

# The Oniscidea, Diplopoda, Chilopoda and Symphyla of the Buzau Land Geopark (Buzau Mountains, Romania)

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## Sampling sites



## INTRODUCTION

Our work is the first attempt to investigate the Oniscidea, Diplopoda, Chilopoda and the Symphyla of the Buzau Geopark.

The Buzau Land Geopark (included in the Buzau Mountains) represents one of the less known geographic areas from the point of view of the faunistic studies concerning the Oniscidea and the Myriapoda. The nearest investigated area is Meledic Plateau where the authors mentioned the presence of only 4 species of Oniscidea, 1 species of Diplopoda and 4 of Chilopoda (Nitzu et al., 1999).

This study is part of a interdisciplinary research model for the Aluniș-Bozioru cultural landscape, with the development of an online interactive digital product.

## METHODS AND MATERIALS

For this aim, we used both qualitative and quantitative sampling methods (direct sampling using tweezers and litter sifting, soil sampling and barber traps) in close proximity of the following landmarks, located at different altitudes: Aluniș (647.77m), Schitul Fundul Peșterii (716m), Biserica lui Iosif (823.5m), Schitul Agatonul Nou (960.1) and Schitul Fundătura (715.88m), all part of the Rupestral Assembly from Aluniș-Bozioru (Fig. 1).

The sampling took place between March and August 2017 twice per season and will continue for an entire year. Different types of collecting methods reveal a variety of ecological groups and are more suitable for different species of soil dwelling arthropods (Tuf, 2015).

The sites are located in a temperate broadleaf and mixed forest in places with different vegetation cover, slope inclination and antropic influence.

## DISCUSSION

Among the Oniscidea, this is the first record in the Buzău Mountains, of *Tr. carpaticus* and *Cyl. brachyurus* (both endemic for Romania). Also, it is the second record (after Pădurea Călugărească from the Romanian Plain) of *Cyl. brachyurus* outside Transylvania (Giurginca & Baba, 2016).

Concerning the centipedes, this is a new location for *Sch. walachica*, considered rare, previously collected from Muntenia, Dobrogea, Transylvania (Ion, 2016). Another rare species is *G. electricus* with few sampling points in Romania, firstly found in the vicinity of Cluj and Azuga and subsequently in Domogled (Băile Herculane) (Matic, 1972).

This is the third study on the Romanian Symphyla (after Juberthie-Jupeau & Tabacaru, 1968 and Gava, 1997) and the first record of the Symphyla in the Buzău Mountains.

The high difference between Agatonul Nou and the other sampling sites (Table 1) in the number of collected species may be explained by a higher altitude, the thin and sandy soil with a scarce leaf litter and the predominant coniferous trees that acidify the soil.

Although these are preliminary data, it highlights the potential of this region of Romania for subsequent and more complex studies.

## RESULTS

<b>Cls. Malacostraca</b>
<b>Subord. Oniscidea</b>
<b>Fam. Ligiidae</b>
<i>Ligidium intermedium</i> Radu, 1950
<b>Fam. Trichoniscidae</b>
<i>Trichoniscus carpaticus</i> Tabacaru, 1974
<i>Hyloniscus riparius</i> (C. Koch, 1838)
<b>Fam. Agnaridae</b>
<i>Protracheoniscus politus</i> (C.Koch, 1841)
<b>Fam. Cylisticidae</b>
<i>Cylisticus brachyurus</i> Radu, 1951
<b>Fam. Trachelipidae</b>
<i>Trachelipus arcuatus</i> (Budde-Lund, 1885)
<i>Trachelipus rathkii</i> Brandt, 1833
<b>Cls. Diplopoda</b>
<b>Fam. Polyxenidae</b>
<i>Propolyxenus trivittatus</i> Verhoeff, 1941
<b>Fam. Polyzoniidae</b>
<i>Polyzonium germanicum</i> Brandt, 1837
<b>Fam. Paradoxosomatidae</b>
<i>Strongylosoma stigmatosum</i> Eichwald, 1830
<b>Fam. Polydesmidae</b>
<i>Polydesmus complanatus</i> Linnaeus, 1761
<i>Polydesmus montanus</i> Daday, 1889
<b>Fam. Mastigophyllidae</b>
<i>Heterobraueria scopifera</i> Verhoeff, 1898
<b>Fam. Julidae</b>
<i>Cylindroiulus boleti</i> C.L. Koch, 1847
<i>Megaphyllum projectum</i> Verhoeff, 1894
<i>Xestoiulus laeticollis</i> Porat, 1889
<i>Haplophyllum mehelyi</i> Verhoeff, 1897
<i>Pachyiulus hungaricus</i> Karsch, 1881
<i>Unciger foetidus</i> C. L. Koch, 1838

