

# CONTRIBUTION TO THE CHILOPODA FAUNA OF SĂLAJ (ROMANIA)

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**ABSTRACT.** The Chilopoda fauna of the county Sălaj in Transylvania (Romania) were studied in the frame of a cooperation between the Hungarian Natural History Museum and the University Vasile Goldiș during 2014-2015. This region has been relatively unexplored yet, having only data of 13 centipede species. With 20 species reported or revised here, this number is elevated to 24.

**Keywords:** centipedes, faunistic, Transylvania.

## INTRODUCTION:

The earliest records on the Chilopoda fauna of county Sălaj in Transylvania date back more than a century. Ödön Tömösváry (1879) published the first data from this region describing a species new for science (*Lithobius bicolor* Tömösváry, 1879 = *Lithobius muticus* C.L. Koch, 1847) from Oroszmező (today: Rus). Subsequently Daday (1889) published sporadic data from the region, some of which were revised and found unreliable by Loksa (1949). Considering the three comprehensive works of Loksa (1955) and Matic (1966, 1972), there have been only 13 species known from the county, although much more might have been expected. Our study revealed the presence of several further species, but the real diversity of the group in the county is still far from being thoroughly known.

## MATERIAL AND METHODS:

Soil, litter and moss samples were collected and extracted using Berlese-Tullgren funnels and singling was used as well. The identified specimens are conserved in 70% ethanol and deposited in the Myriapoda Collection of the Hungarian Natural History Museum.

For Geophilomorpha, where this is of special importance, sex and the number of pairs of legs (lp) are given for each specimen.

Chorotypes of species are given according to Zapparoli (2002, 2003) and Stoev (2002).

## RESULTS:

### LITHOBIOMORPHA

#### Henicopidae

##### *Lamyctes emarginatus* (Newport, 1844)

Localities: between Băbiu (Bábony) and Almașu (Váralmás), shore of Băbiu Stream, N46°57.175', E23°05.757', 337m, stream bank with logs, 01.10.2014, leg. Bálint Zs., Dányi L., Katona G., Murányi D. (No.117)(1♀); Munții Plopiș (Réz-hegység), Tusa (Tuszatelke), valley of the Barcău (Berettyó) Stream, 02.10.2014, N47.04743° E22.7508°; hand collecting, leg. Zs. Bálint, L. Dányi, G. Katona & D. Murányi (No.126)(2♀).

Remarks: Our specimens were collected in disturbed habitats, i.e. on occasionally overflowed stream-banks, which are typical places for this – probably weak competitor – species (Andersson 2006, Eason 1964, Dányi & Korsós 2002, Matic 1966). It is

an introduced, cosmopolitan species with only pathogenetic populations in Europe (Eason 1964). – New to the fauna of county Sălaj.

#### Lithobiidae

##### *Harpolithobius anodus anodus* (Latzel, 1880)

Locality: Treznea (Ördökgút), main valley of the Treznea Stream, N47°06.603', E23°03.866', 377m, beech forest, 29.09.2014, leg. Bálint Zs., Dányi L., Katona G., Murányi D. (No.99)(1♂).

Remarks: *H. anodus* occurs usually in beech forests (Matic 1966, Stoev 2002) and also we found the species in this habitat. Southeast European species. – New to the fauna of county Sălaj.

##### *Lithobius (Sigibius) burzenlandicus burzenlandicus* Verhoeff, 1931

Locality: Treznea (Ördökgút), main valley of the Treznea Stream, N47°06.603', E23°03.866', 377m, beech forest and pasture, leaf litter sample, 29.09.2014, leg. Bálint Zs., Dányi L., Katona G., Murányi D. (No.99)(6♂, 3♀).

Remarks: *L. burzenlandicus* is a forest-dweller species (Dányi 2008, Stoev 2002) and also our specimens were collected in a beech forest. Species with Carpathian–Balkan chorotype. – New to the fauna of county Sălaj.

##### *Lithobius (Monotarsobius) crassipes* L. Koch, 1862

Localities: between Băbiu (Bábony) and Almașu (Váralmás), shore of Băbiu Stream, N46°57.175', E23°05.757', 337m, stream bank with logs, 01.10.2014, leg. Bálint Zs., Dányi L., Katona G., Murányi D. (No.117)(1♂); Tusa (Tuszatelke), Ponor, N47°00.717', E22°44.526', 830m, pasture and fern (*Pteridium aquilinum*), 02.10.2014, leg. Bálint Zs., Dányi L., Katona G., Murányi D. (No.123)(3♂, 4♀).

