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A NEW CAVE SPECIES OF THE GENUS *HYLEOGLOMERIS* VERHOEFF, 1910, FROM THE BALKAN PENINSULA (DIPLOPODA: GLOMERIDA: GLOMERIDAE)

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Abstract – A new troglobitic diplopod, *Hyleoglomeris faberi* n. sp., is described from a cave in western Serbia. Taxonomic relationships among European members of the genus *Hyleoglomeris* Verhoeff, 1910 (and some related taxa) and a number of biogeographical data are briefly discussed.

Key words: Diplopods, Glomerida, *Hyleoglomeris*, caves, new species, the Balkan Peninsula, Europe

INTRODUCTION

The millipede genus *Hyleoglomeris* Verhoeff, 1910 is one of the largest taxa in the order Glomerida (Golovatch et al., 2006, 2012). This genus presently includes 74 species (Golovatch et al., 2012), with a great diversity in Asia (Mikhaljova and Lim, 2006). The western border of its area of distribution lies in Europe, in Greece, with only two described species: *Hyleoglomeris epirotica* (Mauriès, 1966), and *H. beroni* Mauriès, 1984.

During a field trip in West Serbia, the third author (D. A.) collected from a cave some interesting glomerids. Careful examination showed that these individuals belong to the genus *Hyleoglomeris*. This paper provides a description of this species, otherwise new to science. The type material is kept in the collection of the Institute of Zoology, Faculty of Biology, University of Belgrade. Terminology used in the description of the new species follows that recently proposed for glomerids by Golovatch et al. (2006, 2012), and Wesener (2012).

RESULTS

TAXONOMY
GLOMERIDAE

HYLEOGLOMERIS FABERI, NEW SPECIES
(Figs. 1-11)

Material examined – Holotype male, allotype female, five paratype males, four paratype females and two paratype juveniles, from the Kovačevića Pećina Cave, village Cerova, near Krupanj, western Serbia; July 28, 2011; collected by D. Ž. Antić and J. Kulačić.

Diagnosis – This new species differs clearly from all other hyleoglomerids by the presence of a 2-segmented telopodite 17, and the absence of ocelli.

Etymology – After the Kovačevića (or Faber's) Cave.

Description – Measurements: Holotype male: 4.5 mm long, thoracic shield 2.3 mm wide and 1.2 mm high, tergite V 2.4 mm wide. Paratype male: 4.6 mm

long, thoracic shield 2.2 mm wide and 1.1 mm high, tergite V 2.3 mm wide. Largest female (allotype): 5.2 mm long, thoracic shield 2.4 mm wide, tergite V 2.6 mm wide, thoracic shield 1.3 mm high.

General coloration: Pigmentless (Figs. 1-2).

Head: Labrum with ten labral and four supralabral setae. Head laterally and anteriorly covered with setae. Ocelli absent (Fig. 7). Antennae with 4 large apical cones; antennomere 6 approximately 1.5 time longer than wide (in both sexes; Fig. 8). In holotype male and two paratype males, antennomerae I and II are 1.1-1.3 times longer than antennomere III; in allotype female and two paratype females, antennomere III is 1.1 times longer than both antennomerae I and II. Organ of Tömösváry large, transverse-ovoid, in males 1.3-1.4 times longer than wide, in female 1.5 time longer than wide (Fig. 7). Lamellae linguales with 3+3 long apical setae and basal field with numerous microsetae (Fig. 9). Stipites with 6+5 long setae.

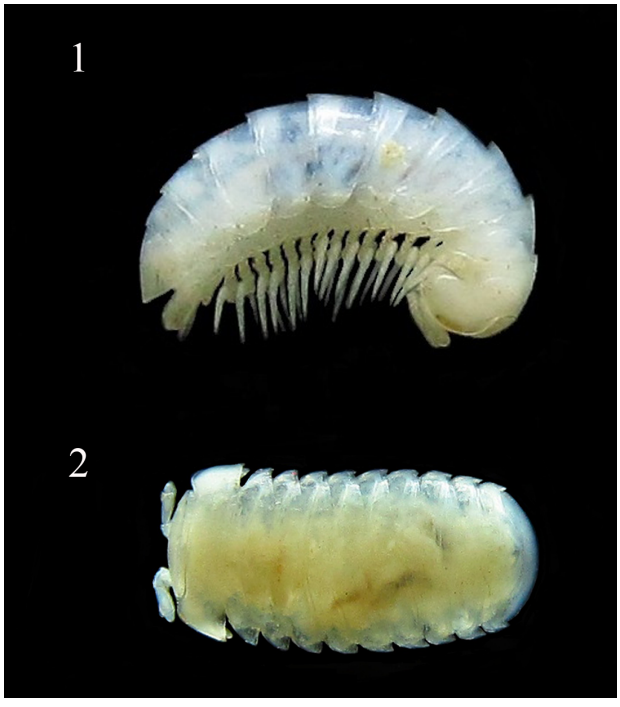
Collum: With four transverse striae, covered with minute setae.

