Arch. Biol. Sci., Belgrade, 58 (1), 31-35, 2006.

ON SOME ONISCIDEA AND DIPLOPODA FROM BUCHAREST, ROMANIA

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Abstract - This paper presents 14 species of Oniscidea and four species of Diplopoda – among them a species new to science belonging to the genus *Bulgardicus* Strasser, 1966 – collected exclusively in parks of Bucharest.

Key words: Oniscoidea, Diplopoda, Bulgardicus, urban fauna, Bucharest, Romania

UDC 595.61(498)

INTRODUCTION

As far as our information goes, no species of Diplopoda and only one species of Oniscidea - *Buddelundiella cataractae* Verhoeff, 1930, found by T a b a c a r u (1971) in a cellar storing wood – were known to date from Bucharest, Romania.

Our intention here is to continue and develop his work on the Oniscidea and Diplopoda in general and the urban invertebrate fauna in particular as an interesting but little investigated aspect of the Romanian invertebrate fauna.

MATERIAL AND METHODS

Our sampling sites were located in three urban parks in different areas of Bucharest, namely Herăstrău Park, "Lia Manoliu" National Stadium, and Tineretului Park. Sampling took place between April of 2004 and August of 2005. The material was collected by hand using tweezers, as we used only a qualitative approach.

Herăstrău is a large park that covers 187 ha (B erin dei and Bonifaciu, 1978). It has a relatively large treecover formed by species from the genera Albizzia, Abies, Robinia, Salix, Catalpa, Morus, Sophora, Quercus, Populus, Fraxinus, Acer, Tilia, Larix, and Ulmus, but also Taxodium, Betula, and Picea. There are also numerous bushes belonging to species from the genera Jasminum, Syringa, Thuja, Buxus, Rhamnus, Juniperus and Berberis. The herbaceous carpet is formed mainly by species of Agropyron, Setaria, Polygonum, Trifolium and Plantago.

For **Tineretului Park**, we note the presence of a varied treecover formed by *Fagus*, *Platanus*, *Ulmus*, *Salix*, *Tilia*, *Taxodium*, and *Picea* but also *Ginkgo*, *Quercus*, *Fraxinus*, and *Carpinus*. Bushes are represented by *Buxus*, *Juniperus*, *Syringa*, *Crataegus*, *Berberis*, and *Thuja*, herbaceous species by *Trifolium*, *Taraxacum*, *Agropyron*, *Hordeum*, *Polygonum*, and *Lolium*.

Although covering only 54 ha (Berindei and Bonifaciu, 1978), "Lia Manoliu" National Stadium has a wide range of tree species: Salix, Juglans, Celtis, Ulmus, Fagus, Carpinus, Populus, Acer, Aesculus, Robinia, Tilia, and Pinus. Bushes and hedges are represented by Spiraea, Jasminium, Forsythia, Rus, and Thuja. Among herbaceous species, we record only Agropyron, Hordeum, Polygonum, Setaria, and Carduus.

The first two sampling sites (Herăstrău and Tineretului Park) were visited twice a month, while the third one, "Lia Manoliu" National Stadium, was visited weekly.

RESULTS AND DISCUSSION

Up to now, 14 species of Oniscidea and four species of Diplopoda were found by us in Bucharest. The Oniscidea belong to six families, the Diplopoda to only three families. The species of Oniscidea are the following:

Suborder **Oniscidea** Latreille, 1802 Infraorder **Ligiamorpha** Vandel, 1943 Supersection **Orthogonopoda** Tabacaru and Danielopol, 1996 Section **Synocheta** Legrand, 1946 Family **Trichoniscidae** Sars, 1899 Sub-family **Trichoniscinae** Verhoeff, 1908

1. *Hyloniscus riparius* C. L. Koch, 1938. **Distribution**: Central and Eastern Europe, introduced to North America (S c h m a l f u s s, 2003). Occurs over Romania (R a d u, 1983; G i u r g i n c a and Ć u r č i ć, 2003). Found under stones and in a rotten tree stump.

Subfamily Haplophthalminae Verhoeff, 1908

2. *Haplopththalmus danicus* Budde-Lund, 1885. **Distribution**: Europe (S c h m a l f u s s, 2003). Known from a few localities in Transylvania, Moldova, and Muntenia (R a d u, 1983). Probably more widespread. This is the first record of the species from the Romanian Plain. Found in moist, shaded places, under stones and wood pieces, and in a rotten tree stump

Section **Crinocheta** Legrand, 1946 Family **Platyarthridae** Verhoeff, 1949

3. Platyarthrus attanassovi Verhoeff, 1936.



Fig. 1. Haplophthalmus danicus, photo by Cosmin-Ioan Stănescu.