Remarks: *L. crassipes* is a mainly forest- and shrubland-dweller species, that also occurs in openings and also in urban habitats (Matic 1966, Stoev 2002). The habitats in which our specimens were collected (pasture with ferns and a disturbed streambank) are rather unusual for the species. Euro-Siberian species, rather common at lower altitudes in Romania (Matic 1966). – New to the fauna of county Sălaj.

##### *Lithobius (Lithobius) forficatus* (Linnaeus, 1758)

Localities: Crasna (Kraszna), Vârșolț Reservoir, N47.177°, E22.889°, 230m, wet meadows, pitfall trap, 22.05-04.06.2014, leg. G. Puskás, Z. Soltész

No.13)(1♂); Treznea (Ördöggút), main valley of the Treznea Stream, N47°06.603', E23°03.866', 377m, beech forest and pasture, 29.09.2014, leg. Bálint Zs., Dányi L., Katona G., Murányi D. (No.99)(1♀); Iaz (Krasznajáz), peat bog and ruins of the bath, N47.111°, E22.659°, 320m, peat bog and ruins of the bath in an oak forest, 30.09.2014, leg. Bálint Zs., Dányi L., Katona G., Murányi D. (No.104)(1♂, 1juv.); Zaláu (Zilah), 47.180°N, 23.056°E, churchyard, from beneath stones, 11.05.2015, Grabant A., Merkl O., Szöke V. (No.163)(7♂, 3♀, 2juv.).

Remarks: *L. forficatus* is a common, euryoecious, European species (Dányi 2008), that was collected in many different type of habitats, including the most disturbed ones. Reported already from the county by Daday (1889a, 1889b) and Matic (1966).

#### ***Lithobius (Lithobius) latro* Meinert, 1872**

Locality: Munții Meseș (Meszes Mts), Poic, 46.980°N, 22.925°E, hornbeam-oak forest, sifting, 12.05.2015, Podlussány A. (No.185)(5♂, 2♀).

Remarks: Woodland species (Dányi 2008, Matic 1966) and also our specimens were collected in a hornbeam-oak forest. Central European species. – New to the fauna of county Sălaj.

#### ***Lithobius (Lithobius) mutabilis* L. Koch, 1862**

Localities: Meseș Mts, 1.5 km SW of Huta (Csákyújfalu), N46.994°, E22.929°, 570m, beech forest, pitfall trap, 04.06-12.08.2014, leg. G. Katona, A. Orosz & G. Puskás (No.83)(2♂); Treznea (Ördöggút), main valley of the Treznea Stream, N47°06.603', E23°03.866', 377m, beech forest, 29.09.2014, leg. Bálint Zs., Dányi L., Katona G., Murányi D. (No.99)(2♀); Treznea (Ördöggút), main valley of the Treznea Stream, N47°06.603', E23°03.866', 377m, beech forest and pasture, leaf litter sample, 29.09.2014, leg. Bálint Zs., Dányi L., Katona G., Murányi D. (No.99)(2♂, 1♀); Iaz (Krasznajáz), valley of the Iaz Stream, N47°05.219', E22°39.066', 380m, beech forest with stream, 30.09.2014, leg. Bálint Zs., Dányi L., Katona G., Murányi D. (No.105)(3♂, 2♀); Tusa (Tuszatelke), Ponor, Izvoarele Barcăului, N47°01.219', E22°44.925', 752m, edge of beech forest and pasture with spring and stream, 02.10.2014, leg. Bálint Zs., Dányi L., Katona G., Murányi D. (No.125)(1♀); Aluniș (Szamoszézplak), N47.371°, E23.267°, 200m, oak-beech forest, pitfall traps, 19.08-03.10.2014, leg. Katona G., Murányi D. (No.128)(1♂); Cliț (Csűrfulva), 47.284°N, 23.439°E, hornbeam-oak forest, hand collecting, 11.05.2015, Grabant A., Merkl O., Szöke V. (No.170)(1♂, 1♀); Munții Meseș (Meszes Mts), Poic, 46.980°N, 22.925°E, hornbeam-oak forest, sifting, 12.05.2015, Podlussány A. (No.185)(2♂, 1♀); Iaz (Krasznajáz), Mlastina de la Iaz, N47°6'38.7", E22°39'43.5", oak forest, pitfall trap, 24.04-22.05.2014, leg. Kutasi Cs. (No.16)(1♂, 2♀); Meseș Mts, 1.5 km SW of Huta (Csákyújfalu), N46°59'37", E22°55'42.9", 570m, beech forest, pitfall trap, 22.05-04.06.2014, leg. G. Puskás, Z. Soltész (No.5)(3♂, 7♀).

