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DATA CONCERNING THE SPIDER DIVERSITY (ARACHNIDA: ARANEAE) FROM THE CLOŞANI KARSTIC AREA (OLTENIA, ROMANIA), WITH SPECIAL REFERENCE TO THE SUPERFICIAL SUBTERRANEAN ENVIRONMENT

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Abstract. The authors present data about spider species collected from the Cloşani karstic area. 27 species were identified from the material sampled from the edaphic and subterranean environments (caves and superficial subterranean environment).

Résumé. Les auteurs présentent des données concernant les 27 espèces des Araneae collectées dans la zone karstique de Cloşani (Olténie, Roumanie) dans les environments édaphiques et souterrains (grottes et milieu souterrain superficiel).

Key words: Araneae, Cloşani karstic area, Oltenia, Romania.

The Cloşani karstic zone is a part of the karstic phenomena from the upper Motru Mare basin, developed at North of Baia de Aramă, in the Northern area of the Mehedinţi mountains, demarcated by the Motru Mare Valley and Brebina Valley. The limestones have a Jurassic-Cretaceous age and are a continuation of the Southern and Central limestones from Mehedinţi Mountains. They made a band of 15 km long and 1 – 4 km wide. This area have three other subzones: the karstic zone of Motru Sec Valley, the karstic zone of Piatra Mare a Cloşanilor and the karstic zone of Cornetul Satului (Cornetul Muşetoaia) (Bleahu et al., 1976).

The geographic locality and the diversity of the karstic phenomena from Oltenia drew the researchers' attention for a long time. From the papers on the fauna of this area we mention: Decou, Decou & Bleahu (1967), Dumitrescu (1979), Dumitrescu & Georgescu (1980), Georgescu (1978), Motaş, Decou & Burghele (1967). A first note on the superficial subterranean environment (the French term: "*milieu souterrain superficiel*" - MSS) from Romania was Juberthie's et al. paper (1981). Our paper represents a contribution to the knowledge of the Araneae fauna diversity from the karstic Cloşani area. It contains the first data on the Araneae species from the superficial subterranean environment.

MATERIAL AND METHODS

Between October 1999 and December 2002, the authors collected spiders from the Cloşani karstic region, from the edaphic and the subterranean habitats (superficial subterranean environment - SSE and caves).

The edaphic species have been sampled in a qualitative manner: directly with tweezers by turning stones, logs, under tree-bark; by sifting using a Winkler sieve and by a Tullgren apparatus for the soil samples.

The cave fauna was collected by tweezers.

For the superficial subterranean environments (SSE) Barber traps were used with olfactory attractant placed in two artificial microcaves and at the bottom of 7 drillings (with depths of 0.4 – 0.7 m). The traps have been covered with the initial layer of stones and detritus after placement.

First microcave (MCV1) is on the left side of the Motru Mare River, upstream Cloşani village, with a Western exposition, at the basis of a limestone wall with fissures and it is 0.8 m long.

The second microcave (MCV2) is on the right side of the Motru Mare River, upstream Cloşani village, with an Eastern exposition, at the basis of a denudated colluvium in a sunny place and it is 2 m long.

The 3 locations of the drillings are (Fig. 1):

- *Station 1 - Steiul Roşu* - placed on the left side of the Motru Mare Valley at 5 km upstream Cloşani village, with a South-Eastern exposition. The area is covered by a *Fagus sylvatica* forest mixed with *Ulmus glabra, Juglans regia, Crataegus monogyna.* The substratum is represented by limestones. The drillings were dug in a forested colluvium (with the exception of S3, dug in a sunny place, in a denudated colluvium). The drillings from this station are: S1 (- 0.50 m deep) at a 10 m relative altitude, S2 (- 0.70 m) at a 15 m relative altitude, S3 (- 0.50 m) at a 13 m relative altitude, S7 (- 0.40 m) at a 15 m relative altitude.
- *Station 2 – Cornetul Muşetoaia* - on the right side of the Motru Mare Valley, upstream Cloşani village, with an Eastern exposition. The station is placed at the basis of the limestone walls, where there is a *Fagus sylvatica* forest. The substratum is represented by limestones. In this area 2 drillings were dug: S4 (- 0.70 m deep) at a 20 m relative altitude, placed at aprox. 10 m from the edge of a denudated colluvium, in a forested zone; S5 (- 0.50 m) at a 20 m relative altitude, placed at the edge of the same denudated colluvium, in a sunny place.
- *Station 3 – Târnicioara Valley (Izvorele Valley)* – placed on the left side of Târnicioara Brook, downstream Măgura Saddle, with a Western exposition. The area is covered by a *Fagus sylvatica* forest mixed with *Ulmus glabra.* The substratum is represented by crystalline schists. Here S6 (- 0.40 m deep) was dug at the edge of the path from Cloşani to Motru Sec villages, aprox. 10 m relative altitude, in a forested area, with the soil covered by a 15 cm layer of leaf-litter.