Thoracic shield (second tergite): With a rounded hyposchism protruding beyond the hind tergal margin. Shield with 10 transverse striae of which eight entirely crossing the dorsum in greater paratype female (Fig. 11): in holotype male and paratype males, only 6-7 striae entirely crossing dorsum.

Following tergites 3-11 covered with numerous short setae, inserting in pits. Male anal shield without modification.

Male leg 17 (Fig. 6): Telopodite strongly reduced, 2-segmented. Outer coxal lobes large and rounded. First podomere with a long apical mesal spine.

Male leg 18 (Fig. 5): With less or more shallow and broadly syncoxital notch, carrying a large apical spine. Well-developed, 4-segmented telopodite; all podomeres with either apical or subapical spine.

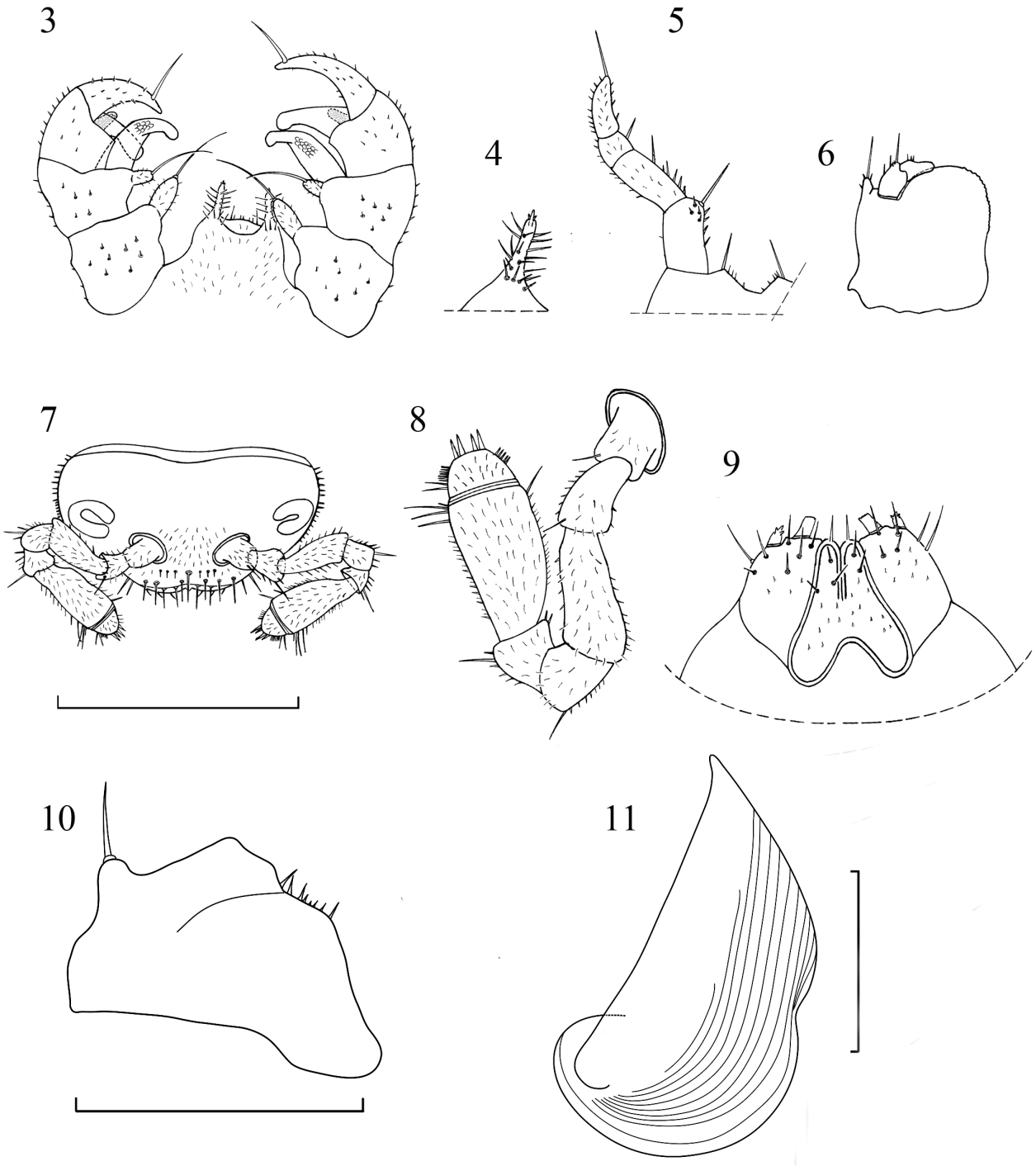


Figures 1-2. *Hyleoglomeris faberi*, new species, Kovačevića Pećina Cave, village Cerova, near Krupanj, western Serbia. 1, Paratype male, lateral view; 2, Paratype female, dorsal view.

Telopods (Fig. 3): With a rather low and convex central syncoxital lobe, densely setose, flanked by two inner horns. Inner horns covered both laterally and messally with long setae, apically with three thorns (Fig. 4). Prefemur with well-developed setose trichostele which is approximately twice as long as femoral trichostele. Femur with large, well-developed, subapically granulated, caudomedial process, of which the apical part is curved anteriorly. Tibia with well-developed caudomedial process (rounded apically) and a small caudal knob. Tarsus long, claw-like, with a long subapical spine.

DISCUSSION

Mauriès (1966) described *Speleoglomeris epirotica* from the Pérama Cave in Epirus, Greece, which was subsequently transferred to the genus *Hyleoglomeris* (Mauriès, 1984). Almost twenty years later, Mauriès (1984) described one more species from Europe, *H.*



Figures 3-11. *Hyleoglomeris faberi*, new species, Kovačevića Pećina Cave, village Cerova, near Krupanj, West Serbia. 3, Holotype male, telopods, oral view; 4, Holotype male, apex of telopod syncoxital horn, oral view; 5, Holotype male, leg 18, oral view; 6, Holotype male, leg 17, oral view; 7, Paratype male, head, dorsal view; 8, Paratype male, antenna, dorsal view; 9, Holotype male, gnathochilarium, ventral view; 10, Allotype female, coxa 2, caudal view; 11, Allotype female, thoracic shield, lateral view. Scale lines: 1 mm for Figure 7; 0.5 mm for Figures 3, 5, 6, 8, 9, and 11; 0.25 mm for Figures 4 and 10.