Remarks: Woodland species (Dányi 2008, Matic 1966) and also our specimens were collected in forests.

Central European species. Reported already also by Daday (1889a, 1889b) and Matic (1972) from the county.

#### ***Lithobius (Lithobius) muticus* C.L. Koch, 1847**

Localities: Meseș Mts, 1.5 km SW of Huta (Csákyújfalu), N46°59'37", E22°55'42.9", 570m, beech forest, pitfall trap, 22.05-04.06.2014, leg. G. Puskás, Z. Soltész (No.5)(1♂, 2♀); Aluniș (Szamoszézplak), N47.371°, E23.267°, 200m, oak-beech forest, pitfall trap, 04.06-13.08.2014, leg. A. Gubányi & G. Katona (No.98)(1♂, 1♀); Treznea (Ördöggút), main valley of the Treznea Stream, N47°06.603', E23°03.866', 377m, beech forest and pasture, 29.09.2014, leg. Bálint Zs., Dányi L., Katona G., Murányi D. (No.99)(1♂, 2♀); E of Meseșenii de Jos (Magyarkecel), N47°06.354, E22°59.393', 317m, beech forest, 01.10.2014, leg. Bálint Zs., Dányi L., Katona G., Murányi D. (No.110)(1♀); Meseș Mts, Huta (Csákyújfalu), N46°59.650', E22°55.688', 560m, beech forest with stream, 01.10.2014, leg. Bálint Zs., Dányi L., Katona G., Murányi D. (No.115)(1♂); Tusa (Tuszatelke), Ponor, N47°00.717', E22°44.526', 830m, pasture and fern (*Pteridium aquilinum*), 02.10.2014, leg. Bálint Zs., Dányi L., Katona G., Murányi D. (No.123)(1♂); Munții Plopiș (Réz-hegység), Tusa (Tuszatelke), valley of the Barcău (Berettyó) Stream, 02.10.2014, N47.04743° E22.7508°; hand collecting, leg. Zs. Bálint, L. Dányi, G. Katona & D. Murányi (No.126)(4♂, 2♀); Cliț (Csűrfulva), 47.284°N, 23.439°E, hornbeam-oak forest, hand collecting, 11.05.2015, Grabant A., Merkl O., Szöke V. (No.170)(2♂, 1♀); Munții Meseș (Meszes Mts), Poic, 46.980°N, 22.925°E, hornbeam-oak forest, sifting, 12.05.2015, Podlussány A. (No.185)(4♂).

Remarks: Woodland species (Dányi 2008, Matic 1966) and also our specimens were collected in forests. Central European species. The species *Lithobius bicolor* Tömösváry, 1879, described from Oroszmező (today: Rus) was synonymized under *L. muticus* by Daday (1889b). Reported already also by Daday (1889a, 1889b) and Matic (1972) from the county.

#### ***Lithobius (Lithobius) pelidnus* Haase, 1880**

Locality: Meseș Mts, Huta (Csákyújfalu), N46°59.650', E22°55.688', 560m, beech forest with stream, 01.10.2014, leg. Bálint Zs., Dányi L., Katona G., Murányi D. (No.115)(1♂).

Remarks: European species, usually found in forests (Matic 1966) like our specimen. – New to the fauna of county Sălaj.

#### ***Lithobius (Lithobius) schuleri* Verhoeff, 1925**

Localities: Iaz (Krasznajáz), Mlastina de la Iaz, N47°6'38.7", E22°39'43.5", oak forest, pitfall trap, 24.04-22.05.2014, leg. Kutasi Cs. (No.16)(1♂); Iaz (Krasznajáz), valley of the Iaz Stream, N47°05.219', E22°39.066', 380m, beech forest with stream, 30.09.2014, leg. Bálint Zs., Dányi L., Katona G., Murányi D. (No.105)(1♀); Munții Meseș (Meszes Mts), Poic, 46.980°N, 22.925°E, alder groove, hand collecting, 12.05.2015, Grabant A., Merkl O., Szöke V. (No.180)(1♂); Munții Meseș (Meszes Mts), Poic, 46.994°N, 22.930°E, beech forest, hand collecting,

12.05.2015, Grabant A., Merkl O., Szöke V. (No.190)(1♀).

