

**CHTHONIUS (GLOBOCHTHONIUS) DAORSONI N. SP. (CHTHONIIDAE, PSEUDOSCORPIONES)
— A NEW CAVE FALSE SCORPION FROM BOSNIA AND HERZEGOVINA**

B. P. M. ĆURČIĆ¹, T. RAĐA², BILJANA RAĐA³, R. N. DIMITRIJEVIĆ¹, S. B. ĆURČIĆ¹,
NINA B. ĆURČIĆ⁴ and B. S. ILIĆ¹

¹ *Institute of Zoology, Faculty of Biology, University of Belgrade, 11000 Belgrade, Serbia*

² *Speleological Society "Špiljar", 21000 Split, Croatia*

³ *Faculty of Science, University of Split, 21000 Split, Croatia*

⁴ *Geographical Institute "Jovan Cvijić" SASA, 11000 Belgrade, Serbia*

Abstract — A new endemic pseudoscorpion species from the Jama Pit nr. Daorson, Stolac, Southeastern Bosnia and Herzegovina, is presented, thoroughly described and illustrated. It is named *Chthonius (Globochthonius) daorsoni* n. sp. Its main morphometric characters and important diagnostic features are analyzed and compared to those of its phenetically and phylogenetically closest congeners.

Key words: Pseudoscorpions, Chthoniidae, *Chthonius (Globochthonius) daorsoni* n. sp., endemism, caves, Bosnia and Herzegovina (Herzegovina).

INTRODUCTION

In several areas of study in evolutionary ecology, investigations into cave animals can yield important findings. Mention must be made about the direction evolutionary ecology is likely to take in the next several decades. It is expected that instead of having a thousand more-or-less unrelated models, each designed for a particular small group of organisms or habitats, a more mature science of ecology will have a formal and logical, primarily mathematical, structure. That is to say, while scientists are aware of the existence of general patterns and processes that are important for a large subset of species, communities and habitats, these remain to be elucidated (Juberthie and Decu, 1994, Ćurčić and Decu, 2004-2005).

In this study, we present the results of the examination of material from a sample of pseudoscorpions

collected by one of us (TR). The sample contains one new taxon, *Chthonius (Globochthonius) daorsoni* n. sp. The new species that is described in this paper is probably an endemic and relict form inhabiting the caves of the Dinaric Arch in Herzegovina. Setal designations follow Beier (1963).

