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## FURTHER CONTRIBUTION TO THE KNOWLEDGE OF PROTURA ON MOUNTAIN RUDNIK, SERBIA

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**Abstract:** The investigated material of Protura contained 490 specimens classified in to 13 species and 3 families. Nine new species were found as new to the fauna of the country. The family Acerentomidae was the most numerous (9 species). The records of other species are also new for the fauna Serbia. The species *Acerentulus exiguus* Conde, 1944 was the most numerous (22.65% of all collected specimens). The family Eosentomidae was represented by three species. The most numerous was *Eosentomon transitorium* Berlese, 1908 (35.31%) or 173 individuals. Another two species are also new for Serbian fauna. Representatives of the family Protentomidae were found, for the first time, represented by the species *Protentomon minimum* Berlese, 1908 (0.20% of all specimens).

### INTRODUCTION

This article presents additional knowledge about the distribution of *Protura* in Serbia.

### MATERIAL AND METHODS

The investigated material was collected from 63 localities on the Rudnik Mountain (about 15 km north from Gornji Milanovac) in different ecosystems (deciduous forests and meadows: in litter and soil). Four hundred and ninety specimens were found in all samples on usual way.

The material was determined on the basis of classification given by Nossek (1973) and Szeptycki (1980).

## RESULTS AND DISCUSSION

This article presents data for 13 identified species.

Order: **PROTURA** Silvestri, 1907

Subrder: **EOSENTOMIDEA** Condé, 1951, emend. Tuxen, 1964

Family: *Eosentomidae* Berlese, 1909

Genus: *Eosentomon* Berlese, 1909

1. *Eosentomon transitorium* Berlese, 1908

Material:

-in oak litter: Gornja Trešnjevica (May 13, 1997) 6♀♀, 5♂♂, 1 larva; Vinča (ibid) 7♀♀; Lipovac (May 20, 1997) 17♀♀, 3♂♂, 6lar.

-in mixed oak litter: Donja Trešnjevica (May 20, 1997) 1♀; Gornja Šatornja (May 10, 1997) 5♀♀, 6♂♂, 2 lar.; Oplenac (May 10, 1997) 5♀♀, 3♂♂ and (May 20, 1997) 4♀♀, 2♂♂, 3 lar.; Božurnja (June 3, 1977) 9♀♀, 14♂♂, 6 lar.

-in elm litter and soil :Donja Šatornja (May 13, 1997) 6♀♀, 1♂, 4 lar.

-in accacia litter and soil: Gornja Šatornja (May 13, 1997) 3♀♀, 5♂♂, 5 lar.; Vinča (ibid) 12♀♀, 2♂♂.

-in beech litter: Jarmenovci (May 20, 1997) 4♀♀, 1♂.

-in conifer litter: Gornja Šatornja (May 13, 1997) 2♀♀, 1♂, 2 lar.

-in meadow soil: Jarmenovci (May 20, 1997) 3♂♂; Donja Trešnjevica (May 20, 1997) 1♀; Donja Šatornja (May 10, 1997) 8♀♀, 2♂, 2 lar.; Vinča (ibid.) 3♂♂; Lipovac (May 20, 1997) 1♂.

2. *Eosentomon delicatum* Gisin, 1945

-in meadow soil: Božurnja (Jun 3, 1977) 3♀♀, 4♂♂, 1 lar.

3. *Eosentomon germanicum* Prell, 1912

-in meadow soil: Gornja Trešnjevica (May 13, 1997) 3♀♀, 1♂, 5 lar.

Subrder: **ACERENTOMOIDEA** Condé, 1951

Family: *Acerentomidae* Silvestri, 1907

Genus: *Acerentomon* Silvestri, 1907

4. *Acerentomon balcanicum* Ionescu, 1933

-in mixed oak litter: Oplenac (May 20, 1997) 28♀♀, 25♂♂, 3 lar.

5. *Acerentomon parvum* Szeptycki, 1980

-in mixed oak litter: Oplenac (May 20, 1997) 13♀♀, 10♂♂, 1 lar (known only from Poland)

6. *Acerentomon quercinum* Ionescu, 1932

-in mixed oak litter: Oplenac (May 10, 1997) 2♀♀, 2♂♂.

-in elm litter and soil: Donja Šatornja (May 13, 1997) 1♀.

-in beech litter: Jarmenovci (May 20, 1997) 2♀♀.

Genus: *Acerentulus* Berlese, 1908

7. *Acerentulus catalanus* Condé, 1951

-in mixed oak litter: Oplenac (May 20, 1997) 4♀♀, 2♂♂

8. *Acerentulus confinis* Berlese, 1908

-in meadow soil: Donja Šatornja (May 13, 1997) 1♂, 5 lar.