Besides these drillings, the material was collected from some edaphic locations situated on Motru Mare, Motru Sec, Târnicioara Valley, Ogaşul Peşterii and from the caves: Peştera Cloşani, Peştera nr. 1 de la Cloşani, Peştera CSER, Peştera Lazului and Peştera de la Râpa Vânătă.

RESULTS AND DISCUSSIONS

The temperature and relative humidity values recorded on 9th of Novembre 2001 in the collecting sites are shown in the table 1.

Fig. 1 – The superior basin of Motru Mare River (after Bleahu et al., 1976) with the positions of the drillings in the superficial subterranean environment and the surrounding area of Cloşani village.

Table 1

The values of the abiotic factors for the drillings dug in the Cloşani karstic area: S1 – S7 – drillings in the SSE; MCV1 and MCV2 – artificial cavities; CK – covered karst; NK – denudated karst.

Soundings / Value of the abiotic factors	St. 1 - Steiul Roşu					St. 2 - Cornetul Muşetoaia			St. 3 - Valea Tărnicioara
	S1 (-0.5) CK	S2 (-0.7) CK	S3 (-0.5) NK	S7 (-0.4) CK	MCV1 (-3) CK	S4 (-0.7) CK	S5 (-0.5) NK	MCV2 (-1) NK	S6 (-0.4) CK
Temperature (°C)	11.3	10.7	12	12	11	10.3	11	9.8	13.8
Relative humidity (%)	74.5	79.5	71.3	73.3	75.4	81.2	76.3	79.2	78.8

From the collected material 27 Araneae species were identified, presented in the table 2. This list, although is not final, offers some new faunistic data for the studied area but also for the researched group.

Table 2

The Araneae species collected from the Cloşani karstic area and their distribution in the three investigated habitats

Taxa	Distribution	Edaphic	SSE	Caves	Observations
Fam. Dysderidae *Dysdera crocata* C. L. Koch, 1838	Cosmopolite		X		
Dysdera sp.		X	X		
Fam. Nesticidae *Nesticus cellulanus* (Clark, 1757)	Holarctic			X	
Nesticus ionescui Dumitrescu,1979	End. Romania (Vâlcan and Mehedinţi Mts.)			X	
Fam. Theridiidae *Dipoena inornata* (O. P. Cambridge, 1861)	European			X	New to the area
Fam. Linyphiidae *Centromerus dacicus* Dumitrescu & Georgescu, 1980	End. Romania (caves from Oltenia)			X	
Diplostyla concolor (Wide, 1834)	Holarctic	X	X		New to the area
Leptyphantes leprosus (Ohlert, 1865)	Holarctic		X	X	
Microlinyphia sp.			X		
Micronеta viaria (Blackwall, 1841)	Holarctic	X			
Pelecopsis elongata (Wider, 1834)	Europe, Russia	X			
Porrhomma convexum (Westring, 1851)	Palaearctic			X	
Tenuiphantes mengei (Kulczynski, 1887)	Palaearctic			X	
Linyphiidae juv.			X		
Fam. Tethragnatidae *Meta menardi* (Latreille, 1804)	Europe and Asia to Koreea			X	
Metellina merianae (Scopoli, 1763)	Europe to Greece	X		X	
Fam. Lycosidae *Pardosa lugubris* (Walckenaer, 1802)	Palaearctic	X	X		New to the area
Pardosa nigriceps (Thorell, 1856)	Europe		X		New to the area
Lycosidae juv.			X	X	