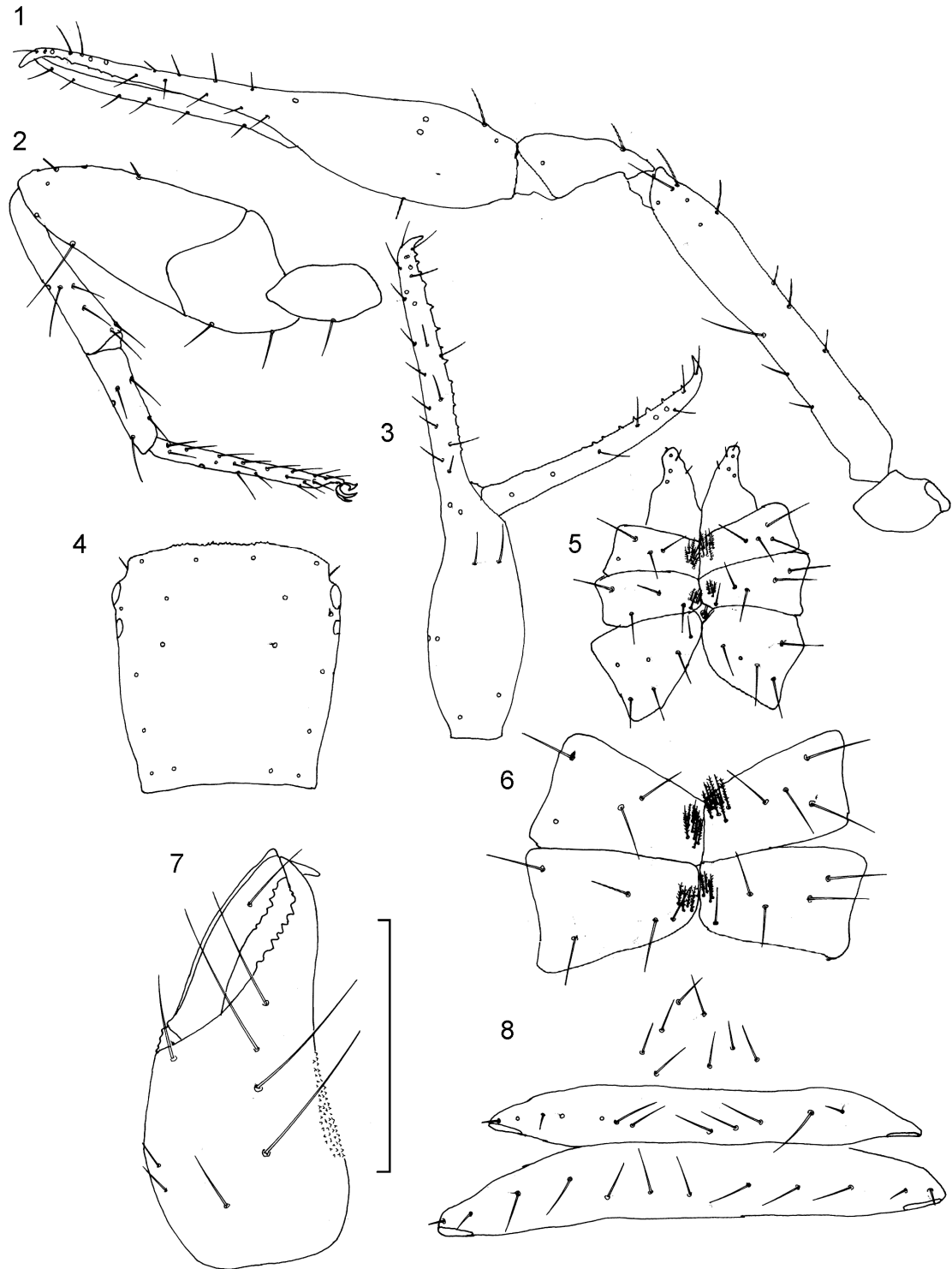
SYSTEMATIC PART

CHTHONIIDAE DADAY, 1888

CHTHONIUS C. L. KOCH, 1843

**CHTHONIUS (GLOBOCHTHONIUS)
DAORSONI B. ĆURČIĆ & RAĐA,
NEW SPECIES
(Figs. 1 - 8; Table 1)**

Etymology — After Daorson, the megalithic Illyrian



Figs. 1 – 8. *Chthonius (Globochthonius) daorsoni* n. sp., holotype female, from Bosnia and Herzegovina; 1 – pedipalp, 2 – leg IV, 3 – pedipalpal chela, 4 – carapace, 5 – coxae I-IV, 6 – coxal spines on coxae II and III, 7 – chelicera, 8 – female genital area. Scale lines = 0.50 mm (Figs. 1 – 5) and 0.25 mm (Figs. 6 – 8).

Table 1. Linear measurements (in millimeters) and morphometric ratios in *Chthonius (Globochthonius) daorsoni* n. sp., *C. (G.) petropauli* Ćurčić & Rađa, *C. (G.) medeonis* Ćurčić, *C. (G.) purgo* Ćurčić, Lee & Makarov, *C. (G.) pancici* Ćurčić, and *C. (G.) polychaetus* (Hadži). Abbreviations: F = female, FF = females.

