Earthworms (Oligochaeta: Lumbricidae) from Sarnena Sredna Gora Mts.

Elena Zdravkova*, Teodora Teofilova, Kalina Miteva, Stilian Stefanov, Nikolay Kodzhabashev

ФОНД НАУЧНИ ИЗСЛЕДВАНИЯ
МИНИСТЕРСТВО НА ОБРАЗОВАНИЕТО И НАУКАТА

Introduction

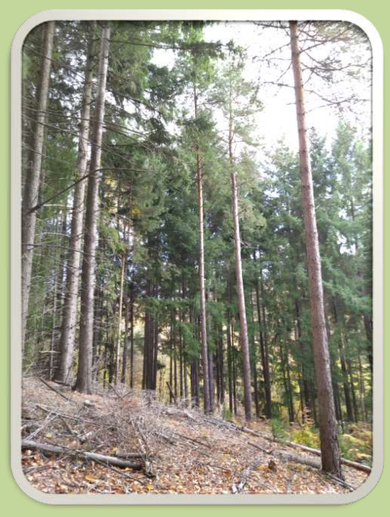
The biodiversity in Sarnena Sredna Gora Mts. has never been studied purposefully. Reason for this can be the majority of agricultural lands in the lower regions of the mountain or the absence of Protected Areas. Previous data from there has been collected once or accidentally and it doesn't include the higher parts of the mountain. The method used during this field investigation is unpopular globally, specifically for this type of research. It is used for the first time in Bulgaria with the purpose to study earthworms. The aim of this paper is to study the earthworm fauna from different habitats, exposition and altitude and to summarize the new data and the literature records from Sarnena Sredna Gora Mts.

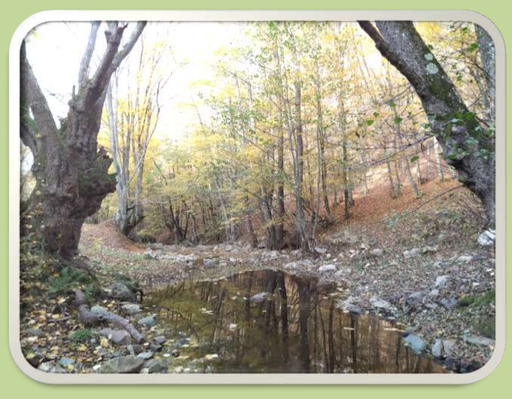



Material and Methods

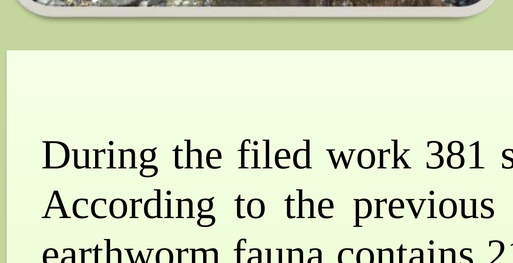
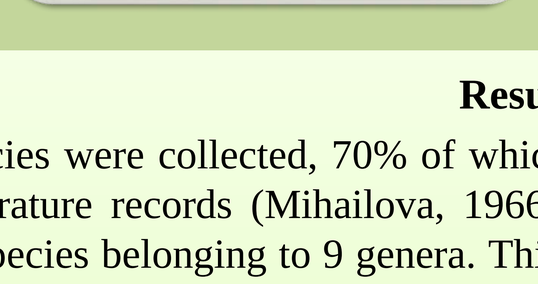
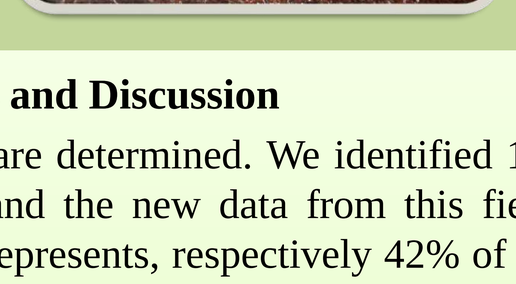
The field investigations were carried during 2017 and 2019-2020. There were three collecting periods: III-VII.2019, VII-XI.2019 and XI-IV.2020. The purpose is to gather earthworms from spring, summer and autumn and to see if there is a difference in the diversity and number of species found between the seasons and throughout the whole year. The earthworms were collected by terrestrial "pitfall" traps which were made of 2L plastic bottles cut in the middle with 300 ml 4% formalin solution and were buried at the level of the ground surface. There were 26 sampling sites with 150 "pitfall" traps placed in different habitats, exposition and altitude throughout Sarnena Sredna Gora Mts.





List of earthworm species from Sarnena Sredna Gora Mts	
1	*Allolobophora chlorotica* (Savigny, 1826)
2	*Allolobophora leoni* (Michaelsen, 1891)
3	*Aporrectodea caliginosa* (Savigny, 1826)
4	*Aporrectodea handlirschi* (Rosa, 1897)
5	*Aporrectodea jassyensis* (Michaelsen, 1891)
6	*Aporrectodea longa* (Ude, 1885)
7	*Aporrectodea rosea* (Savigny, 1826)
8	Aporrectodea trapezoides (Dugès, 1828)
9	*Bimastos eiseni* (Levinsen, 1884)
10	*Bimastos rubidus* (Savigny, 1826)
11	*Cernosvitovia rebeli* (Rosa, 1897)
12	*Dendrobaena alpina* (Rosa, 1884)
13	*Dendrobaena balcanica* (Černosvitov, 1937)
14	*Dendrobaena hortensis* (Michaelsen, 1890)
15	*Dendrobaena octaedra* (Savigny, 1826)
16	*Eisenia fetida* (Savigny, 1826)
17	*Eisenia lucens* (Waga, 1857)
18	*Eiseniella tetraedra* (Savigny, 1826)
19	*Lumbricus rubellus* Hoffmeister, 1843
20	*Lumbricus terrestris* Linnaeus, 1758
21	*Octalasion lacteum* (Örley, 1881)

Results and Discussion

During the filed work 381 species were collected, 70% of which are determined. We identified 17 earthworm species belonging to 8 genera. According to the previous literature records (Mihailova, 1966) and the new data from this field investigation Sarnena Sredna Gora Mts. earthworm fauna contains 21 species belonging to 9 genera. This represents, respectively 42% of all established for Bulgarian lumbricid fauna species and 60% of the genera. We have identified in this survey **10 new earthworm species** which proved to be new to the fauna of the explored area (colored in red on the table with the list). The most widespread species in this present study are *Lumbricus rubellus*, *Dendrobaena alpina* and *Cernosvitovia rebeli*. Also two rare species: *Allolobophora leoni*, *Dendrobaena hortensis* and 3 endemic species: *Dendrodaena balcanica*, *D. hortensis*, *Cernosvitovia rebeli* have been identified.

The compiled data shows that there is a higher number of species during spring (198 ex.) and autumn (90 ex.) and lower during summer (64 ex.). A factor for this can be the different temperature and humidity in every season.

Acknowledgements. This study was funded by the National Science Fund via the Project № КП-06-М21/2 (Н-18-ТТЕО-010) "Study of the faunistic diversity and assessment of the condition and ecosystems services in different types of model ecosystems in the Sarnena Sredna Gora Mts.". Part of the material was collected with the aid of the Project BiodivERsA-FACCE2014-47 "SusTaining AgriCultural ChAnge Through ecological engineering and Optimal use of natural resources (STACCATO)"