9. *Acerentulus exiguus* Condé, 1944

-in oak litter: Lipovac (May 20, 1997) 18♀♀, 3♂♂, 7 lar.

-in mixed oak litter: Oplenac (May 10, 1997) 17♀♀, 3♂♂, 6 lar., Gornja Šatornja (May 10, 1997) 9♀♀, 1♂, 3 lar.

-in accacia litter and soil: Vinča (May 13, 1997) 5 lar.;

-in beech litter: Jarmenovci (May 20, 1997) 31♀♀, 3♂♂, 5 lar.;

-in meadow soil: Donja Šatornja (May 10, 1998) 1♀; Vinča (ibid) 1♀, 1♂.

10. *Acerentulus gerezianus* da Cunha, 1952

-in oak litter: Vinča (May 13, 1997) 2♀♀; Gornja Trešnjevica (ibid) 3♀♀, 1♂, 11 lar; Lipovac (May 20, 1997) 2♀♀, 2 lar.

-in mixed oak litter: Oplenac (May 10, 1997) 1♀; Donja Trešnjevica (May 20, 1997) 13♀♀, 5♂♂, 2 lar.

-in elm litter and soil: Donja Šatornja (May 13, 1997) 10♀♀, 3♂♂, 5 lar.

-in accacia litter and soil: Gornja Šatornja (May 13, 1997) 2♂♂, 2 lar.

-in beech litter: Jarmenovci (May 20, 1997) 16♀♀.

-in meadow soil: Donja Trešnjevica (May 20, 1997) 1♀.

11. *Acerentulus seabrai* da Cunha, 1952

-in oak mixed litter: Oplenac (May 20, 1997) 3♀♀.

12. *Acerentulus traegardhii* Ionescu, 1937

-in meadow soil: Donja Trešnjevica (May 20, 1997) 1♂, 1 lar.; Jarmenovci (ibid) 1♂.

Family: **Protentomidae** Ewing, 1936

Subfamily: **Protentominae** Ewing, 1940

Genus: *Proturentomon* Silvestri, 1909

13. *Proturentomon minimum* Berlese, 1908

-in meadow soil: Jarmenovci (May 20, 1997) 1♀.

Proturas in different ecosystems have exhibited clear differences in number of species and specimens collected (Table 1). The number of species varied from 1 to 8 and the number of specimens from 5 to 213. Of this species the most numerous are these from meadow soil (8) and specimens from mixed oak litter (213).

Table 1. Distribution of Protura in different habitats and ecosystems

ecosystem	species		specimens	
	number	%	number	%
oak litter	3	23.08	95	19.38
litter mixed oak forests	7	53.85	213	43.47
accacia litter	3	23.08	33	6.73
elm litter	3	23.08	30	6.12
beech litter	4	30.27	6	12.65
conifer litter	1	7.69	5	1.02
meadows soil	8	61.54	52	10.62

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#### References

- [1] BLESIC, B. (1998): Knowledge of *Protura* and *Diplura* of Montenegro. *Mont. Acad. Sci. and Arts, Podgorica, Glasnik Natur. Sci.*, **12**: 63-70.
- [2] BLESIC, B. (2000): Investigation of *Diplura* and *Protura* in Western Serbia. *Proceedings for Natural Sciences, Matica Srpska, Novi Sad*, **99**: 69-79.
- [3] BLESIC, B. (2001): *Protura* and *Diplura* (Insecta: Apterygota) of the Republic of Macedonia. *75 years of the Macedonian Museum of Natural History*, Skopje: 157-162.
- [4] BLESIC, B. (2002): Some investigations of *Protura* and *Diplura* (Insecta) distribution on the Rudnik Mountain. *Acta entomologica serbica*, **7** (1/2): 1-5.
- [5] BLESIC, B. (2004): Some new data on investigations of *Protura* and *Diplura* distribution in Serbia. *Kragujevac J. Sci.* **26**: 111-114.
- [6] CVIJOVIC, M. (1977): Distribution of the species *Entomobryidae*, *Sminthuridae* (Collembola) and *Acerentomoidea* (*Protura*) in the communities of the larger region of Jahorina. Special pr. GZM Sarajevo, sect. *Natur. Sci.*, N.S. sv. XVI: 105-126.
- [7] NOSEK, J. (1973): *The European Protura*. *Mus. His. Natur. Geneva* - 346.
- [8] SEPTYCKI, A. (1980): Polish *Protura*. I Genus *Acerentomon* Silvestri, 1907. *Bull. Entomol. Pologne*. **50**: 311-392.