Fam. Agelenidae *Tegenaria silvestris* L. Koch, 1872	Europe, Russia		X		
Agelenidae juv.		X		X	
Fam. Dictynidae *Lathys* sp.			X		
Dictynidae juv.		X	X		
Fam. Amaurobiidae *Amaurobius pallidus* L. Koch, 1868	SE Europe to Greece		X		New to the area
Fam. Clubionidae *Clubiona frutetorum* L. Koch, 1867	Europe, Russia		X		New to the area
Clubiona neglecta O. P. Cambridge, 1862	Palaearctic		X		New to the area
Clubionidae juv.			X		
Fam. Gnaphosidae *Drassodes hypocrita* (Simon, 1878)	Europe, Russia		X		New to the area
Haplodrassus signifer (C. L. Koch, 1839)	Holarctic		X		
Zelotes apricorum (L. Koch, 1876)	From Europe to Kazakstan		X		
Gnaphosidae juv.		X	X		
Fam. Zoridae *Zora spinimana* (Sundewall, 1833)	Palaearctic	X			
Fam. Thomisidae *Ozyptila blackwalli* Simon, 1875	Palaearctic	X	X		New to the area
Ozyptila sp.		X			
Fam. Salticidae *Euophrys frontalis* (Walchenaer, 1802)	Palaearctic		X		New to the area
Marpissa pomatia (Walckenaer, 1802)	Palaearctic	X			New to the area

Thus, 10 species are found in the Cloşani area for the first time. *Dypoena inornata, Drassodes hypocrita* were known until present only from the Northern part of Moldova and are considered rare species (Fuhn & Oltean, 1970). Their identification in the Cloşani area extends their known range in Romania, even it seems to be discontinuous. *Pardosa lugubris* was anteriorly found in Northern Oltenia in the Tismana Valley (Fuhn & Niculescu-Burlacu, 1971). *Pardosa nigriceps* (Fig. 2) is quoted from Sibiu (Fuhn & Niculescu-Burlacu, 1971) and Piatra Craiului Massif (Bârsa Mare Valley) (Sterghiu & Dobre, 2003).

The *Amaurobius pallidus* species (Fig. 3) was collected before from Dobrogea (Peştera Liliecilor de la Gura Dobrogei, Casian, Peştera de la Casian, Munţii Măcin at Greci), Brăneşti Forest (Cernica), Podu Olt and Porţile de Fier. *Clubiona frutetorum* and *Clubiona neglecta* are quoted from many localities from Romania (Sterghiu, 1985), but now they are recorded at Cloşani for the first time.

The *Ozyptila blackwalli, Euophrys frontalis* (Fig. 4) and *Marpissa pomatia* (Fig. 5) species were recorded only from a few localities from Romania. Their presence in Cloşani extends their range in Romania, known as yet.

Among the identified Araneae species, two are endemic for Romania: *Nesticus ionescui* (found only in the Vâlcan and Mehedinţi Mountains) and *Centromerus dacicus* (found only in the caves from Oltenia).

About the distribution of the Araneae species in the investigated habitats (Tab. 2) we observed that only 8 species were identified from the edaphic

