Two new species of *Euscorpius* (Scorpiones: Euscorpiidae) from Bulgaria, Serbia, and Greece

VICTOR FET¹, MATTHEW R. GRAHAM², MICHAEL M. WEBBER³ & GERGIN BLAGOEV⁴

¹ Department of Biological Sciences, Marshall University, Huntington, West Virginia, USA
² Department of Biology, Eastern Connecticut State University, Connecticut, USA
³ School of Life Sciences, University of Nevada, Las Vegas, Nevada, USA
⁴ Biodiversity Institute of Ontario, University of Guelph, Guelph, Ontario, Canada

Corresponding author: Victor Fet (fet@marshall.edu)

Abstract

Two new species of *Euscorpius* Thorell, 1876 (subgenus *Euscorpius* s.str.) (Scorpiones: Euscorpiidae) are described based on morphology and the COI DNA barcoding marker: *E. deltshevi* sp. n. from northern Bulgaria and neighbouring Serbia (formerly reported as *E. carpathicus*) and *E. solegladi* sp. n. from southwestern Bulgaria and neighbouring Greece (formerly reported as *E. hadzii*).

Key words: Scorpions, Balkans, DNA barcoding

Introduction

A recent review of Bulgarian scorpions of the genus *Euscorpius* Thorell, 1876 (Fet & Soleglad 2007) outlined issues and problems involved with delineation and understanding of species in these enigmatic arachnids. In the first thorough molecular study of Greek *Euscorpius* taxa, Parmakelis *et al.* (2013a) demonstrated that cryptic speciation among these scorpions appears to be dramatically underestimated. Here, we apply DNA barcoding, or sequencing of the mitochondrial gene coding for cytochrome c oxidase subunit I (COI), to clarify the phylogenetic position and taxonomic identity of two new, but common, species of *Euscorpius* inhabiting Bulgaria, and provide descriptions of each.

Material and Methods

Material Studied. Thanks to the courtesy of Dr. Petar Beron, who loaned the entire *Euscorpius* collection of the National Museum of Natural History, Sofia (NMNHS) to V.F., we studied as many as 190 specimens of *E. deltshevi* sp. n. and 62 specimens of *E. solegladi* sp. n., which allowed us to gain a better understanding of morphological variation as well as broaden our geographic perspective. A detailed list of material with label data is provided below.

Specimens used for DNA barcoding. Of 25 sequences of *Euscorpius* used for our phylogeny, 18 are reported here for the first time (listed below with GenBank accession numbers). *Euscorpius* (*E.*) *tergestinus* (C.L. Koch, 1837), Slovenia: under Nanos Mt., Vipava, 45°50'48"N, 13°57'47"E, 15.06.2001 (Univ. of Ljubljana), VF-0777 (AMSCO047-10, KM111249); Croatia: Majorija, Senj, 44°59'25"N, 14°54'05"E, 550 m, 7.08.2000 (B. Sket), VF-0823 (AMSCO081-10, HM418305). *Euscorpius* (*E.*) *hadzii* Di Caporiacco, 1950, Bosnia & Herzegovina: Herzegovina, 15 km S Trebinje, 42°42'N, 18°20'E, 3.08.2000 (P. Trontelj), VF-0777 (AMSCO047-10, KM111249); CROATIA: Majorija, Senj, 44°59'25"N, 14°54'05"E, 550 m, 7.08.2000 (B. Sket), VF-0823 (AMSCO081-10, HM418305). *Euscorpius* (*E.*) *hadzii* Di Caporiacco, 1950, Bosnia & Herzegovina, Čemerno, 43°14'14"N, 18°36'4"E, 8.09.2006 (D. Pavicevic), VF-0795 (AMSCO056-10, HM418290); Herzegovina, Čemerno, 43°14'14"N, 18°36'4"E, 8.09.2006 (D. Pavicevic), VF-0796 (AMSCO057-10, HM418291); Republika Srpska, Lukavac, 44°46'13"N, 18°53'31"E, 8.09.2006 (D.
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References


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