	<i>C. (G.) daorsoni</i> n. sp.	<i>C. (G.) petropauli</i>	<i>C. (G.) medeonis</i>	<i>C. (G.) purgo</i>	<i>C. (G.) pancici</i>	<i>C. (G.) polychaetus</i>
Character	F	F	F	F	FF	F
Body						
Length (1)	1.93	1.99	1.68	1.60	1.24-1.25	1.54
Cephalothorax						
Length (2)	0.51	0.57	0.49	0.43	0.38-0.41	0.48
Breadth (2a)	0.48	0.58	0.45	0.41	0.42-0.46	0.46
Ratio 2/2a	1.06	0.98	1.09	1.05	1.23-1.30	1.04
Abdomen						
Length	1.42	1.42	1.19	1.17	-	-
Chelicerae						
Length (3)	0.42	0.61	0.45	0.36	0.37-0.38	0.45
Breadth (4)	0.19	0.26	0.20	0.17	0.17-0.20	0.21
Length of movable finger (5)	0.22	0.315	0.25	0.195	0.20-0.22	0.245
Ratio 3/5	1.91	1.94	1.80	1.85	1.73-1.85	1.84
Ratio 3/4	2.21	2.35	2.25	2.12	1.90-2.18	2.14
Pedipalps						
Length with coxa (6)	2.725	3.325	2.88	1.845	2.10-2.25	2.51
Ratio 6/1	1.41	1.67	1.71	1.15	1.68-1.80	1.63
Length of coxa	0.45	0.41	0.37	0.34	0.25-0.27	0.40
Length of trochanter	0.21	0.26	0.21	0.15	0.16-0.17	0.15
Length of femur (7)	0.74	0.93	0.845	0.47	0.59-0.67	0.70
Breadth of femur (8)	0.10	0.15	0.13	0.10	0.10-0.11	0.10
Ratio 7/8	7.40	6.20	6.50	4.70	5.82-6.09	7.00
Ratio 7/2	1.46	1.63	1.72	1.09	1.55-1.63	1.46
Length of patella (tibia) (9)	0.285	0.37	0.315	0.205	0.20-0.23	0.26
Breadth of patella (tibia) (10)	0.10	0.15	0.13	0.11	0.13	0.15
Ratio 9/10	2.375	2.47	2.42	1.86	1.54-1.77	1.73
Length of chela (11)	1.04	1.355	1.14	0.68	0.89-0.92	1.00
Breadth of chela (12)	0.20	0.26	0.24	0.15	0.20-0.22	0.215
Ratio 11/12	5.20	5.21	4.75	4.53	4.18-4.45	4.60
Length of chelal palm (13)	0.45	0.55	0.48	0.27	0.34-0.38	0.215
Ratio 13/12	2.25	2.115	2.00	1.80	1.70-1.75	1.80
Length of chelal finger (14)	0.59	0.805	0.66	0.41	0.54-0.57	0.60
Ratio 14/13	1.31	1.46	1.375	1.52	1.42-1.63	2.79
Leg IV						
Total length	2.125	2.705	2.24	1.68	-	-
Length of coxa	0.295	0.34	0.26	0.38	-	-
Length of trochanter (15)	0.21	0.26	0.21	0.22	0.20	0.20
Breadth of trochanter (16)	0.11	0.15	0.13	0.10	-	-
Ratio 15/16	1.91	1.73	1.615	2.20	-	-
Length of femur + patella (17)	0.62	0.805	0.63	0.41	0.54-0.58	0.58
Breadth of femur + patella (18)	0.24	0.26	0.22	0.18	0.19-0.24	0.23
Ratio 17/18	2.58	3.10	2.86	2.28	2.42-2.84	2.52
Length of tibia (19)	0.38	0.50	0.44	0.26	0.35-0.40	0.38
Breadth of tibia (20)	0.09	0.10	0.09	0.075	-	-
Ratio 19/20	4.22	5.00	4.89	3.47	-	-
Length of metatarsus (21)	0.22	0.26	0.23	0.14	0.20-0.22	0.22
Breadth of metatarsus (22)	0.07	0.08	0.07	0.065	-	-
Ratio 21/22	3.14	3.25	3.285	2.15	-	-
Length of tarsus (23)	0.40	0.54	0.47	0.27	0.38-0.41	0.32
Breadth of tarsus (24)	0.04	0.05	0.04	0.03	-	-
Ratio 23/24	10.00	10.80	11.75	9.00	-	-
TS ratio - tibia IV	0.57	0.49	0.49	0.50	-	-
TS ratio - metatarsus IV	0.45	0.35	0.43	0.33	-	-
TS ratio - tarsus IV	0.33	0.30	0.30	0.31	-	-

fortress near Stolac, Bosnia and Herzegovina (Herzegovina) (4th to 3rd century B.C.).

