

CHTHONIUS (CHTHONIUS) GLOBOCICAE (CHTHONIIDAE, PSEUDOSCORPIONES), A NEW SPECIES OF FALSE SCORPION FROM A CAVE IN MONTENEGRO

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Abstract — A new species of false scorpion belonging to the family Chthoniidae, *Chthonius (Chthonius) globocicae* n. sp., is described from a cave in the village of Trnovo, near Virpazar in Montenegro. This endemic form is illustrated, diagnosed, and thoroughly compared to its phenetically closest congener [*C. (C.) porevidi* Ćurčić, Makarov & Lučić, 1998] from the area of Krivošije in Montenegro. Additionally, certain diagnostic and other features, taxonomic traits and biogeographical details are briefly discussed in the light of evolution of the karstification process in Montenegro.

Key words: Pseudoscorpions, Chthoniidae, *Chthonius*, new species, cave fauna, karst, Montenegro

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INTRODUCTION

Speciation of the genus *Chthonius* C. L. Koch in Montenegro has not been studied in great detail (Ćurčić et al., 2004). Only in several cases do we have exact the data on niche preferences that are prerequisites for evolutionary studies (Beier, 1939, Ćurčić et al., 1997, 1998). It should be emphasized that a limited number of Montenegrin *Chthonius* species are known to date (Ćurčić et al., 2004). However, preliminary analysis of material collected in the course of our three-decade work in the field point to high variability of the genus, since at least 20 species new to science still await names and diagnoses.

MATERIAL AND METHODS

The specimens of the pseudoscorpion *Chthonius (C.) globocicae* n. sp., analyzed in the present paper, were mounted on slides in Swan's fluid (gum chloral medium) and are deposited in the collection of the Institute of Zoology, Faculty of Biology, University of Belgrade, 11000 Belgrade, Serbia (IZB 2005-6).

Setal designations follow Beier, 1963.

SYSTEMATIC PART

CHTHONIIDAE DADAY

CHTHONIUS C. L. KOCH

CHTHONIUS (CHTHONIUS) GLOBOCICAE

B. P. M. ĆURČIĆ, NEW SPECIES

(Figs. 1-13; Table 1)

Etymology. – After the Globočica Cave near Virpazar, its type-locality.

Specimens examined. – Holotype male and allotype female from the Globočica Cave in the village of Trnovo near Virpazar, Montenegro, collected on 2 February 1997 by Božidar P. M. Ćurčić and Branislav Popović.

Description. – Carapace as long as broad (Table 1). Epistome not developed (Figs. 4, 7). Eyes absent (Fig. 4). Carapacial setal formula: 4 + 6 + 4 + 2 + 2 = 18 setae (in both sexes). One preocular microseta present on each carapacial side (Fig. 4). Carapace reticulate throughout.

Tergites I-X uniseriate, smooth, and entire. Tergal formula: 2-2-4-5-4-4-5-6-6-4 (female) and 2-2-4-4-

