NOTES ON THE LANDSNAIL (GASTROPODA) AND HARVESTMAN (OPILIONES) FAUNA OF BIHOR AND VLĂDEASA MOUNTAINS, ROMANIA

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Summary. During two expeditions in 2004 and 2007 in the mountains of Western Romania, were collected 43 landsnail and 13 harvestman species. Most important ones among them are the snail *Orcula jetschini* (M. von Kimakowicz, 1883) and the harvestman *Opilio dinaricus* Šilhavý, 1938. Some further specimens have an unclear taxonomic position and should be revised in the future. These are *Nemastoma* cf. *transsylvanicum* Gruber & Martens, 1968, *Gyas titanus* Simon, 1879, *Drobatia moetica* Wenz, 1926 and *Ruthenica gallinae* (Bielz, 1861). A list of the harvestman species known from the region is added.

Rezumat. Pe durata celor 2 expediţii din 2004 şi 2007 în Carpaţii Occidentali din România, s-au colectat 43 de specii de melci şi 13 specii de păianjeni. Cele mai importante specii dintre toate au fost *Orcula jetschini* (M. von Kimakowicz, 1883) şi *Opilio dinaricus* Šilhavý, 1938. Unele specimene suplimentare au o poziţie neclară din punct de vedere taxonomic şi ar trebui revizuite în viitor. Acestea sunt *Nemastoma cf. transsylvanicum* Gruber & Martens, 1968, *Gyas titanus* Simon, 1879, *Drobatia moetica* Wenz, 1926 şi *Ruthenica gallinae* (Bielz, 1861). O listă a speciilor de păianjeni cunoscuţi în regiunea studiată a fost adăugată prezentului articol.

Introduction

The Apuseni Mts. is the western part of the Carpathian Mts. in Romania. It comprises several smaller and bigger hills and mountains. Two of them, Bihor and Vlădeasa Mts. consists mainly of limestone with very diverse karst regions. In 2004 and 2007 the authors of present paper collected many specimens of harvestmen and landsnails on this karst and the adjacent areas (Fig. 1., Table 1.). These two groups of invertebrates appeared in the same habitats in a large number. They often could be found under and on decaying tree trunks in forests, and on calcareous rock surfaces as well.

The area had not been investigated intensively, therefore only sparse relevant data are available in the literature. Data on harvestman fauna were published by Avram (1971, 1978), Avram & Dumitrescu (1969), Martens (1978) and Weiss (1996) (Table 2.). There is only one malacological publication dealing directly with the area (Bába & Sárkány-Kiss, 1999). As concerning the adjacent regions, they reported 26 species from the gorges of the Someşul Cald. Related data can also be found in monographs of Grossu (1981, 1983, 1987) and Soós (1943), and in some further articles (Domokos & Váncsa, 2005; Váncsa, 2006; Varga, 1983).

Satu Mare – Studii şi Comunicări Seria Ştiinţele Naturii
Vol X-XI (2009-2010) pp: 91-111.

Materials and methods

Snail specimens were collected by manual singling and soil sampling at Valea Boghii. Harvestman were collected by hand (by day and night as well) and with soil shifter. Snail shells were stored in dry glass phials, and some specimens of snails, requiring anatomical dissection in determination (e.g. *Aegopinella* spp.), were stored in 70% ethanol. The harvestmen were also stored in alcohol. The gastropod specimens are placed in Páll-Gergely's own collection, the harvestmen in the Hungarian Natural History Museum.

Where it was possible we provided the GPS co-ordinates of the localities determined by Garmin Geko 301 (Table 1.).

In the identification of land snails we mainly used comparative collections. Regarding the nomenclature of landsnails we considered various articles because of lack of a comprehensive work. We applied a simple taxonomic system (e. g. Zonitidae s. l. in contrast to several zonitid families introduced recently). In most cases we cited the distribution of landsnail species according to Kerney et al. (1983).

The harvestmen were identified using Martens' monograph (1978) and respecting Crawford's catalogue (1992). The zoogeographical distribution of the species collected was considered according to Martens (1978).

Results

The occurrences of the species

Every collecting locality can be found in Romania. In case of landsnails the numbers indicates the number of the collected individuals. In case of harvestmen we signed if male (♂), female (♀) or juvenile (juv.) the specimen was.

