



IBSC

International Bioscience Conference and the
8th International PSU – UNS Bioscience Conference

Towards the SDG Challenges

ONLINE

25–26 November 2021, Novi Sad, Serbia

BOOK OF ABSTRACTS



IBSC2021 is organized jointly by:



PSU
FACULTY OF AGRICULTURE
University Prince of Songkla,
Thailand



University of Novi Sad,
Faculty of Science, Serbia

T1-P-9 Comparison of the earthworm fauna of oak and spruce forest on western slopes Kopaonik mountain in Serbia

Filip Popović, Mirjana Stojanović, Tanja Trakić⁴⁴
Jovana Sekulić⁴⁵

KEYWORDS: earthworm; diversity; oak forest; spruce forests; Kopaonik Mountain;

INTRODUCTION:

In this paper, we compare the earthworm fauna of coniferous and deciduous forests with different environments in the western slopes of Kopaonik Mountain.

⁴⁴ University of Kragujevac, Faculty of Science, Institute of Biology and Ecology, Radoja Domankovića 12, 34000 Kragujevac, Serbia.

Corresponding author: filip.popovic@pmf.kg.ac.rs

⁴⁵ University of Kragujevac, Institute for Information Technologies Kragujevac, Department of Science, Jovana Cvijića 66, 34000 Kragujevac, Serbia

TRACK 1 - Participants 1

OBJECTIVES:

Our objectives were: a) to determine earthworm fauna in oak and spruce forests b) to determine which forest is richer in earthworm fauna c) to examine the impact of vegetation cover, soil and altitude on the diversity of earthworm fauna in the studied forests.

METHOD / DESIGN:

Earthworm communities were sampled within two months in both 2018 and 2020 (from May and June, coinciding with the rainy season) in the western slopes of Kopaonik Mt. In the hilly belt up to 1.000 m, sampled three plots of the oak forest (OF1 411 m, OF2 670 m and OF3 800 m a.s.l.) which is where sierozem on serpentines and humus silicate soil on serpentines occurs. Also, the mountain belt from 1.500 to 1.950 m, sampled three plots of the spruce forest (SF1 1.750 m, SF2 1.830 m and SF3 1950 m a.s.l.), types of soil present are brown podzolic soil and acidic humus-silicate soils. We were sampled eight samples 50x50 cm from each of the sampling units (plots). Earthworms were identified to species level and only mature individuals were counted. Paleontological statistics software (PAST) was utilized for calculating the alpha diversity index (Shannon-Wiener, Evenness and Berger-Parker) in the studied localities.

RESULTS:

A total of 195 earthworm individuals (113 individuals in oak forest/82 individuals in a spruce forest), of which 9 species *Allolobophora chlorotica*, *Allolobophora leont*, *Allolobophora (s.l.) strumicae*, *Apporectodea rosea*, *Dendrobaena vejloviskyi*, *Dendrobaena octaedra*, *Eisenia fetida*, *Lumbricus rubellus* and *Proctodrilus antipai* were recorded in oak forest, while species *Dendrobaena attersiattensi*, *Dendrobaena alpina alpina*, *Dendrobaena byblica byblica*, *Dendrobaena illyrica* and *D. octaedra* were recorded in a spruce forest. Oak forests were the richer in earthworm species (average 6 species). Upper montane spruce forests were the poorer in earthworm species (average 4 species). To the Shannon-Wiener and Evenness Index, it was indicated that oak forest had a higher species diversity than the spruce forest. In contrast, the Berger-Parker Index showed higher dominance species in spruce forests (Table 7).

This study indicates that oak forests are richer in the earthworm taxa relative to the spruce forests. This is because of the optimum environmental factors in oak forests and they can also provide suitable habitats for earthworms (i.e., more humidity and food). However, dominance was higher in spruce forests, because mostly epigeic species has freeze-hardiness and tolerate acid soils. Overall, our results support that climatic factors, vegetation cover, soil characteristics and altitude is impacting the diversity of earthworm fauna in studied forests.