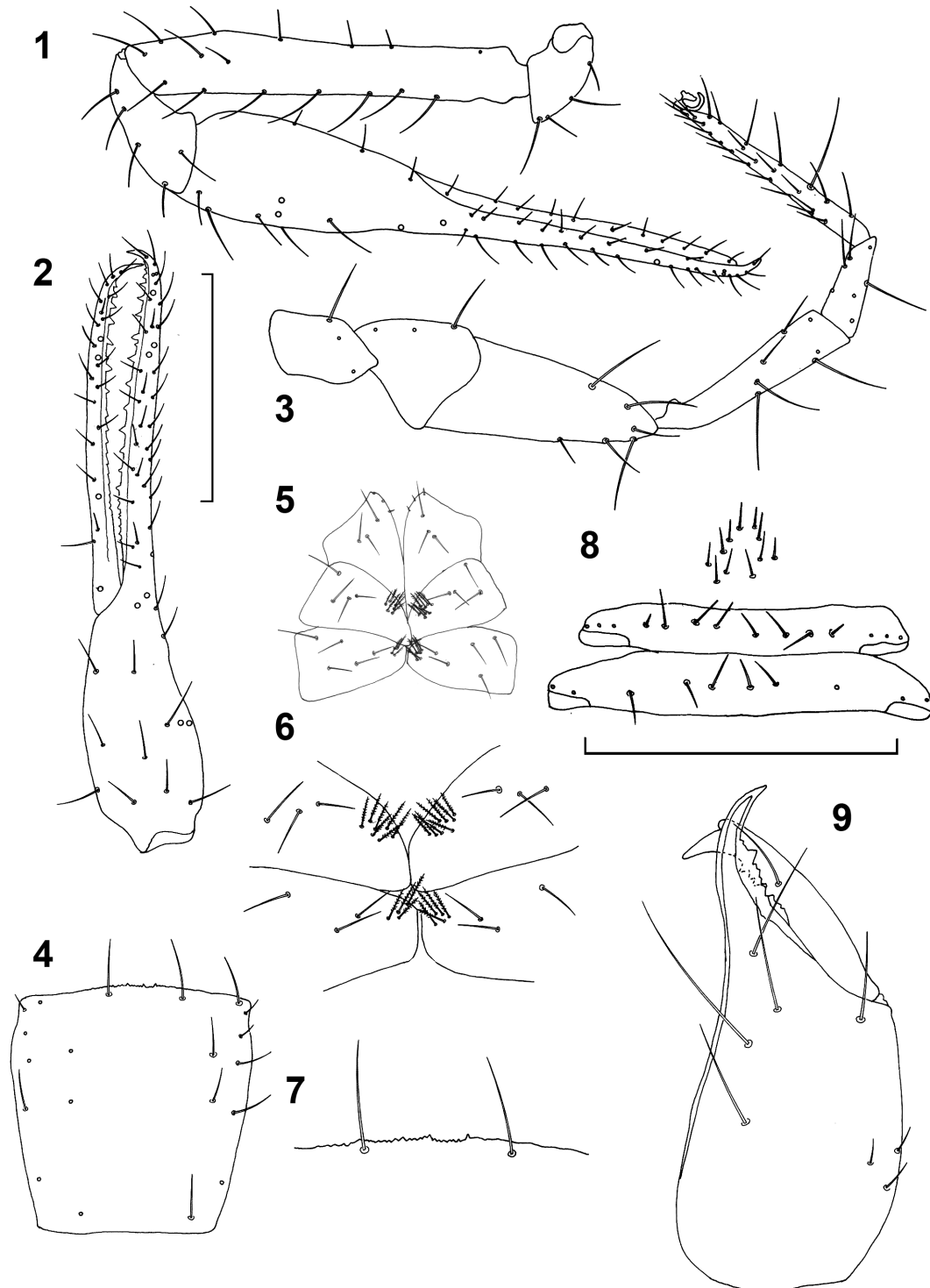


Fig. 1-9. *Chthonius (Chthonius) globocicae* n. sp., holotype female, from Montenegro. 1 – pedipalp; 2 – pedipalpal chela; 3 – leg IV; 4 – carapace; 5 – coxae I-III; 6 – coxae II and III; 7 – epistome; 8 – female genital area; 9 – chelicera. Scales = 0.50 mm (Figs. 1-5, 8) and 0.25 mm (Figs. 6, 7, 9).