beroni from the Zeus Cave in Naxos Island, Greece. To date, these two species are the only known hyleoglomerids from Europe.

In a series of papers, Golovatch (1978, 1981, 1983, 1989; Golovatch et al., 2006, 2012) reviewed and keyed the genus *Hyleoglomeris*, describing numerous species of this taxon, mainly from Asia. According to a set of morphological characters, as well as to biogeographical distribution, Golovatch et al. (2006, 2012) distinguished a few groups of hyleoglomerids (these authors noted that such grouping must be understood provisionally): *epirotica*-group, *awchasica*-group, *stuxbergi*-group, *modesta*-group, *albicornis*-group, *sinensis*-group, *eusulcata*-group, *albicorporis*-group, and *venustula*-group. European species appear to be the peripheral, western-most members of the genus *Hyleoglomeris*, forming an *epirotica*-group of species.

The distribution and structure of relevant body features includes a new species in *epirotica*-group of species. From both earlier described species, *H. faberi* differs in the absence of ocelli (both *H. epirotica* and *H. beroni* have ocelli) and the presence of a reduced 2-segmented telopodite 17 (3-segmented telopodite 17 in Greek species). In comparison with *H. epirotica* and *H. beroni*, *H. faberi* n. sp. differs in the number of striae on the thoracic shield (10 *vs.* 4-9), the presence of strongly setose telopodal syncoxal horns (present *vs*. absent), as well as in a considerably smaller central syncoxital lobe (small, slightly convex *vs*. great, subovoid or subtrapezoid). On the other hand, it shares the structure of telopod (shape of femoral and tibial processes, or setose syncoxal lobe and horns) and number of striae on the thoracic shield with some Caucasian representatives (*awchasica*-group).

Biogeographically, the new species is the western-most finding of representatives of the genus *Hyleoglomeris*. It is interesting to note that the Balkan Peninsula represents an area where the genera *Hyleoglomeris* and *Glomeris* Latreille, 1802 overlap. The finding and description of new hyleoglomerids in Europe (the Balkans), as well as similarities which the new species share with some eastern congeners, could probably lead to the actualization of Golovatch's hypothesis about the genesis, diversification and dispersion of both mentioned genera (Golovatch, 1989).

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