Distribution: Romania, Bulgaria, European Turkey (S c h m a l f u s s , 2003). In Romania, found until now only in Northern and Southern Dobruja (R a d u , 1985; G i u r g i n c a and Ć u r č i ć , 2003); this is the first record of the species on the Romanian Plain. Found almost exclusively under the bark of a rotten tree stump.

Family Cylisticidae Verhoeff, 1949

4. *Cylisticus convexus* De Geer, 1778. **Distribution**: Europe and Asia Minor, introduced to Northern Africa and North and South America (S c h m a l f u s s , 2003). Occurs all over Romania (R a d u , 1985; G i u r g i n c a and \acute{C} u r č i ć , 2003). Found in dry and wet places alike, un-



Fig. 2. Platyarthrus attanassovi, photo by Cosmin-Ioan Stănescu.

der wood pieces and stones.

5. Cylisticus transilvanicus Verhoeff, 1908 (= Cylisticus major Radu, 1951). **Distribution**: Romania (S c h m a l f u s s , 2003). Regarded as endemt to the rocky region along the river Someşul Rece (R a d u , 1985); this is the first record of the species on the Romanian Plain. Found alongside *T. rhinoceros* under stones in moist and shaded places.

Family Porcellionidae Brandt and Ratzeburg, 1831

6. *Porcellionides* (=*Metoponorthus*) pruinosus (B r a n d t, 1833). **Distribution**: Originally Mediterranean, synanthropically cosmopolitan (S c h m a l f u s s, 2003). Found all over Romania (R a d u, 1985; G i u r g i n c a and Ć u r č i ć, 2003). Occurs not only under pieces of wood or under stones but also under rubbish. Also, it was once found under the bark of *Carpinus* sp.

7. *Porcellio laevis* Latreille, 1804. **Distribution**: Europe and North Africa, introduced to all other parts of the world (S c h m a l f u s s, 2003). Recorded until now on-

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ly in South Dobrogea (R a d u, 1985; G i u r g i n c a and Ć u r č i ć, 2003) and on salt in the karst of Meledic – Buzău (N i t z u *et al.*, 2002), but is probably more widespread. Found alongside the preceding species under pieces of moist wood and under rubbish.

Family Trachelipidae Strouhal, 1953

8. Protracheoniscus politus politus C. L. Koch, 1841. **Distribution**: Eastern Germany, Poland, Czech Republic, Slovakia, Austria, former Yugoslavia south to Montenegro, Romania, and Hungary (S c h m a l f u s s, 2003). Occurs in nearly all of Romania (R a d u, 1985). Found under stones and pieces of wood in moist and shaded places.

9. Trachelipus rhinoceros (Budde-Lund, 1885). Distribution: Coastal regions of Croatia (S c h m a l f u s s , 2003). If this species is not conspecific with Trachelipus spinulatus Radu, 1959 as S c h m i d t (2000) has suggested - this would be the first record of T. rhinoceros in Romania. If T. rhinoceros is really conspecific with T. spinulatus, then this species might represent a sub-species of T. rhinoceros. Found under stones in moist and shaded places.

10. *Trachelipus rathkii* (Brandt, 1833). **Distribution**: Europe except Mediterranean regions (S c h m a l f u s s , 2003). Occurs all over Romania

(R a d u, 1985; G i u r g i n c a and Ć u r č i ć, 2003). Found in a shaded and moist clump of trees under pieces of wet tree bark and under stones.

11. Trachelipus nodulosus (C.L. Koch, 1838). Distribution: Southern and Eastern Germany, Southern Poland, Czech Republic, Slovakia, Austria, Serbia, Croatia, Romania, and Hungary (S c h m a l f u s s, 2003). Recorded by us in Southern Dobruja (G i u r g i n c a and Ć u r č i ć, 2003) and on salt in the karst of Meledic – Buzău (N i t z u *et al.* 2002), but is probably more widespread. Found in shaded and moist clumps of trees under stones or pieces of wood.

12. *Trachelipus arcuatus* Budde-Lund, 1885. **Distribution**: Southern Switzerland, Italy including Sicily, Austria, Slovakia, Serbia, Slovenia, Croatia, Bosnia and Hercegovina, Albania, NW Greece, and Romania (S c h m a l f u s s, 2003). Occurs all over Romania (R a d u, 1985; G i u r g i n c a and Ć u r č i ć, 2003). Found in dry and wet places alike, under wood pieces and stones.