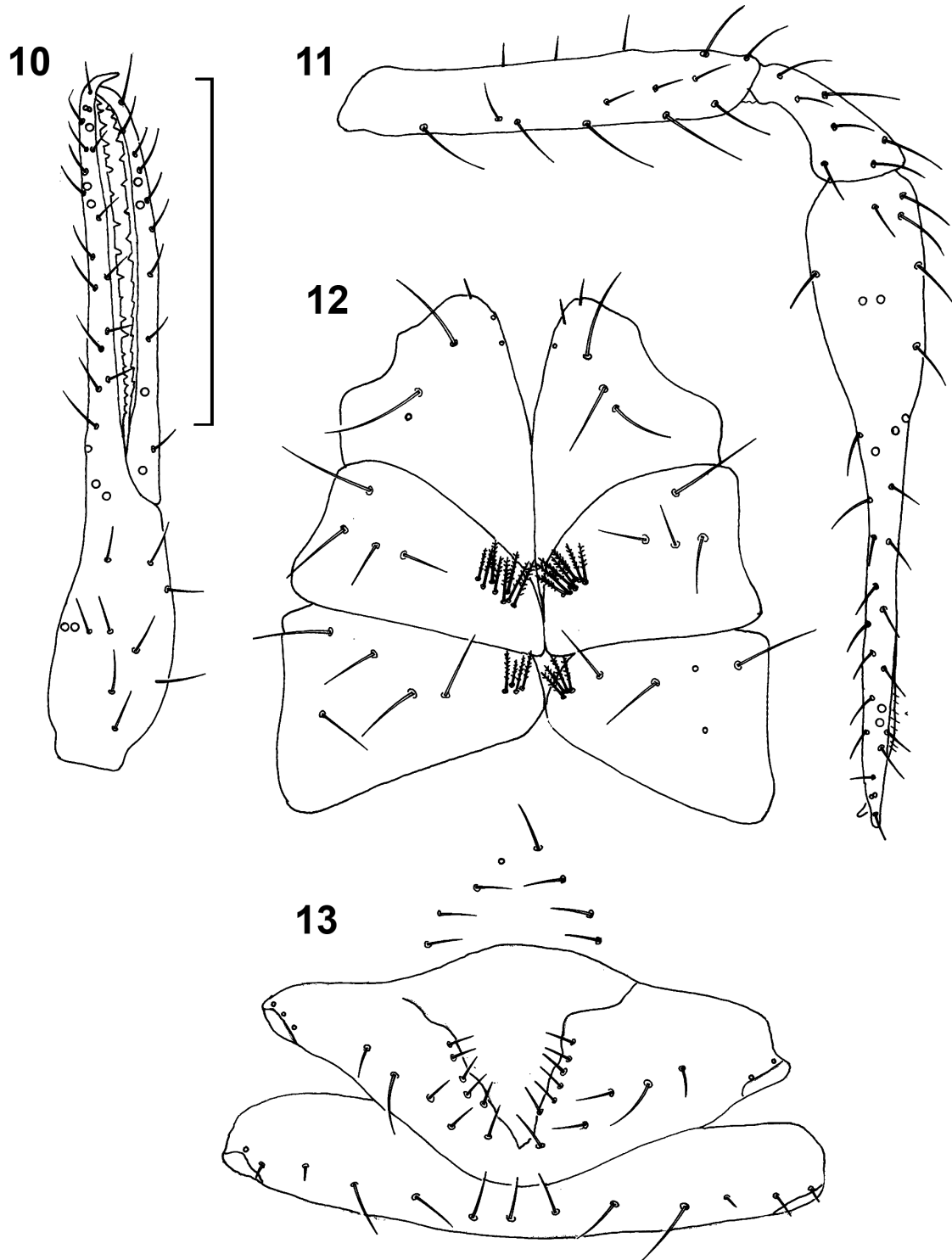


Fig. 10-13. *Chthonius (Chthonius) globocicae* n. sp., allotype male, from Montenegro. 10 – pedipalpal chela; 11 – pedipalp; 12 – coxae I-III; 13 – male genital area. Scales = 0.50 mm (Figs. 10, 11) and 0.25 mm (Figs. 12, 13).

Table 1. Linear measurements (in millimeters) and morphometric ratios in *Chthonius* (*Chthonius*) *globocicae* n. sp. from Montenegro. Abbreviations: F = female, M = male.

Character/Sex	F	M
Body		
Length (1)	2.06	1.42
Cephalothorax		
Length (2)	0.54	0.42
Breadth (2a)	0.54	0.41
Abdomen		
Length	1.52	1.00
Chelicerae		
Length (3)	0.56	0.39
Breadth (4)	0.24	0.17
Length of movable finger (5)	0.255	0.21
Ratio 3/4	1.96	1.86
Ratio 3/5	2.33	2.29
Pedipalps		
Length with coxa (6)	3.335	2.51
Ratio 6/1	1.62	1.77
Length of coxa	0.52	0.38
Length of trochanter	0.275	0.19
Length of femur (7)	0.95	0.70
Breadth of femur (8)	0.14	0.10
Ratio 7/8	6.785	7.00
Ratio 7/2	1.76	1.67
Length of patella (tibia) (9)	0.33	0.26
Breadth of patella (tibia) (10)	0.15	0.11
Ratio 9/10	2.20	2.36
Length of chela (11)	1.26	0.98
Breadth of chela (12)	0.23	0.16
Ratio 11/12	5.48	6.125
Length of chelal palm (13)	0.52	0.41
Ratio 13/12	2.26	2.56
Length of chelal finger (14)	0.74	0.57
Ratio 14/13	1.42	1.39
Leg IV		
Total length	2.445	1.91
Length of coxa	0.285	0.22
Length of trochanter (15)	0.24	0.19
Breadth of trochanter (16)	0.13	0.10
Ratio 15/16	1.85	1.90
Length of femur + patella (17)	0.72	0.56
Breadth of femur + patella (18)	0.23	0.19
Ratio 17/18	3.13	2.95
Length of tibia (19)	0.47	0.35
Breadth of tibia (20)	0.10	0.07
Ratio 19/20	4.70	5.00
Length of metatarsus (21)	0.22	0.19
Breadth of metatarsus (22)	0.07	0.05
Ratio 21/22	3.14	3.80
Length of tarsus (23)	0.51	0.40
Breadth of tarsus (24)	0.04	0.04
Ratio 23/24	12.75	10.00
TS ratio - tibia IV	0.48	0.49
TS ratio - metatarsus IV	0.91	0.27
TS ratio - tarsus IV	0.34	0.36

4-4-4-6-6-4 (male) posterior setae. Female genital area: sternite II with 11 small setae; sternite III with eight posterior setae and three microsetae along each stigma; sternite IV with six posterior setae and two suprastigmatic setae on either side (Fig. 8); and sternites V-X with 6-7-6-8-7-6 posterior setae. Male genital area: sternite II with eight setae; sternite III with a median V-shaped groove (five or six setae are present on each side of this structure), five posterior setae, and two or three small setae along each stigma; sternite IV with nine posterior setae and two microsetae along each stigmatic plate (Fig. 13); and sternites V-X with 8-7-8-8-8-7 posterior setae. Twelfth abdominal segment with two pairs of small setae. Pleural membranes granulostriate.

