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A REDESCRIPTION OF *CHARONITES ORLOVACENSIS* REITTER (BATHYSCIINAE, CHOLEVIDAE, COLEOPTERA), WITH SOME NOTES ON ITS SYSTEMATIC POSITION AND ECOLOGY

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Abstract –Recently, four specimens of the bathysciine species *Charonites orlovacensis* Reitter (2 males and 2 females) were found for the first time after 1913 in the Orlovača Cave, v. Donje Sinjevo, nr. Pale, Bosnia and Herzegovina. A comparative analysis of these bathysciines has yielded some detailed taxonomic and morphological evidence on some species of *Charonites* Apfelbeck. The description of *C. orlovacensis* is emended. Additionally, some important taxonomic and ecological evidence has been briefly discussed.

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INTRODUCTION

The genus *Charonites* Apfelbeck comprises 5 species and 3 subspecies from the surroundings of Sarajevo, Bosnia (Jeannel 1924; Pretner 1968; Giachino *et al.* 1998). All species of *Charonites* are endemic to particular cave systems (Müller 1912; Jeannel 1924; Pretner 1968). These troglobitic species and subspecies of the genus *Charonites* are: *C. matzenhaueri* Apfelbeck (from unknown caves nr. Han Bulog and Han Josip, between Sarajevo and Pale), *C. matzenhaueri apfelbecki* Jeannel (from an unknown cave nr. Pale), *C. scheibeli* Apfelbeck (Pećina u Kječinoj Stijeni Cave, nr. Sarajevo), *C. weiratheri* Reitter (from an unknown cave nr. Luka, Mt. Stupan), *C. weiratheri prosternalis* Jeannel (from an unknown cave nr. Stambulčić, Mt. Kodža), *C. weiratheri pygmaeus* Jeannel (from an unknown cave nr. Trnovo, Treskavica Mt.), *C. zoppai* Müller (from an unknown cave on Mt. Trebević, nr. Sarajevo), and *C. orlovacensis* Reitter (a cave in the hill Orlovača = Orlovača Cave, v. Donje Sinjevo, nr. Pale) (Jeannel 1924; Reitter 1913; Pretner 1968).

The present study is devoted to the emendation and redescription of 4 additional specimens of bathysciines from the Orlovača Cave. All analysed specimens are deposited in the collections of the Faculty of Philosophy, University of Srpsko Sarajevo, 57000 Srpsko Sarajevo, Bosnia and Herzegovina.

SYSTEMATIC PART

CHARONITES ORLOVACENSIS REITTER, 1913

Synonym: Charonites zoppai orlovacensis (Reitter, 1913) (Jeannel 1924; Pretner 1968).

Etymology – After its type-locality, the Orlovača Cave.

Material – Two topotype males and two topotype females, from the Orlovača Cave, v. Donje Sinjevo, nr. Pale, Bosnia and Herzegovina, December 5, 2002; collected by J. M. Pecelj, S. Vojvodić, M. Samardžić, M. Maksimović and J. Dragaš.

Description – Medium-sized (total body length: 2.77-2.87 *mm* in males, and 2.79-2.84 *mm* in females). Body colour: dark-reddish to brownish. Body surface and all appendages covered with setae. Body ovoid, convex, slightly narrowing towards elytral apex (Fig. 1). Tegument shiny. Head, pronotum and elytra each with microsculpturations. Body surface strongly punctuated, with small straightened, yellowish setae.

Head elongated, eyeless, with some traces of occipital carina, covered with punctures (Fig. 1). Clypeus and labrum with dense pubescence. Labrum with few long acuminate setae. Penultimate maxillar palpomere thickened distally. Apical maxillar palpomere small, thorn-like, narrowing apically. Antennae moderately long and slender, widening distally; prothorax and elytra length to antenna length ratio: 1.43 (males) and 1.375 (females). Antennae protruding slightly behind the middle of elytra. First antennomere short,

twice as short as antennomere II. Antennomeres III-VI narrow and similar to each other. Antennomera IV somewhat shorter than antennal podomere III. Antennomere VII long, thickening apically; antennomere VIII short, longer than wide; antennal sclerites IX and X long, similar to podomere VII; ultimate antennal segment elongated, more than twice as long as broad.