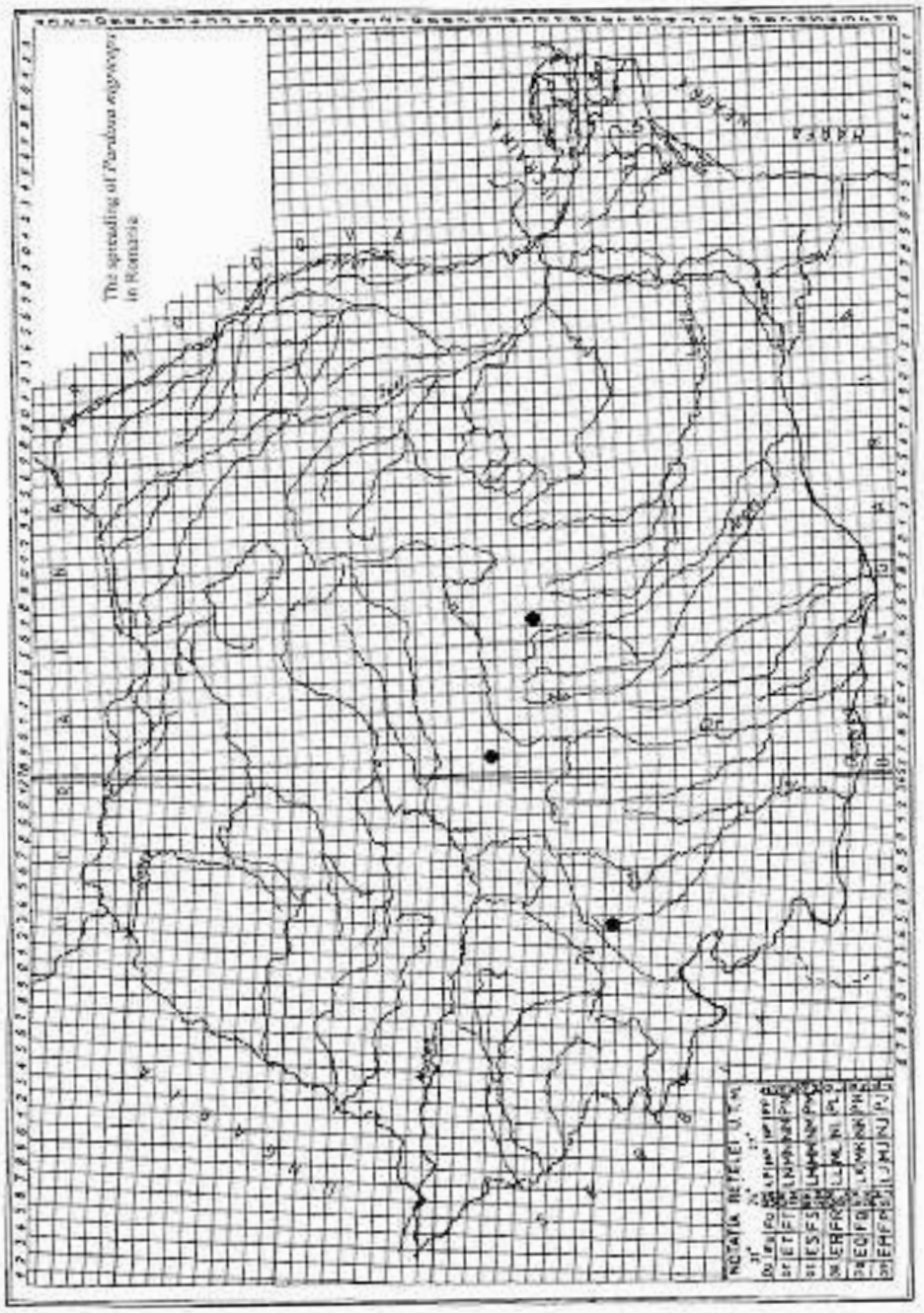

Fig. 2 – The distribution of *Pardosa nigriceps* in Romania.