<b>Cls. Chilopoda</b>
<b>Fam. Lithobiidae</b>
<i>Lithobius (L.) conf. erythrocephalus</i> C.L. Koch, 1847
<i>Lithobius (L.) forficatus</i> (Linnaeus, 1758)
<i>Lithobius (L.) lucifugus</i> C.L. Koch, 1862
<i>Lithobius (L.) mutabilis</i> L. Koch, 1862
<i>Lithobius (L.) muticus</i> C.L. Koch, 1847
<i>Lithobius (M.) aeruginosus</i> L. Koch 1862
<i>Lithobius (M.) crassipes</i> L. Koch, 1862
<i>Lithobius (S.) burzenlandicus</i> Verhoeff, 1931
<b>Fam. Dignathodontidae</b>
<i>Henia illyrica</i> Meinert (1870)
<b>Fam. Geophilidae</b>
<i>Clinopodes flavidus</i> C.L. Koch, 1847
<i>Geophilus electricus</i> (Linné, 1758)
<i>Geophilus flavus</i> (De Geer, 1778)
<i>Geophilus proximus</i> C.L. Koch, 1847
<i>Pachymerium ferrugineum</i> (C. L. Koch, 1835)
<b>Fam. Linotaeniidae</b>
<i>Strigamia acuminata</i> (Leach, 1815)
<i>Strigamia transsilvanica</i> (Verhoeff, 1928)
<b>Fam. Schendylidae</b>
<i>Schendyla tyrolensis</i> Meinert (1870)
<i>Schendyla walachica</i> Verhoeff, 1900
<b>Fam. Cryptopidae</b>
<i>Cryptops hortensis</i> (Donovan, 1810)
<b>Cls. Symphyla</b>
<b>Fam. Scutigereidae</b>
<i>Hanseniella nivea</i> Scopoli, 1763
<i>Scutigereella orghidani</i> Juberthie-Jupeau & Tabacaru, 1968



Figure 1: Map of the study area and sampling sites

Table 1: Number of species per site

Sites	Soil dwelling groups				Nr. of species
	Oniscidea	Diplopoda	Chilopoda	Symphyla	
Aluniș	1	8	10	2	21
Schitul Fundul Peșterii	6	5	9	1	21
Biserica lui Iosif	1	8	10	2	21
Schitul Agatonul Nou	1	4	7	1	13
Schitul Fundătura	3	11	11	0	25

## REFERENCES

- GAVA, R. (1997) - The Symphyla fauna (Myriapoda: Symphyla) of the deciduous tree forests from the middle basin of the Argeș River (Romania). *Travaux du Muséum d'Histoire Naturelle "Grigore Antipa"*, 39, 53-58.
- GIURGINCA A., BABA Ș.C. (2016) - Edaphic Oniscidea, Diplopoda and Chilopoda from Pădurea Călugărească (South-Eastern Romania). *Ecologica Montenegrina* 7: 417-424.
- ION C.M. (2016) - A Catalogue of the Geophilomorpha Species (Myriapoda: Chilopoda) of Romania. *Travaux du Muséum d'Histoire Naturelle "Grigore Antipa"*, 58(1-2): 17-32.
- JUBERTHIE-JUPEAU, L. & TABACARU, I. (1968) - Symphyles de Roumanie. *Bull. Mus. nat. Hist. nat. 3e sér.*, 40 (3), 500-517, 1968.
- MATIC Z. (1972) - Clasa Chilopoda, Subclasa Epimorpha. *Fauna R.S.R.*, Vol. 6, Fasc. 2, ARSR, București.
- NITZU, E., GIURGINCA, A., ILIE, V., L. VĂNOAICA (1999) - First note on the edaphic and subterranean fauna from the evaporitic karstic regions of Romania. *Travaux de l'Institut de Spéologie "Emil Racovița"*, 37-38: 143-157.
- TUF I. H. (2015) - Different collecting methods reveal different ecological groups of centipedes (Chilopoda). *Zoologia (Curtibia)* 32(5): 345-350.

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