Pronotum medium-sized, subtrapezoid, wider than longer (maximal width/length ratio: 1.45-1.65), widest at its base (Fig. 1). Disc slightly convex laterally. Pronotal disc with many punctures and dense short pubescence. Lateral pronotal margins convex anteriorly, but concave posteriorly. The median part of anterior pronotal margin slightly protruding towards head. Anterior pronotal angles rounded, posteriors pointed and prominent. Posterior pronotal margin inconspicuously concave, almost straight, and shorter than the base of elytra.

Mesosternal carina high, angular, almost trapezoid. Mesosternal carina with a few tiny teeth and some short setae on its edge (Fig. 6).

Legs long and slender; their femora thickened and rounded basally (Fig. 1). Femora constricted near the tibial joint. Fore tibias thickened in the middle part. Protarsi with 5 segments each. Male protarsi not dilated, and with short tarsomeres.

Elytra ovate, narrowing towards the apex (maximal length/breadth ratio: 1.26-1.42), wider in females than in males (Fig. 1). Elytra widest before its middle part. Elytral disc convex laterally, covered with dense pubescence and with numerous impressed punctures. Elytral border slightly concave before the humeral region. Humerus obtuse-angled, almost rounded. Lateral elytral margins convex. Scutellum well-developed, large and triangular. Scutellum more than three times as wide as long, slightly narrower than the half of the pronotal base.

Male genitalia (Figs. 2-5): aedeagus (Figs. 2, 3) medium-sized, stout, and arcuate laterally. Penis narrowing apically (lateral view; Fig. 3), obtuse on the round apex (dorsal view; Fig. 2). Basal bulbus of aedeagus rounded and elongated (Figs. 2, 3). Parameres elongated, slender, curved, slightly longer than the median lobe, not thickened apically (Figs. 2, 3). Each paramere with 3 subapical setae. The median parameral seta and other two setae equidistant. Two setae are situated almost at the same level (the lateral exterior seta and the dorsal median seta), but the third seta is found below these (the subapical laterodorsal seta; Fig. 5). Each paramera slightly concave in its subapical exterior part. Inner sac elongated, tube-like, with some chitinized structures (Fig. 4). One strong bilobal gutter-formed structure situated in the posterior part of saccus internus. Anteriorly, inner sac with a transversal, well-chitinized piece. Basal part of the inner sac sclerified.

ECOLOGY AND DISTRIBUTION

The analysed bathysciine form (*Charonites orlovacensis* Reitter) is known from a single cave (Orlovača Cave), which is situated in the village Donje Sinjevo, about 10 *km* far from Pale, Bosnia. This cave system comprises over 2,500 *m* of investigated channels. It lies at 949 *m* a. s. l. (Pecelj *et al.* 2002). The specimens of *C. orlovacensis* were collected in the anterior part of this underground habitat (about 300 m from the entrance), on cave walls covered with clay.

Apart from *Charonites orlovacensis* Reitter, the Orlovača Cave is also inhabited by some rove beetles (Staphylinidae), *Brachydesmus* sp. (Diplopoda), collembolans, nematods and bats (Pecelj *et al.* 2002).

REMARKS

In our opinion, *C. orlovacensis* Reitter, 1913, deserves a full specific rank, due both to the present analysis of its 4 additional topotypes (2 males and 2 females) as well as to the numerous distinctions between C. zoppai Müller, 1912, and *C. orlovacensis* Reitter, 1913 (which was earlier considered as *C. zoppai orlovacensis*; Jeannel 1924). Therefore, the opinion of Jeannel (1924) is both confusing, incorrect and redundant.

Besides, a lot of morphological features was included in the thorough analysis of this endemic beetle (detailed analysis of the head, pronotum, elytra, legs, antennae, mesosternal carina and male genitalia). Some important external structures are figured for the first time: aedeagus (dorsal and lateral view) and mesosternal carina.

Finally, the recent finding of *Charonites orlovacensis* in the Orlovača Cave is the first one after the discovery of this beetle by J. Weirather in 1913.