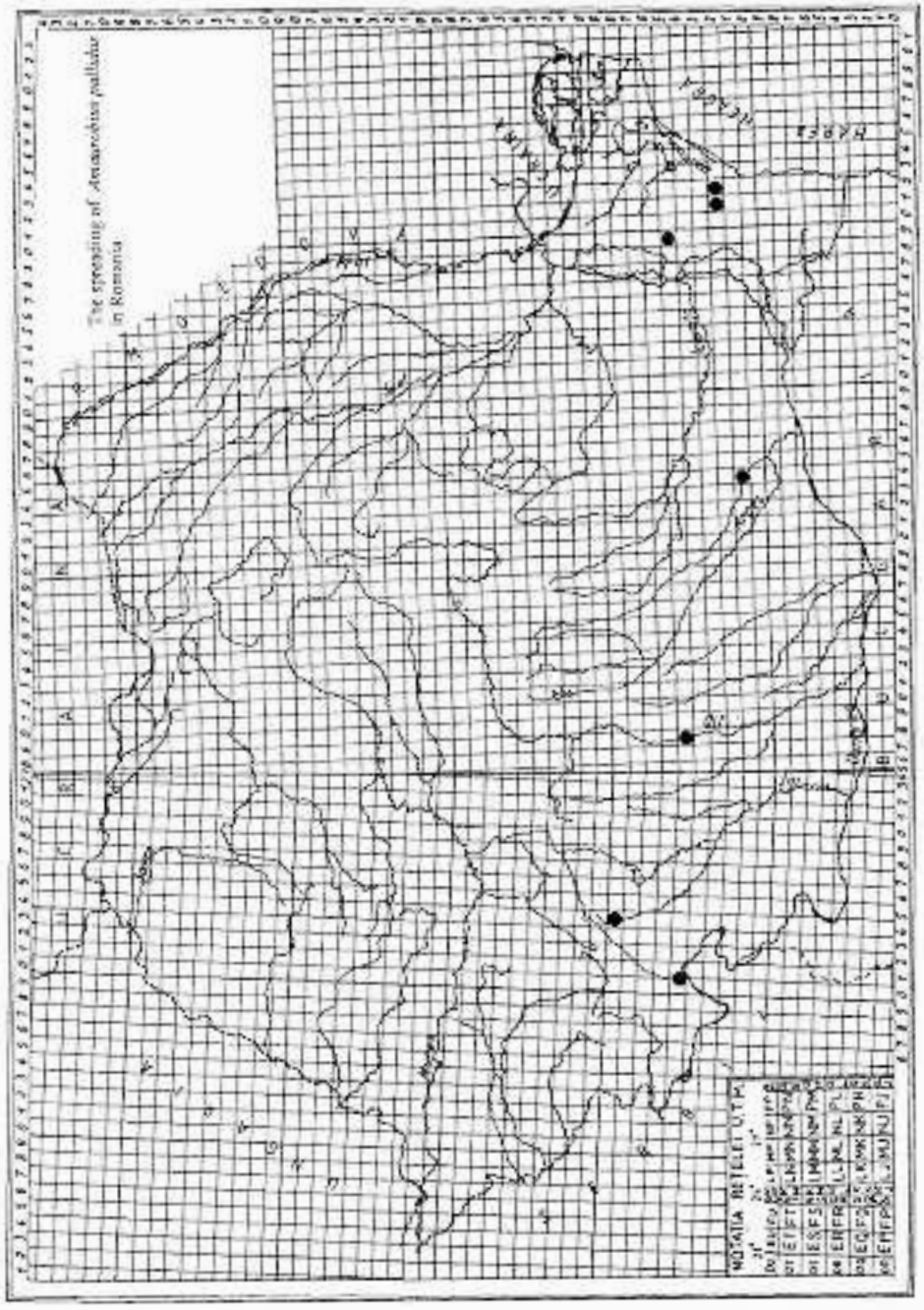

Fig. 3 – The distribution of *Anaxirotus pallidus* in Romania.

