Cymbium spoon-shaped, thin, distally modified with the tip split into in a sharp and a scale-like lobe, similar to that of the species *C. brignolii*.

Paracymbium situated proximal to the retro-lateral edge of cymbium, has the shape of a blunt hook, with rounded margins.

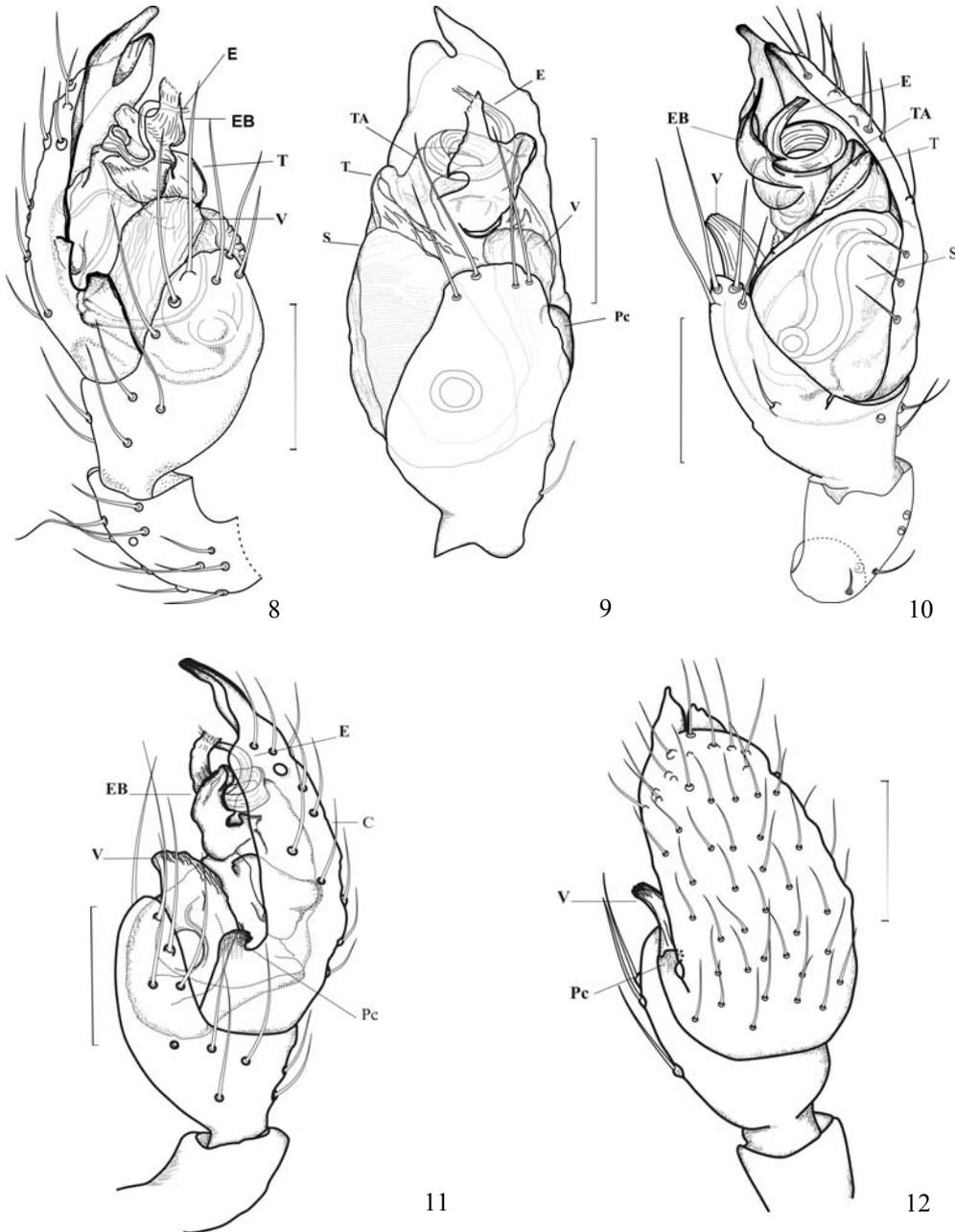
Subtegulum prolateral-dorsal, with wide hematodocha. “The V prominence of the bulbus” is present, proximally separated, spatular, with the terminal part wide and a serrated margin, with a striated surface as the basal hematodocha, orientated to the edge of the cymbium (parallel orientation from the main plan of the palp). Tegulum prolateral-dorsal, its distal margin forming the tegular apophysis, hidden for the most part by cymbium. Conductor absent.

