

## SOME INVESTIGATIONS OF PROTURAS AND DIPLURAS (INSECTA) DISTRIBUTION ON RUDNIK MOUNTAIN

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The collecting of *Protura* and *Diplura* (*Insecta*) were done on mountain Rudnik (about 100km S from Belgrade). The terrestrial material were taken in different litter ecosystems and consisted: ***Protura*** with 542 individuals, which belonging to 3 species (1*Eosentomidae* and 2 *Acerentomidae*) and ***Diplura*** with 154 individuals, which belonging to 11 species (8 *Campodeidae* and 3 *Japygidae*). The numbers of individuals and species differs in ecosystem litters of mixed deciduous trees (oak, beech, elm, accacia) and meadows soil. The individuals were varied from 01.01-54.37%. The most number individuals of protura were collected in litters of woods (75.09%) while they were more less in the meadows soil (24,91%); while the most number individuals of diplura were collected in the meadows soil (80.57%). The most numerous *Protura* species was *Eosentomon transitorium* (48.52%) while the others were more less (*Acerentomon balcanicum*, *Acerentulus traegardhii*). The most numerous *Diplura* species was *Campodea* (*Dicampa*) *frenata*, while more less were: *Campodea* (*Campodea*) *colladoi*, *C*(*C*) *wallacei*, *Campodea* (*Dicampa*) *campestre*, *C* (*D*) *frenata*, *C* (*D*) *silvicola*, *C* (*P*) *rocasolanoi*, *Podocampa serbica*, *Catajapyx confusus*. and *Metajapyx sp.* four species were found in litter mixed deciduous trees.

KEY WORDS: Diplura, distribution, Protura, mountain

## INTRODUCTION

This article is given a new data about distribution proturas and dipluras species. Investigated was in different ecosystems mostly in litters of forest trees (deciduous tree and meadow, soil) and in distribution how differs in them number of species. They never can found in mass.

## MATERIAL AND METHODS

The collecting of *Protura* and *Diplura* (*Insecta*) were done on mountain Rudnik (about 100km S from Belgrade) on 8 localities (Ugljarevac, Klisura, Ramaca, Taboriste, Dobraca, Poskurice, Sljivovac, Grbice). Seven hundred and ninety tree (793) individuals were separated from samples on usual way. They belong in two order, four families and eleven species. On usually way them were collected and determined.

## RESULTS AND DISCUSSION

The terrestrial material were taken in different litter ecosystems and consisted *Protura* with 542 individuals, which belonging to 3 species (1 *Eosentomidae* and 2 *Acerentomidae*) and *Diplura* with 247 individuals, which belonging to 11 species (8 *Campodeidae* and 3 *Japygidae*). The numbers of individuals and species differs in ecosystem litters (of mixed deciduous trees, oak, beech, elm, accacia) and meadows soil. The individuals were varied from 01.01-54.37%. The most number of protura individuals were collected in litters of woods (75.09%) while they are more less in the meadows soil (24,91%).

Investigated ordo *Protura* was represented with two families.

Family *Acerentomidae* represented with two species and there are:

1. *Acerentomon balcanicum* Ionescu, 1933 was found on four localities (Ramaca, Klisura, Grbice, Poskurice) in litter of mixture of deciduous trees, oak and acacia with 95 individuals.
2. *Acerentulus traegardhii* Ionescu, 1937 was found on 5 localities (Ugljarevac, Ramaca, Sljivovac, Poskurice, Grbice) in litter of mixture of deciduous trees and meadow soil with 184 individuals.

Family *Eosentomidae* represented with one species and that is:

3. *Eosentomon transitorium* Berlese, 1908 was found on seven localities (Dobraca, Ramaca, Klisura, Taboriste, Ugljarevac, Sljivovac, Poskurice and Grbice) in litter of mixture of deciduous trees and meadow soil with 263 individuals.

The other investigated ordo *Diplura* was represented also with two followos families:

Family *Campodeidae* are represented with eight species and there are:

*Campodea* (*Campodea*) *colladoi* Silvestri, 1939 was found on two localities

(Ugljarevac and Taboriste) in meadow soil with 4 individuals.

*Campodea* (*Campodea*) *wallacei* Bagnall, 1918 was found on 1 locality (Kamenicki Vis) in litter of beech trees with 6 individuals.

*Campodea* (*Dicampa*) *campestre* Ionescu, 1955 was found on 7 localities (Leskovik, Dusnik, Resnik, Niska Banja, Sovariste, Lazarevo selo and Crnce) in litter of: mixture of deciduous trees, than oak and orchard trees, with 28 individuals.

*Campodea* (*Dicampa*) *frenata* Silvestri, 1931 was found on 3 localities (Lazarevo selo, Kamenicki vis and Leskovik) in litter trees as: oak, beech and orchard with 4 individuals.