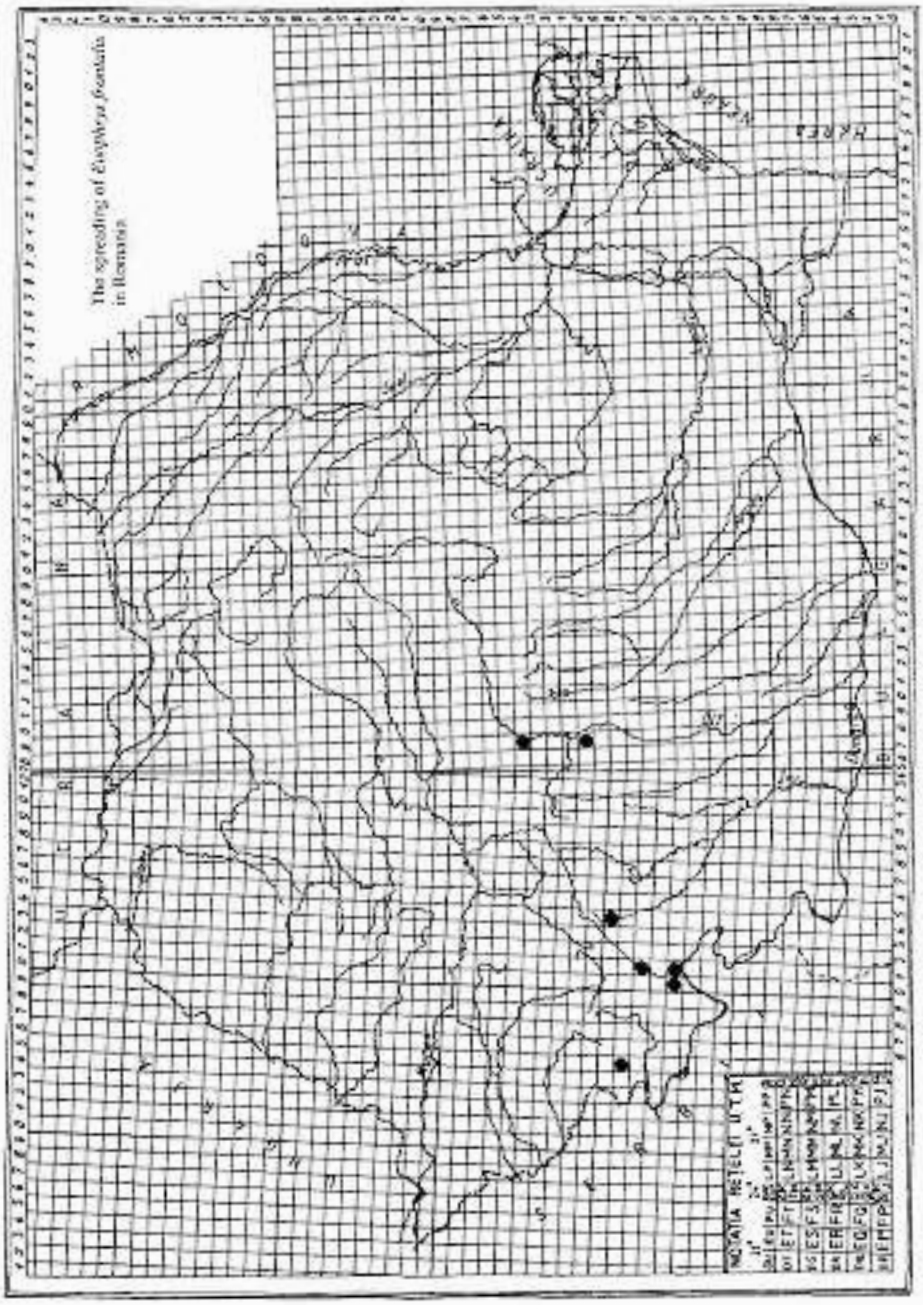

Fig. 4 – The distribution of *Euophrys frontalis* in Romania.