Family Armadillidiidae Brandt, 1833

13. *Armadillidium vulgare* (Latreille, 1804). **Distribution**: Autochthonous in the Mediterranean region, by human activities introduced to all parts of the





Fig. 3. Trachelipus rhinoceros, photo by Cosmin-Ioan Stănescu.

Fig. 4. Armadillidium nasatum, photo by Cosmin-Ioan Stănescu.

world (S c h m a l f u s s, 2003). Occurs all over Romania (R a d u, 1985; G i u r g i n c a and Ć u r č i ć, 2003). Found virtually everywhere, in grassy spaces, under stones, pieces of wood, in shaded and sunny places.

14. *Armadillidium nasatum* Budde-Lund, 1885. **Distribution**: Autochthonous in Italy, France, Northern Spain, the Netherlands and Southern England, synanthropic in Northern and Eastern Europe, introduced to North America (S c h m a l f u s s, 2003). In Romania, previously recorded only from Cluj-Napoca and Jassy. This is the first record of the species in the south of Romania. Found in a shaded grassy place in a garden under leaflitter of *Buxus*.

Only four species of Diplopoda have been found up to now:

Order **Polydesmida** Leach, 1815 Family **Polydesmidae** Leach, 1815

1. Brachydesmus (Eubrachydesmus) superus Latzel, 1884. **Distribution**: Widespread in Europe (T a b a c a r u and G i u r g i n c a , 2004). Widespread species, sometimes synanthropic (I. T a b a c a r u , pers. comm.). It was found in a shaded and wet clump of trees, under pieces of tree bark lying on wet soil.

Order **Craspedosomatida** Gray, 1843 Family **Anthroleucosomatidae** Verhoeff, 1899

2. Bulgardicus bucarestensis Tabacaru and Giurginca, 2005. **Distribution**: Only one male was collected (from "Lia Manoliu" Național Stadionul), under pieces of treebark scattered on the soil in a wet and shaded clump of trees (T a b a c a r u and G i u r g i n c a , 2005). Bulgardicus bucarestensis represents the second species of the genus Bulgardicus Strasser, 1966, the first being Bulgardicus tranteevi Strasser, 1966, described from Bankowitza Cave near Karlukowo in northwestern Bulgaria (S t r a s s e r , 1966). Bulgardicus bucarestensis is a relict of the fauna from the ancient forests known as Codrii Vlăsiei, today represented by scattered pockets, some of them within the city limits of Bucharest.

Order **Callipodida** Bollman, 1893 Family **Julidae** Leach, 1814

3. Megaphyllum unilineatum (C. L. Koch, 1838).

Distribution: Central and Eastern Europe. Frequent in Romania (I. T a b a c a r u , pers. comm.). Found up to now only in the grass bordering a street.

4. *Allajulus boleti* (C.L. Koch, 1847) (= *Cylindroiulus boleti* C. L. Koch, 1947). **Distribution**: Central Europe and the Balkan Peninsula. Frequent in Romania (I . T a - b a c a r u , pers. comm.). Found under the bark of a tree.

Among the six families of Oniscidea, the best represented is the family Trachelipidae, with five species. The families Trichoniscidae, Cylisticidae, Porcellionidae, and Armadillidiidae are represented by two species each while the family Platyarthridae is the most poorly represented - by only one species.

Most of the 14 species of Oniscidea are widespread or even cosmopolitan species. This is the case with Armadillidium vulgare, Porcellio laevis, Porcellionides pruinosus, Hyloniscus riparius, Cylisticus convexus, Trachelipus arcuatus, Trachelipus nodulosus, and Trachelipus rathkii.

As far as our information goes, these are the first records of *Haplophthalmus danicus*, *Platyarthrus attanassovi*, *Cylisticus transilvanicus*, and *Armadillidium nasatum* on the Romanian Plain. Although *H. danicus* was recorded from Govora (R a d u , 1983) and so from Muntenia, it was not previously known from any flatland location. *Platyarthrus attanassovi*, recorded by us from Northern and Southern Dobruja (G i u r g i n c a and Ć u r č i ć , 2003), is here recorded for the first time at a location outside Dobruja.