Embolar base uneven, distally fringed. Embolus developed as a spiral, without clear sclerification, thicker in the basal area, thinning gradually to the top. The sperm duct crosses the tegulum forming a spiral loop, enters the tegular apophysis and it curves retro-lateral entering the embolar base.

**Distribution.** *C. mihaili* is known only from one locality – Movile Cave, situated in SE Rumania, Dobrogea. All specimens were collected from the lake area, situated in the terminal part of the main gallery. No specimen was found up to present in the neighboring areas or in epigeic habitats, the species being considered endemic for the Movile Cave. The species presents adaptations specific the subterranean environment: tegument depigmentation and reduced number of eyes (only 3 pairs).



Figs. 1–7. *Carniella mihaili* (Georgescu, 1994), male (Movile Cave). Carapace, dorsal (1), lateral (2) and frontal view (3). Sternum (4), Chelicera, frontal view (5) and dorsal view (6). Tarsus IV (7).



Figs. 8–12. *Carniella mihaili* (Georgescu, 1994) (Movile Cave). Male palp, retrolateral (8, 11), ventral (9), prolateral (10) and dorsal view (12). Scale lines 0.1 mm.

#### 4. DISCUSSIONS

Finding the male allowed us to clearly place this species within the genus *Carniella*, by the presence of the most important characters of the genus: ♂ clypeal modification present, cymbium distally modified, paracymbium proximal, conductor absent, embolus complicated.

The two European species present some resemblances regarding the male genital organ: the shape of the cymbium, the embolus and the embolus base which are relatively similar. However, there are some differences such as the different shape of the paracymbium: at *C. brignolii*, it has the shape of a hook with the extern margin proximal stair shaped and at *C. mihaili*, it has a more rounded shape.

The most evident difference is the “V prominence of the bulbus” (THALER & STEINBERGER, 1988), which presents a different shape and orientation at both species.

The reduced number of eyes (6 eyes) and the body depigmentation in the case of *C. mihaili* may be some adaptations to the subterranean life.

*ACKNOWLEDGEMENTS.* Many thanks to Mihai Baciú for accompanying me to the Movile cave to collect the material necessary to this study. I am grateful to Dr. B. Knoflach for literature, to Ioana Nae, my wife, for linguistic revision.

#### REFERENCES

- BRIGNOLI, P.M., *Une nouvelle Theonoe de Sumatra (Araneae, Theridiidae)*. Bulletin du Muséum national d'Histoire naturelle (Paris) 4<sup>e</sup> sér., **1**(A,4): 1075-1078, 1979.
- GEORGESCU, M., *Sur trois taxa nouveaux d'Aranéides troglobies de Dobrogea (Roumanie)*. Misc. Speol. Rom., **1**: 85–102, 1989.
- KNOFLACH, B., *Three new species of Carniella from Thailand (Araneae, Theridiidae)*. Revue suisse de Zoologie **103**: 567-579, 1996.
- MILLER, F., *Spinnenarten der Unterfamilie Micryphantidae und der Familie Theridiidae aus Angola*. Publicações culturais Companhia de Diamantes de Angola, **82**: 75–166, 1970.
- ONO, H., CHANG, Y.H., TSO, I.M., *Three new spiders of the families Theridiidae and Anapidae (Araneae) from southern Taiwan*. Mem. natn. Sci. Mus. Tokyo, **44**: 71–82, 2007.
- THALER, K., STEINBERGER, K.H., *Zwei neue Zwerg-Kugelspinnen aus Österreich (Arachnida: Aranei, Theridiidae)*. – *Revue suisse de Zoologie*, **95**: 997–1004, 1988.
- WUNDERLICH, J., *Südostasiatische Arten der Gattung Carniella Thaler & Steinberger 1988, mit zwei Neubeschreibungen (Arachnida: Araneae: Theridiidae)*. Beitr. Araneol, **4**: 553–558, 1995.
- WUNDERLICH, J., *On extant and fossil (Eocene) European comb-footed spiders (Araneae: Theridiidae), with notes on their subfamilies, and with descriptions of new taxa*. Beitr. Araneol, **5**: 140-469, 2008.

“Emile Racovitza” Institute of Speleology  
of the Romanian Academy,  
13 Septembrie No.13, Bucharest, RO – 050711  
E-mail: augustin.iser@gmail.com