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Short communication

ON THE FIRST NON-TYPE LOCALITY FINDING OF *DUVALIUS* (*PARADUVALIUS*) *STANKOVITCHI GEORGEVITCHI* (JEANNEL, 1923) (COLEOPTERA: CARABIDAE: TRECHINAE)

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The subgenus *Paraduvalius* Knirsch, 1924 of the genus *Duvalius* Delarouzée, 1859 comprises 36 species and four subspecies inhabiting eastern and southeastern Serbia, northern and southern Bulgaria, and northeastern Greece (Guéorguiev, 2004, 2005; Guéorguiev & Lobo, 2006; Janák & Moravec, 2008; Vrbica *et al.*, 2013; Ćurčić *et al.*, 2014a, 2014b; Pavićević *et al.*, 2016; Belousov, 2017). Nine *Paraduvalius* species have been recorded in Serbia so far (Jeannel, 1923, 1928; Vrbica *et al.*, 2013; Ćurčić *et al.*, 2014a, 2014b). The species *Duvalius* (*P.*) *stankovitchi* (Jeannel, 1923) comprises the following three cave-dwelling subspecies, which inhabit the Kučajske Planine Mts. in eastern Serbia: *Duvalius* (*P.*) *stankovitchi stankovitchi* (Jeannel, 1923) from the Ravanička Pećina Cave, village of Senje, near Ćuprija; *Duvalius* (*P.*) *stankovitchi georgevitchi* (Jeannel, 1923) from the Lazareva (= Zlotska) Pećina Cave, village of Zlot, near Bor; and *Duvalius* (*P.*) *stankovitchi devojensis* (Jeannel, 1923) from the Devojačka Pećina Cave, village of Podgorac, near Boljevac (Jeannel, 1923, 1928; Belousov, 2017).

Duvalius (*P.*) *stankovitchi georgevitchi* has been collected from the type locality several times since its finding by Jeannel; first by Svirčev (Ćurčić, 2005), and last by a biospeleological team from the Institute of Zoology, University of Belgrade - Faculty of Biology (Vrbica, 2018). The amount of collected material of the taxon per each sampling conducted in the Lazareva Pećina Cave was relatively high (Ćurčić, 2005; Vrbica, 2018), so it can be asserted that its population there is relatively abundant and stable.

Three field trips, organized by the Institute of Zoology, University of Belgrade - Faculty of Biology, were conducted in 1996 and 2012 in the Vernjikica Cave, village of Zlot, near Bor, Kučajske Planine Mts., eastern

Serbia, which is situated in the vicinity of the Lazareva Pećina Cave. This resulted in the first discovery of the subspecies *D.* (*P.*) *stankovitchi georgevitchi* outside its type locality.

The first expedition was organized on 25th October 1996. As the result of this visit, one female of *D.* (*P.*) *stankovitchi georgevitchi* was collected by hand (no precise location or collector specified). Recently, a team from the same institution explored the abovementioned cave twice in 2012. During the first visit on 29th May, two males and one female were gathered by hand by Srećko Ćurčić and Dejan V. Stojanović. These specimens were found in the middle cave chamber (gallery with speleothem), in total darkness, at places where trickling water was present, both under stones and on the wet limestone floor, nearby the track. During the second visit on 23rd June, one male and one female were collected by pitfall trapping with rotten meat as bait by Srećko Ćurčić and Dragan Antić at the same place as during the previous visit. All the collected specimens are deposited in the collection of the Institute of Zoology, University of Belgrade - Faculty of Biology, Belgrade, Serbia.