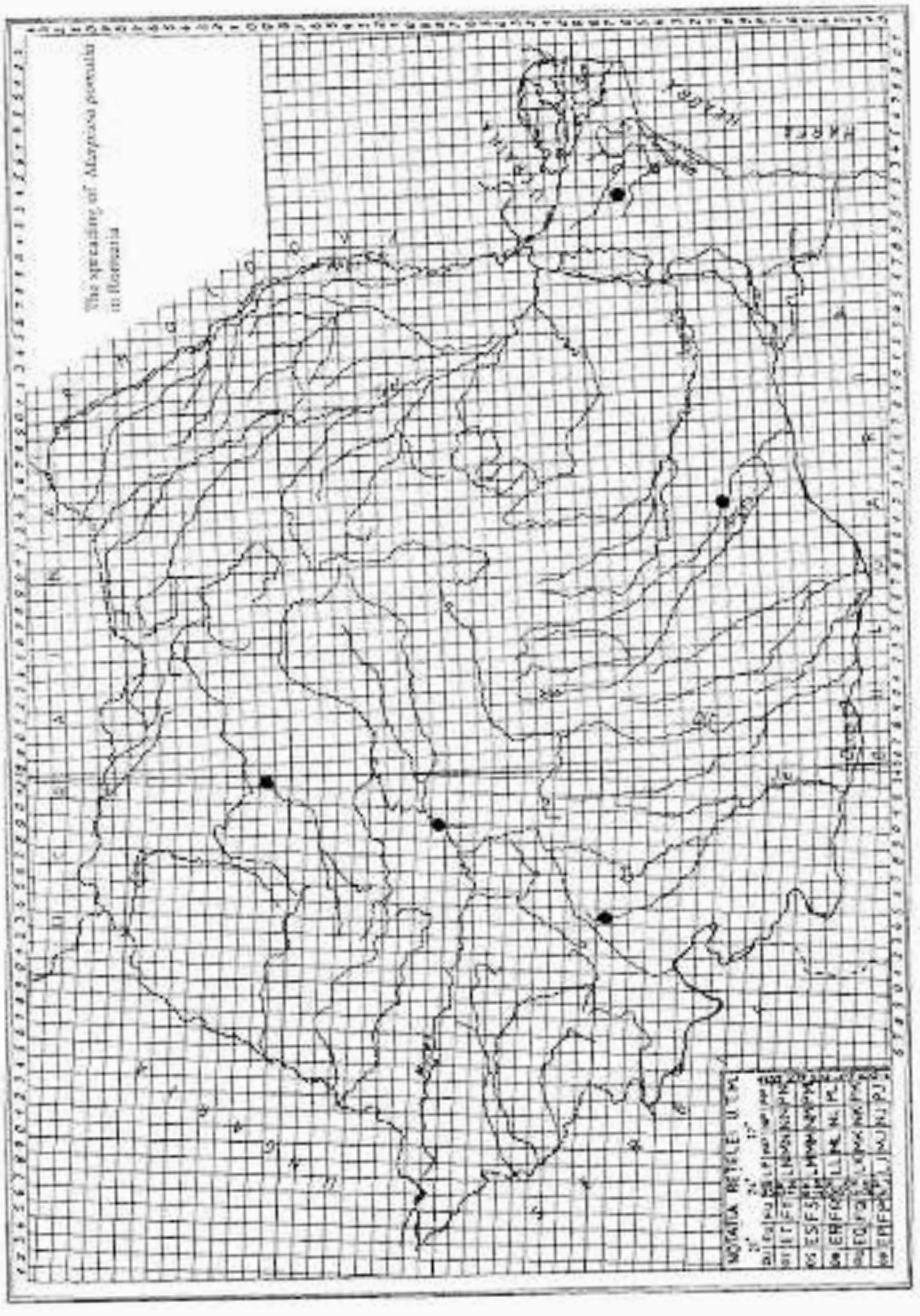

Fig. 5 – The distribution of *Marpissa pomatia* in Romania.

environments. From them, *Dysdera crocata, Diplostyla concolor* and *Pardosa lugubris* were also collected from the superficial subterranean environments, especially at the -0.5 m deep. Other 2 species, *Diplostyla concolor* and *Zora spinimana*, were collected at the -0.7 m deep.

From the five caves studied from the Cloşani area 9 Araneae species were collected, generally species considerated troglophilous, excepting *Centromerus dacicus* and *Nesticus ionescui* that are troglobiontic species.

From the zoogeographic point of view, we remarked that from the 27 Araneae species identified from the Cloşani karstic area, 10 species had an European areal (37%), 9 species belonged to the Palaearctic chorotype (33.33%), and 5 species belong to the Holarctic chorotype (18.52%).

Further studies are necessary to finalized the Araneae list from the Cloşani karstic area, but also to complete the data on their ecology and distribution in the studied environments.

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DATE PRIVIND DIVERSITATEA PĂIANJENILOR (ARACHNIDA: ARANEAE) DIN ZONA CARSTICĂ CLOŞANI (OLTENIA, ROMÂNIA), CU REFERIRE SPECIALĂ ASUPRA MEDIULUI SUBTERAN SUPERFICIAL

REZUMAT

Autorii prezintă date despre speciile de păiajeni colectate din zona carstică Cloşani. Din materialul colectat din mediile edafic şi subteran (peşteri şi mediu subteran superficial) au fost identificate 27 de specii.

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