Galea prominent (Fig. 9; female) or inconspicuous (male). Cheliceral palm with six setae and two additional microsetae (Fig. 9), movable finger with a single seta. Cheliceral dentition as illustrated in Fig. 9. Flagellum consisting of 10 (female) or 11 (male) blades (this organ in male with one small blade and 10 blades twice its length more or less in pairs distally).

Manducatory process with two long acuminate setae, pedipalpal coxa with three apical setae. Pedipalpal articles smooth and elongate (Figs. 1, 11). Fixed chelal finger with 22 (female) or 20 (male) teeth; triangular and interspaced, they diminish in size from distal to proximal (Figs. 2, 10). Movable chelal finger with 18 (female) or 17 (male; Figs. 2, 10) teeth; distally, they are triangular and interspaced, but proximally, the teeth are close-set, incline backwards, and end as a dental lamella (Figs. 2, 10). Chelal finger distinctly longer than chelal palm; pedipalpal femur considerably longer than carapace, and also longer than chelal finger (Table 1).

Trichobothrial disposition as illustrated in Figs. 2 and 10.

Coxa I bears six, coxa II – four, coxa III – five, and coxa IV – five setae (in both sexes). Coxa II bears seven or eight spines (in both sexes); four or five spines are present on coxa III in the female and four on coxa III in the male (Figs. 5, 6, 12). Coxal spines are finely pinnate on both sides. Intercoxal

tubercle with two tiny setae (Figs. 5, 6, 12).

Leg IV (Fig. 3): tibia, metatarsus, and tarsus each with a long sensitive seta (Table 1).

Linear measurements (in *mm*) and morphometric ratios are presented in Table 1.

Differential diagnosis. – In comparison with its morphologically similar congener *C. (C.) porevidi* Ćurčić, Makarov & Lučić, 1998, the new species differs in many important respects, such as: female body length (2.76 *mm* vs. 2.06 *mm*); the presence/absence of eye-spots (present vs. absent); form of the movable chelal finger (S-shaped, with dental lamella vs. straight, without dental lamella); number and form of teeth on the fixed (24, with no dental lamella vs. 20 or 22, with a proximal dental lamella) and movable (six, with a long dental lamella vs. 17 or 18, with a short proximal dental lamella) chelal fingers; the pedipalpal femur to chelal finger length ratio (femur equals chelal finger vs. femur longer than chelal finger); number of spines on coxa II (16 or 17 vs. seven or eight) and coxa III (eight vs. four or five), the pedipalpal length (4.79 *mm* vs. 2.825 *mm*), pedipalpal femur length (1.30 *mm* vs. 0.95 *mm*); the pedipalpal femur length to breadth ratio (8.125 vs. 6.785), the chelal length to breadth ratio (5.97 vs. 5.48), the leg IV length (3.625 *mm* vs. 2.445 *mm*); and the tibia IV length to breadth ratio (5.25 vs. 4.70).

CONCLUDING REMARKS

The newly-discovered species *Chthonius (C.) globocicae* n. sp. belongs to the endemic and relict fauna of the Dinaric Karst; this area encompasses a vast part of the Balkan Peninsula, a region rich in limestone sediments, as well as in both superficial and underground karst relief. Since the regions

bordering on Montenegro (Croatia, Bosnia and Herzegovina, Serbia, and Albania) are extremely rich in pseudoscorpions (Ćurčić et al., 2004), it can be assumed that Montenegro, heretofore neglected as far as the study of false scorpions is concerned, is also rich in species of this faunistic group (Ćurčić, 1988; Ćurčić et al., 2004).

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***CHTHONIUS (CHTHONIUS) GLOBOCICAE (CHTHONIIDAE, PSEUDOSCORPIONES), НОВА
ВРСТА ПЕЋИНСКИХ ПСЕУДОСКОРПИЈА ИЗ ПЛАНИНСКИХ ПОДРУЧЈА ЦРНЕ ГОРЕ***

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За науку до сада непозната врста из породице Chthonidae, *Chthonius (Chthonius) globocicae* n. sp., пронађена је у пећини крај села Трново у близини Вирпазара, Црна Гора. Ова ендемична форма је дијагностификована и детаљно поређена са својим

фенетички најближим обликом, који насељава подручје Кривошија у Црној Гори. Осим наведеног, разматране су таксономске особености и зоогеографска својства нове врсте, а са аспекта еволуције процеса карстификације у Динаридима.