Material examined — Holotype female, from the Jama Pit nr. the fortress of Daorson, nr. Stolac,

Herzegovina; collected by Tonći Rađa, 07 July 2013.

Description — The carapace (Fig. 4) reaches its maximum breadth at the level of the ocular setal row and is slightly broader than long (Table 1). The anterior border of the carapace is broader than the posterior, and the carapace resembles a regular trapezium. The epistome is absent, but tiny serrations are particularly obvious between the anterior median setae, although small irregularities can be seen on the margin almost up to the lateral anterior setae (Fig. 4). Anterior eyes are more prominent than the posterior, the latter being spot-like.

The carapace is beset with 18 setae lying in five rows (Fig. 4): four setae comprise the anterior row, six belong to the ocular row, four to the median row, and four macrosetae belong to the posterior setal series. Two microsetae are carried in each preocular recess (Fig. 4).

The number of abdominal setae carried on tergites I - X can be expressed as 4 - 4 - 4 - 6 - 6 - 6 - 6 - 6 - 6 - 4. Sternite II carries 8 setae arranged in the form of the triangle (Fig. 8). Sternite III carries 10 posterior setae and 2 microsetae along each of the stigma. The fourth sternite bears eight posterior setae and two suprastigmatic microsetae on either side. Sternites V - X carry 8 - 6 - 6 - 6 - 6 - 6 setae. Pleural membranes granulostriate (Fig. 8).

The cheliceral spinneret (galea) is represented by an elevation of the movable finger margin (Fig. 7) and immediately below, on the inner margin, there is an isolated tooth. The other large tooth is contiguous with a row of smaller teeth that end below the site of insertion of the galeal seta (Fig. 7). The movable cheliceral finger carries one large galeal seta and six setae on the cheliceral palm. In addition, two small setae are carried exterior to *vb* (Fig. 7). The cheliceral flagellum is composed of nine bipinnate blades arranged, more or less, in pairs.

The pedipalpal manducatory process carries two long setae. The pedipalpal femur is 7.40 times longer than its breadth and 1.45 times longer than

the carapace (Table 1). The tulip-like patella at its distal end is broader than the femur; the ratio of the patellar length to breadth is 2.375 (Fig. 1, Table 1).

Eight trichobothria are carried on the fixed and four on the movable chelal fingers (Figs. 1 and 3). Both cheliceral fingers are almost straight and only apically they are slightly curved inwards (Figs. 1 and 3). The fixed chelal finger is 1.31 times as long as the chelal palm. The ratio of the pedipalpal chelal length to breadth is 5.20 (Table 1). The teeth of the fixed pedipalpal finger (16) are small, triangular and interspaced. The teeth of the movable finger (12) are similar to those on the fixed finger. Proximally, they merge into a dental lamella (Fig. 3).

The pedal coxae II and III carry spines medially in a distinct group, seven on coxa II and four on coxa III. The intercoxal tubercle carries two small setae (Figs. 5 and 6).

The measurements of the various segments and appendages, as well as the morphometric ratios, are given in Table 1. The tibia IV, metatarsus IV and tarsus IV each carry a long tactile seta (Fig. 2, Table 1).

Remarks — The new species differs from its phenetically closest congener in the smaller dimensions of the chelicera, length of the pedipalpal chela, ratio of the pedipalpal femur length to breadth, length of the chelal palm, length of the leg IV, dimensions of articles of the appendages, and in the setation of the body parts.

Study of cave false scorpions of the Balkan karst has offered further proof of their great age and different origins. These species and genera represent the vestiges of an old fauna, which found shelter in the underground milieu of the Balkans and its adjoining regions.

Apart from this, it is apparent that specific aspects of geomorphological and climatic events in the

Balkans, together with peculiarities in the historical development of the fauna there, caused the Peninsula to become the main center of dispersion and colonization of species and groups of species, i.e. the main source for the revitalization and genesis of biological diversity, not just in the Mediterranean region, but throughout southeast Europe (Beier, 1963; Ćurčić, 1988, 2013; Ćurčić et al., 2004, 2012a, b, c, d, e, f, g, h, i, j, 2013a, b, c, d, e, f, g, h, 2014a, b, c, d; Hadži, 1937; Wallwork, 1972).

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