GASTROPODA

Aciculidae

Platyla banatica (Rossmässler, 1842)

Data: 1: Bihor county, Bihor Mts., Padiş plateau, NW of Cabana Padiş, beech forest, 1300 m, 7.VIII.2007 (Lengyel & Páll-Gergely leg.); 7: Bihor county, Bihor Mts., Valea Boghii, ca. 580 m, 9.VIII.2007 (Lengyel & Páll-Gergely leg.); 2: Alba county, Bihor Mts., Valea Ursilor, South-facing cliffs, 1200 m, 10.VIII.2007 (Lengyel & Páll-Gergely leg.).

Distribution: Southeast-European.

Platyla microspira (Pini, 1884)

Data: 7: Bihor county, Bihor Mts., Valea Boghii, ca. 580 m, 9.VIII.2007 (Lengyel & Páll-Gergely leg.).

Distribution: Transylvanian.

Platyla polita (Hartmann, 1840)

Data: 1: Alba county, Bihor Mts., Valea Ursilor, South-facing cliffs, 1200 m, 10.VIII.2007 (Lengyel & Páll-Gergely leg.).

Distribution: Alpine, European.

Ellobiidae

Carychium tridentatum (Risso, 1826)

Data: 34: Bihor county, Bihor Mts., Valea Boghii, ca. 580 m, 9.VIII.2007 (Lengyel & Páll-Gergely leg.).

Distribution: European

Cochlicopidae

Cochlicopa lubricella (Porro, 1838)

Data: 1: Bihor county, Bihor Mts., Padiş plateau, NW of Cabana Padiş, beech forest, 1300 m, 7.VIII.2007 (Lengyel & Páll-Gergely leg.).

Distribution: Holarctic.

Pyramidulidae

Pyramidula pusilla (Vallot, 1801)

Data: 6: Bihor county, Bihor Mts., Bazarul (Cetăţile) Someşului Cald, Cetăţile Rădesei, ca. 1250 m, 8.VIII.2007 (Lengyel &

Páll-Gergely leg.); 23: Bihor county, Bihor Mts., Valea Boghii, ca. 580 m, 9.VIII.2007 (Lengyel & Páll-Gergely leg.); 16: Alba county, Bihor Mts., Valea Ursilor, South-facing cliffs, 1200 m, 10.VIII.2007 (Lengyel & Páll-Gergely leg.).

Distribution: European.

Notes: In addition to 22 right-coiled specimens, one left-coiled individual was collected in the Valea Boghii. Páll-Gergely (2009) gives notes about this phenomenon of reverse-coiled individuals in other gastropod species in Romania.

Vertiginidae

Columella edentula (Draparnaud, 1805)

Data: 2: Bihor county, Bihor Mts., Valea Boghii, ca. 580 m, 9.VIII.2007 (Lengyel & Páll-Gergely leg.).

Distribution: Holarctic.

Truncatellina cylindrica (Férussac, 1807)

Data: 4: Bihor county, Bihor Mts., Valea Boghii, ca. 580 m, 9.VIII.2007 (Lengyel & Páll-Gergely leg.); 4: Alba county, Bihor Mts., Valea Ursilor, South-facing cliffs, 1200 m, 10.VIII.2007 (Lengyel & Páll-Gergely leg.).

Distribution: Mediterranean, South-Alpine.

Vertigo alpestris Alder, 1838

Data: 1: Cluj county, Vlădeasa Mts., Răchiţele, Valea Seacă, 1150 m, 6.VIII.2007 (Lengyel & Páll-Gergely leg.); 4: Bihor county, Bihor Mts., Valea Boghii, ca. 580 m, 9.VIII.2007 (Lengyel & Páll-Gergely leg.); 1: Alba county, Bihor Mts., Valea Ursilor, South-facing cliffs, 1200 m, 10.VIII.2007 (Lengyel & Páll-Gergely leg.).

Distribution: North-Alpine.

Vertigo pusilla O. F. Müller, 1774

Data: 5: Bihor county, Bihor Mts., Valea Boghii, ca. 580 m, 9.VIII.2007 (Lengyel & Páll-Gergely leg.).

Distribution: European.

Orculidae

Orcula jetschini (M. von Kimakowicz, 1883)

Data: 2: Bihor county, Bihor Mts., Valea Boghii, ca. 580 m, 9.VIII.2007 (Lengyel & Páll-Gergely leg.).

Distribution: Transylvanian, Banatic.

Sphyradium doliolum (Bruguière, 1792)

Data: 2: Cluj county, Vlădeasa Mts., Răchiţele, Pietrele Albe, 1360 m, 7.VIII.2007 (Lengyel & Páll-Gergely leg.).