*Campodea* (*Dicampa*) *malpighii* Silvestri, 1912 was found on 4 localities (Dusnik, Gadzin Han, Ostrovica and Niska Banja) in litter of: mixture of deciduous trees, than oak and acacia, with 20 individuals.

*Campodea* (*Paurocampa*) *rocasolanoi* Silvestri, 1932 was found on 1 locality (Ostrovica) in litter of acacia trees with 1 individual. The first finding and her description is from South of Greek, later also is known from Macedonia and Montenegro (CONDE, 1984; BLESIC, 1998b,2001). So this finding is the most North in it distribution.

We can say that this species is the species of Balkan.

*Campodea* (*Paurocampa*) *speleae* Ionescu, 1955 was found on 1 locality (Kamenicki vis) in litter of beech trees with 10 individuals.

*Campodea* (*Paurocampa*) *suensoni* Tuxen, 1930 was found on 4 localities (Resnik, Kamenicki vis, Ostrovica, Gadzin Han) in litter of mixture of deciduous trees, oak, beech and acacia with 49 individuals.

Family **Japygida** are represented with three species and there are:

*Catajapyx confuses* Silvestri, 1929 was found on 5 localities (Sovariste, Crnce, Lazarevo selo, Leskovik and Niska Banja) in litters of mixture of deciduous tree, oak and orchard trees with 30 individuals.

*Japyx solifugus* Silvestri, 1933 was found on 1 locality, in litter of oak trees, with 1 individual.

*Metajapyx gojkovici* Pages, 1953 was found on 1 locality, in litter of beech trees with 1 individual.

This is a new finding in their distribution (BLESIC, 1995).

## CONCLUSION

In this investigation were found 696 individuals of *Protura* and *Diplura* (*Insecta*) were done on mountain Rudnik (about 100km S from Belgrade). The terrestrial material were taken in different litter ecosystems and consisted from: ***Protura*** with 542 individuals, which belonging to 3 species (1 to family *Eosentomidae* and 2 to *Acerentomidae*) and ***Diplura*** with 154 individuals, which belonging to 11 species (8 to *Campodeidae* and 3 to *Japygidae*). The numbers of individuals and species differs in ecosystem litters of mixed deciduous trees (oak, beech, elm, accacia) and meadows soil. The individuals were varied from 01.01-54.37%. The most number of protura individuals were collected in litters of woods (75.09%) while they are more less in the meadows soil (24,91%). The most number of diplura individuals were collected in the meadows soil (80.57%). The most numerous *Protura* species was *Eosentomon transitorium* (48.52%) while the others were more less (*Acerentomon balcanicum*, *Acerentulus traegardhii*). The most numerous *Diplura* species was *Campodea (Dicampa) frenata* while more less were: *Campodea (Campodea) colladoi*, *C(C) wallacei*, *Campodea (Dicampa) campestre*, *C (D) frenata*, *C (D) silvicola*, *C (P) rocasolanoi*, *Podocampa serbica*, *Catajapyx confusus* and *Metajapyx sp.* four species were found in litter mixed deciduous trees.

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## НЕКА ИСТРАЖИБАНЈА ДИСТРИБУЦИЈЕ PROTURA И DIPLURA ПЛАНИНЕ РУДНИК

Б. БЛЕСИЋ

### И з в о д

Прикупљање материјала *Protura* и *Diplura* (*Insecta*) обављено је на планини Рудник (око 100км Ј од Београда). У материјалу узетом у стељи различитих екосистема има: ***Protura*** 524 јединке које припадају трима врстама (једна породици *Eosentomidae* и две породици *Acerentomidae*) и ***Diplura*** 154 јединки које припадају у једанаест врста (осам породици *Campodeidae* и три *Japygidae*). Бројеви јединки и врста се разликују у стељама различитих екосистема (мешовитог листопадног дрвећа, храста, букве, граба, багрема) и у ливадским земљиштима. Број јединки варирао је од 01.01'54.37%. Највећи број јединки протура је био у шумским стељама (75.09%) док су мање бројне у ливадским земљиштима (24,91%). Јединке диплура су у највећем броју установљене у ливадским земљиштима (80,57%). Најбројнија међу протурама је врста *Eosentomon transitorium* (48,52%) а остале су у мањем броју констатоване (*Acerentomon balcanicum*, *Acerentulus traegardhii*). Међу диплурама је најбројнија врста *Campodea (Dicampa) frenata*. Четири врсте су нађене у стељи мешовитог листопадног дрвећа. Знатно су мање биле заступљене врсте: *Campodea (Campodea) colladoi*, *C (C) wallacei*, *Campodea (Dicampa) campestre*, *C (D) frenata*, *C (D) silvicola*, *C(P) rocasolanoi*, *Podocampa serbica*, *Catajapyx confusus* и *Metajapyx sp.*

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