Remarks: South European, woodland species. Reported already also by Matic (1972) from the county. The *Lithobius erythrocephalus* C.L. Koch, 1847 data published by Daday (1889a, 1889b) from the region might refer on this species as well.

***Lithobius tenebrosus* Meinert, 1872**

Locality: Buzamező (today: Buzaş)(Daday 1889, Loksa 1947, 1955).

Remarks: Daday (1889) reported *Lithobius aulacopus* Latzel, 1880 (= *Lithobius macilentus* L. Koch, 1862) from the county, but this data was based on misidentification of *Lithobius melanops* Newport, 1845 according to Loksa's revision on Daday's material (Loksa 1947: 9). However, Loksa did not repeat this *L. melanops* data later in his comprehensive work (Loksa 1955), but list the locality for *Lithobius nigrifrons* Latzel & Haase, 1880 (= *Lithobius tenebrosus* Meinert, 1872). I found and revised the specimen studied by Daday and Loksa in the HNHM and it belongs indeed to *L. tenebrosus*. European species.

**SCOLOPENDROMORPHA**

**Cryptopidae**

***Cryptops hortensis* (Donovan, 1810)**

Locality: Treznea (Ördögkút), main valley of the Treznea Stream, N47°06.603', E23°03.866', 377m, beech forest and pasture, 29.09.2014, leg. Bálint Zs., Dányi L., Katona G., Murányi D. (No.99)(1ex.).

Remarks: Species with Turano-Euro-Mediterranean chorotype. Although also reported by Daday (1889a, 1889b) from the county, that record is not reliable because it also might cover another species (*C. parisi*) described only later. Thus, Daday's data was neglected by Matic (1972), too. – New to the fauna of county Sălaj.

***Cryptops parisi* Brölemann, 1920**

Localities: Meseş Mts, 1.5 km SW of Huta (Csákyújfalú), N46°59'37", E22°55'42.9", 570m, beech forest, pitfall trap, 23.04-22.05.2014, leg. Kutasi Cs. (No.97)(2ex.); Treznea (Ördögkút), main valley of the Treznea Stream, N47°06.603', E23°03.866', 377m, beech forest and pasture, 29.09.2014, leg. Bálint Zs., Dányi L., Katona G., Murányi D. (No.99)(1ex.); Iaz (Krasznajáz), valley of the Iaz Stream, N47°05.219', E22°39.066', 380m, beech forest with stream, 30.09.2014, leg. Bálint Zs., Dányi L., Katona G., Murányi D. (No.105)(1ex.); Cliş (Csürfalva), 47.284°N, 23.439°E, hornbeam-oak forest, hand collecting, 11.05.2015, Grabant A., Merkl O., Szöke V. (No.170)(1ex.).

Remarks: Species with Central-European and Balkan chorotype and with a wide ecological spectrum. – New to the fauna of county Sălaj.

**GEOPHILOMORPHA**

**Mecistocephalidae**

***Dicelophilus carniolensis* (C.L. Koch, 1847)**

Locality: Zalău (Zilah), 47.180°N, 23.056°E, churchyard, from beneath stones, 11.05.2015, Grabant A., Merkl O., Szöke V. (No.163)(1♂35 mm, 43lp).

Remarks: Daday (1889a, 1889b) and Matic (1972) have already mentioned the species from the county. Central European mountain species occurring mostly in forests, but also found in urban habitats (Ion 2009), like our specimen, too.

**Geophilidae**

***Clinopodes rodnaensis* (Verhoeff, 1938)**

Locality: Iaz (Krasznajáz), valley of the Iaz Stream, N47°05.219', E22°39.066', 380m, beech forest with stream, 30.09.2014, leg. Bálint Zs., Dányi L., Katona G., Murányi D. (No.105)(1♂30mm, 61lp).

Remarks: Endemic species of Romania (Dányi 2008). – New to the fauna of county Sălaj.