Considered endemic to the rocky region along the river Someşul Rece by R a du (1985), who described it as *Cylisticus major* in 1951, *Cylisticus transilvanicus* is here recorded for the first time outside Transyilvania, a fact pointing to a more widespread distribution in Romania. Similarly, the synanthropic *Armadillidium nasatum* - known up to now only from greenhouses of the Botanical Gardens in Jassy and Cluj–Napoca (R a du, 1985) - is now recorded from the Romanian Plain.

Among the Diplopoda, only the family Julidae is represented by two species. The other families (Anthroleucosomatidae and Polydesmidae) are represented by just one species each. In any event, the Diplopoda are much rarer and represented by fewer individuals than the Oniscidea. Among the four species of Diplopoda collected until now, *Allajulus boleti*, *Megaphyllum unilineatum*, and *Brachydesmus superus* are frequent and widespread in Romania, so from this point of view it was no surprise to find them in Bucharest. The most significant result of our study was the finding of *Bulgardicus bucarestensis*, a new genus for the fauna of Romania and an altogether new species.

As we can see, study of the urban invertebrate fauna is represents a promising and interesting direction of research. We intend to develop our study by sampling most, if not all, the parks of Bucharest and plan to extend it to forests in the city's vicinity.

Acknowledgements: The author is greatly indebted to Acad. Prof. Dr. B.P.M. Ćurčić, Dr. S.B. Ćurčić and Mr. Z. Nikolić and to the Romanian Academy for Grant No. 71/ 2005, which allowed us to pursue and develop our studies on the Oniscidea and Diplopoda of Romania. Last but not least, we are very much indebted to our friend Cosmin–Ioan Stănescu for the pictures of the Oniscidea and Diplopoda featured in our paper.

REFERENCES

- Berindei, D., Bonifaciu, S. (1978). București. Ghid turistic. Ed. Sport Turism.
- Giurginca, A., S. B. Curčić. (2003). A check-list of Oniscidea (Isopoda, Crustacea) from Dobrogea (Romania). Archives of Biological Sciences, Belgrade, 55 (1-2), 39-44.

- Niţu, E., Giurginca, A., Ilie, V., Vănoaica, L. (2002). First note on the edaphic and subterranean fauna from the evaporitic karstic regions of Romania. Travaux de l'Institut de Spéologie "Emile Racovitza", XXXVII-XXXVIII, Bucarest, 1998-1999, 143-157.
- Radu, V. G. (1983). Ordinul Isopoda, Subordinul Oniscoidea, Oniscoidee inferioare. In Fauna R. S. R. Crustacea, IV (13), 1-168.
- Radu, V. G. (1985). Isopoda, Oniscoidea, Crinocheta. In Fauna R. S. R., Crustacea, IV (14), 1-155.
- Schmalfuss, H. (2003). World catalog of terrestrial isopods (Isopoda: Oniscidea). Stuttgarter. Beitr. Naturk. Ser. A., 654, 1-341.
- Schmidt, Chr., (1997). Revision of the European species of the genus Trachelipus Budde–Lund, 1908 (Crustacea: Isopoda: Oniscidea). Zool. J. of the Lin. Soc. 121, 129 – 244.
- Strasser, K., Über Diplopoden Bulgariens. (1966). Ann. Zoo., Polska Akad. Nauk., Warszawa, XXIII (12), 325-385.
- Tabacaru, I., (1971). Sur une nouvelle espèce du genre Buddelundiella Silvestri (Crustacea, Isopoda) de Roumanie. Travaux de l'Institut de Spéologie "Emile Racovitza", X, 217-230.
- Tabacaru, I., Giurginca, A. (2004). Cavernicolous Diplopoda of Romania. Travaux de l'Institut de Spéologie "Emile Racovitza", XLI, 2002 – XLII, 2003, 121-148.
- Tabacaru, I., Giurginca, A. (2005). Bulgardicus bucarestensis n.sp. with a note on the family Anthroleucosomatidae (Diplopoda, Craspedosomatida). Travaux de l'Institut de Spéologie "Emile Racovitza", XLIII, 2005 (in press).

О НЕКИМ ОНИСЦИДАМА И ДИПЛОПОДАМА ИЗ УРБАНЕ ЗОНЕ БУКУРЕШТА, РУМУНИЈА

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Током теренских истраживања и лабораторијских анализа, у пет паркова у урбаном подручју Букурешта утврђено је 14 врста онисцида и четири врсте диплопода. Посебно вредним сматра се налаз нове врсте рода мириапода *Bulgardicus* Strasser (Anthroleucosomatidae). Тиме је јасно документована чињеница да и градска подручја могу представљати центре ендемичне диференцијације појединих инвертебрата, посебно фауне диплопода.