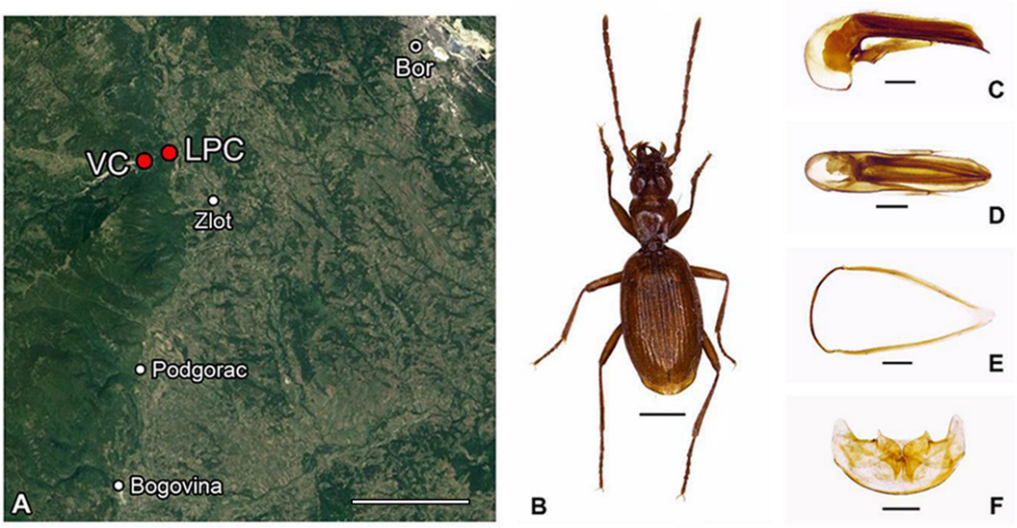

Figure 1. A – Geographical locations (red circles) of the Lazareva Pećina Cave (LPC) and the Vernjikica Cave (VC); B-F – *Duvalius* (*Paraduvalius*) *stankovitchi georgevitchi* from the Vernjikica Cave. B – male, habitus (dorsal view); C – aedeagus (lateral view); D – aedeagus (dorsal view); E – male abdominal tergite IX; F – female genitalia. Scale lines: 5 km (A), 1 mm (B) and 0.2 mm (C-F).

The findings of the beetle in the Vernjikica Cave are not surprising since the cave is geographically very close (cca. 1 km) (Lazarević, 1978) to the Lazareva Pećina Cave, the type locality of *D.* (*P.*) *stankovitchi georgevitchi* (Fig. 1A).

The only morphological difference registered between the specimens from the two caves mentioned above is in body length. Specimens from the Vernjikica Cave (Figs. 1B-F) are slightly shorter [the average body length is 5.05 mm (range 4.99-5.11 mm)] than the specimens from the Lazareva Pećina Cave [the average body length is 5.26 mm (range 5.18-5.33 mm)].

Many troglobitic ground beetles have developed similar morphological adaptations to life in underground habitats, which makes it difficult to determine their taxonomic relationships. Therefore, a partial sequence of

the cytochrome c oxidase subunit I (COI) gene was also analyzed. The primers used to amplify the barcoding region of the COI gene were Jerry [(CI-J-2183)5'-CAACATTTATTTTGATTTTTTGG-3'] and Pat [(TL2-N-3014)5'-TCCAAAGCACTAATCTGCCATATTA-3'] (Simon *et al.*, 1994). Results of the molecular analysis are in accordance with the morphological analysis. Sequences obtained from analyzed specimens from the Vernjikica and Lazareva Pećina Caves were identical. No substantial differences were evidenced between specimens from both sites, so we can state that they are consubspecific.

We assume that the studied trechine taxon could be found in other underground sites in the vicinity of the two caves from which it is currently known. Its occurrence in the surrounding area and the precise distribution will be clearer after systematic cave investigations of the part of the Kučajske Planine Mts.

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О ПРВОМ НАЛАЗУ *DUVALIUS* (*PARADUVALIUS*) *STANKOVITCHI GEORGEVITCHI* (JEANNEL, 1923) (COLEOPTERA: CARABIDAE: TRECHINAE) ВАН ТИПСКОГ ЛОКАЛИТЕТА

МАЈА ВРБИЦА, АНЂЕЉКО ПЕТРОВИЋ, ДРАГАН АНТИЋ,
ДЕЈАН В. СТОЈАНОВИЋ И СРЕЋКО ЋУРЧИЋ

Извод

Троглобионтни трчуљак, трехина *Duvalius* (*Paraduvalius*) *stankovitchi georgevitchi* (Jeannel, 1923) је први пут пронађен ван свог типског локалитета (Лазарева пећина, село Злот, близу Бора, Кучајске планине, источна Србија). Примерци овог таксона су недавно сакупљени у оближњој пећини Верњикици. Морфолошке и молекуларне анализе су потврдиле да примерци из обе пећине припадају истој подврсти, као и да не постоје значајније разлике између њих.

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