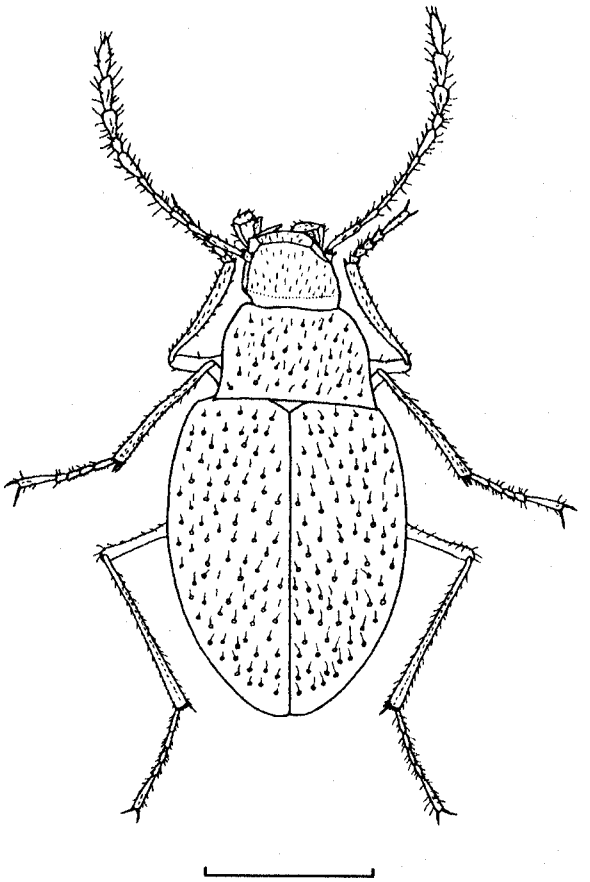
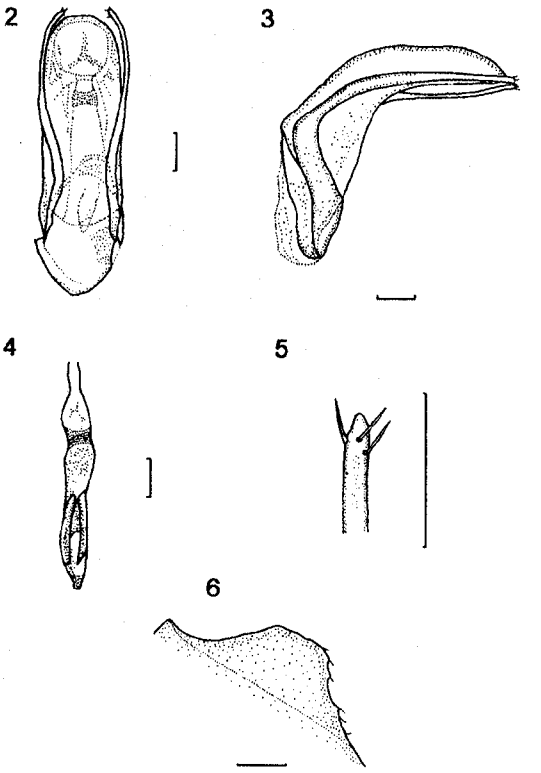


Fig. 1. *Charonites orlovacensis* Reitter. Topotype male. Scale line = 1.00 *mm*.



Figs. 2-6. *Charonites orlovacensis* Reitter: 2 - aedeagus (dorsal view); 3 - aedeagus (lateral view); 4 - inner sac (dorsal view); 5 - left paramere (dorsal view); 6 - mesosternal carina (lateral view). Scale line = 0.10 *mm*.

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ПОНОВНИ ОПИС *CHARONITES ORLOVACENSIS* REITTER (BATHYSCIINAE, CHOLEVIDAE, COLEOPTERA), СА НЕКИМ ПРИМЕДБАМА О ЊЕГОВИМ ТАКСОНОМСКИМ И ЕКОЛОШКИМ СВОЈСТВИМА

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Примерци врсте *Charonites orlovacensis* Reitter из пећине Орловача у селу Доње Сиљево, близу Пала, Босна и Херцеговина, утврђени су по први пут након описа ове врсте током 1913. године. Упоредна анализа ових примерака батисцидних холевида пружила је детаљну таксономску и морфолошку слику о сродничким односима врста рода *Charonites* Apfelbeck и њему сличних таксона. Све дијагностичке карактеристике *C. orlovacensis* су детаљно описане, допуњене и илустроване. Поред свега тога, дискутовани су и таксономски односи и еколошка својства анализираних холевида.