***Clinopodes verhoeffi* Bonato, Iorio & Minelli, 2011**

Localities: SE of Poarta Sălajului (Vaskapu), N47°04.452', E23°12.232', 320m, oak forest, 01.10.2014, leg. Bálint Zs., Dányi L., Katona G., Murányi D. (No.118)(1♂37mm, 61lp); Munţii Meseş (Meszes Mts), Poic, 46.980°N, 22.925°E, hornbeam-oak forest, sifting, 12.05.2015, Podlussány A. (No.185)(1♂38mm, 57lp).

Remarks: Mentioned already by Matic(1972) (as „*Clinopodes porosus* Verhoeff, 1934”) from the county. Turano-European species.

***Geophilus flavus* (De Geer, 1778)**

Localities: Treznea (Ördögkút), main valley of the Treznea Stream, N47°06.603', E23°03.866', 377m, beech forest and pasture, 29.09.2014, leg. Bálint Zs., Dányi L., Katona G., Murányi D. (No.99)(1♀30mm, 51lp); Tusa (Tuszatelke), Ponor, Izvoarele Barcăului, N47°01.219', E22°44.925', 752m, edge of beech forest and pasture with spring and stream, 02.10.2014, leg. Bálint Zs., Dányi L., Katona G., Murányi D. (No.125)(1♂28mm, 49lp).

Remarks: Sibero-European species with a wide ecological spectrum. – New to the fauna of county Sălaj.

**Dignathodontidae**

***Henia illyrica* (Meinert, 1870)**

Locality: Treznea (Ördögkút), main valley of the Treznea Stream, N47°06.603', E23°03.866', 377m, beech forest and pasture, leaf litter sample, 29.09.2014, leg. Bálint Zs., Dányi L., Katona G., Murányi D. (No.99)(1♂35 mm, 75lp).

Remarks: South European species. – New to the fauna of county Sălaj.

**Linotaenidae**

***Strigamia acuminata* (Leach, 1815)**

Locality: E of Meseşeni de Jos (Magyarkecel), N47°06.354', E22°59.393', 317m, beech forest, 01.10.2014, leg. Bálint Zs., Dányi L., Katona G., Murányi D. (No.110)(1♀: 23mm, 41lp).

Remarks: Recorded already by Daday (1889a, 1889b) and Matic (1972) from the county. European woodland species (Dányi 2008, Koren 1986).

***Strigamia transsilvanica* (Verhoeff, 1928)**

Locality: Iaz (Krasznajáz), Mlastina de la Iaz, N47°6'38.7", E22°39'43.5", oak forest, pitfall trap, 24.04-22.05.2014, leg. Kutasi Cs. (No.16)(1♀).

Remarks: Central- and South European woodland species (Dányi 2008, Koren 1986). – New to the fauna of county Sălaj.

**SPECIES WITH QUESTIONABLE RECORDS FROM THE COUNTY:**

The presence of the following species reported only by Daday (1889a, 1889b) must be confirmed by new collectings, because Daday's identifications are not reliable (Loksa 1947, and orig. observation):

– *Lithobius aulacopus* Latzel, 1880: see above under *L. tenebrosus*.

– *Lithobius melanops* Newport, 1845: see above under *L. tenebrosus*.

– *Geophilus arenarius* Meinert, 1870: Matic (1972) suspected explicitly that Daday's (1889a, 1889b) record from Romania should actually be referred to *Geophilus carpophagus* Leach, 1815, while according to Bonato & Minelli (2011: 45), it is based on another species, possibly not in the *carpophagus* species-complex, more probably *Geophilus electricus* (Linnaeus, 1758).

– *Lithobius pusillus* Latzel, 1880: Although the specimen which Daday's data is based on is stored in the HNHM, it is in such a poor condition, that its identity can not be revised.

– *Lithobius aeruginosus* L. Koch, 1862.

– *Lithobius lapidicola* Meinert, 1872.

**DISCUSSION:**

Five species reported earlier have not been found again in our study: *Cryptops croaticus* Verhoeff, 1931 (Matic 1972), *Strigamia crassipes* (C.L. Koch, 1835) (Matic 1972), *Lithobius biunguiculatus* Loksa, 1947 (Matic 1966), *Lithobius piceus* L. Koch, 1862 (Loksa 1955, Matic 1966) and *Lithobius tenebrosus* Meinert, 1872 (reported by Loksa 1955, revised here). This, and also the fact that we have collected several species only in one-two specimens, indicate that further efforts are still needed to uncover the real diversity of centipedes in the region.

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