

*New and additional records of earthworms
(Annelida: Clitellata) from Central Serbia:
First finding of Bimastos parvus (Eisen,
1874) in Serbia*

**Mirjana Stojanović, Tanja Trakić &
Jovana Sekulić**

Biologia

Botany, Zoology and Cellular and
Molecular Biology

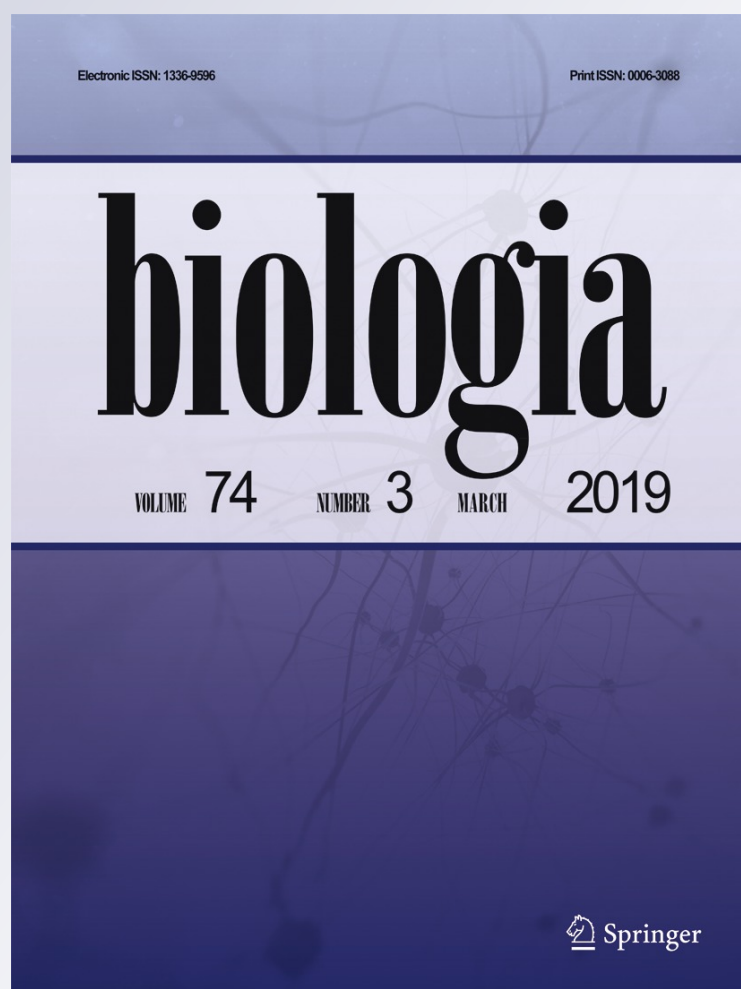
ISSN 0006-3088

Volume 74

Number 3

Biologia (2019) 74:269-278

DOI 10.2478/s11756-018-00170-2



Your article is protected by copyright and all rights are held exclusively by Institute of Zoology, Slovak Academy of Sciences. This e-offprint is for personal use only and shall not be self-archived in electronic repositories. If you wish to self-archive your article, please use the accepted manuscript version for posting on your own website. You may further deposit the accepted manuscript version in any repository, provided it is only made publicly available 12 months after official publication or later and provided acknowledgement is given to the original source of publication and a link is inserted to the published article on Springer's website. The link must be accompanied by the following text: "The final publication is available at link.springer.com".



New and additional records of earthworms (Annelida: Clitellata) from Central Serbia: First finding of *Bimastos parvus* (Eisen, 1874) in Serbia

Mirjana Stojanović¹ · Tanja Trakić¹ · Jovana Sekulić¹ 

Received: 9 July 2018 / Accepted: 22 November 2018 / Published online: 3 December 2018
© Institute of Zoology, Slovak Academy of Sciences 2018

Abstract

This paper includes the summarized knowledge (of more than 40 years) on earthworms in Central Serbia, in the middle part of the Balkan Peninsula. The aim of this paper is to present new data on the earthworms for the study area. Also by analysing the newly reported species together with literature records, we establish the definitive list of known earthworm taxa. The list underlines earthworm diversity and provides a general overview of their distributions, zoogeographical positions, levels of dominance and ecological categories. During the current investigations in the different parts of Central Serbia, 36 earthworm species and subspecies belonging to 10 genera were recorded. Among them, 4 taxa represented the first findings in Central Serbia: *Bimastos parvus* (Eisen, 1874) *Bimastos eiseni* (Levinsen, 1884) *Aporrectodea cemernicensis* Mršić, 1991 and *Lumbricus castaneus* (Savigny, 1826). Consequently, the number of the earthworm species recorded for Central Serbia is raised to 46. Surprisingly, the peregrine *B. parvus* proved to be new species in the fauna of Serbia, including the study area, so now the total number of species for the whole Serbia has risen to 75. With respect to the zoogeographic situation, the majority of them belong to peregrine (36.96%), endemic (19.57%), and trans-Aegean species (13.04%). Summing up the endemics and Balcanic-Alpine species, 30.44% of the total lumbricid fauna in Central Serbia shows an autochthonous character.

Keywords Annelida · Clitellata · Lumbricidae · Central Serbia · Zoogeography · *Bimastos parvus*

Introduction

The Balkan Peninsula is one of 153 centers of world biodiversity, and Serbia, as part of the Balkan Peninsula, is one of the six centers of European biodiversity (Sekulić 2017). According to the European Environment Agency (EEA 2011), two biogeographic regions are present in Serbia: Pannonian and continental. Most of the territory of Serbia belongs to the continental biogeographical region, situated on the Balkans, which includes Central Serbia.

The territory of Central Serbia lies in the north-central part of the Balkan Peninsula. In the relief of Central Serbia

spacious river valleys dominate, between which isolated mountains are located, which are up to 1200 m high. These mountains are rich in forests, river flows, pastures and mineral resources. The specific geomorphology of Central Serbia has conditioned very diverse climatic and pedological conditions, as well as the variety of habitats and species.

It is known that the living world of the Balkan Peninsula went through a very dynamic geological history throughout which it gained a remarkable complexity of abiogenic and biogenic factors which define the current environmental framework of its biodiversity.

The first investigations on the earthworms in Central Serbia were carried out by Karaman (1972, 1983, 1987) and Šapkarev (1980). The first complete summary on the earthworms of Central Serbia was published by Šapkarev (1988) who registered altogether 16 species and subspecies. Mršić (1991) in his Monograph on earthworms (Lumbricidae) of the Balkans presented six species for Central Serbia. Investigations of earthworms from Central Serbia have intensified in the 1990s and continued after this period (Karaman and Stojanović 1993, 1994, 1995, 1996a, b, 1998, 2002;

Electronic supplementary material The online version of this article (<https://doi.org/10.2478/s11756-018-00170-2>) contains supplementary material, which is available to authorized users.

✉ Jovana Sekulić
jovanas034@gmail.com

¹ Faculty of Science, Department of Biology and Ecology, University of Kragujevac, Kragujevac 34000, Serbia