Distribution: South and Southeast-European.

Chondrinidae

Granaria frumentum (Draparnaud, 1801)

Data: 3: Cluj county, Vlădeasa Mts., Răchiţele, Pietrele Albe, 1360 m, 7.VIII.2007 (Lengyel & Páll-Gergely leg.); 4: Bihor county, Bihor Mts., Valea Boghii, ca. 580 m, 9.VIII.2007 (Lengyel & Páll-Gergely leg.).

Distribution: North-Alpine and Central-European.

Chondrina arcadica clienta (Westerlund, 1883)

Data: 12: Cluj county, Vlădeasa Mts., Răchiţele, Pietrele Albe, 1360 m, 7.VIII.2007 (Lengyel & Páll-Gergely leg.); 1: Bihor county, Bihor Mts., Bazarul (Cetăţile) Someşului Cald, Cetăţile Rădesei, ca. 1250 m, 8.VIII.2007 (Lengyel & Páll-Gergely leg.); 5: Bihor county, Bihor Mts., Valea Boghii, ca. 580 m, 9.VIII.2007 (Lengyel & Páll-Gergely leg.); 18: Alba county, Bihor Mts., Valea Ursilor, South-facing cliffs, 1200 m, 10.VIII.2007 (Lengyel & Páll-Gergely leg.).

Distribution: East-Alpine and Southeast-European.

Valloniidae

Vallonia costata (O. F. Müller, 1774)

Data: 2: Cluj county, Vlădeasa Mts., Răchiţele, Valea Seacă, 1150 m, 6.VIII.2007 (Lengyel & Páll-Gergely leg.).

Distribution: Holarctic.

Enidae

Ena montana (Draparnaud, 1801)

Data: 1: Cluj county, Răchiţele, Cascadă Răchiţele, ca. 1000 m, 6.VIII.2007 (Lengyel & Páll-Gergely leg.); 3: Cluj county, Vlădeasa Mts., Răchiţele, Valea Seacă, 1150 m, 6.VIII.2007 (Lengyel & Páll-Gergely leg.); 1: Bihor county, Bihor Mts, Vârf Boghii, beech forest, ca. 1340 m, 8.VIII.2007 (Lengyel & Páll-Gergely leg.).

Distribution: Central-European-Alpine-Carpathian.

Endodontidae

Punctum pygmaeum (Draparnaud, 1801)

Data: 8: Bihor county, Bihor Mts., Valea Boghii, ca. 580 m, 9.VIII.2007 (Lengyel & Páll-Gergely leg.).

Distribution: Holarctic.

Zonitidae sensu lato

Vitrea diaphana (Studer, 1820)

Data: 5: Bihor county, Bihor Mts., Valea Boghii, ca. 580 m, 9.VIII.2007 (Lengyel & Páll-Gergely leg.).

Distribution: Carpathian-Alpine, North-Balcanic.

Vitrea cf. *jetschini* (M. von Kimakowicz, 1890)

Data: 1: Bihor county, Bihor Mts., Bazarul (Cetăţile) Someşului Cald, Cetăţile Rădesei, ca. 1250 m, 8.VIII.2007 (Lengyel & Páll-Gergely leg.); 3: Bihor county, Bihor Mts., Valea Boghii, ca. 580 m, 9.VIII.2007 (Lengyel & Páll-Gergely leg.).

Distribution: Transylvanian, Banatic.

Vitrea maritae (M. von Kimakowicz, 1890)

Data: 24: Bihor county, Bihor Mts., Valea Boghii, ca. 580 m, 9.VIII.2007 (Lengyel & Páll-Gergely leg.); 1: Alba county, Bihor Mts., Valea Ursilor, South-facing cliffs, 1200 m, 10.VIII.2007 (Lengyel & Páll-Gergely leg.).

Distribution: South-Carpathian

Vitrea transsylvanica (Clessin, 1877)

Data: 1: Alba county, Bihor Mts., Valea Ursilor, South-facing cliffs, 1200 m, 10.VIII.2007 (Lengyel & Páll-Gergely leg.).

Distribution: Carpathian.

Aegopinella epipedostoma (Fagot, 1879)

Data: 1: Bihor county, Bihor Mts., Padiş plateau, NW of Cabana Padiş, beech forest, 1300 m, 7.VIII.2007 (Lengyel & Páll-Gergely leg.); 3: Bihor county, Bihor Mts., Bazarul (Cetăţile) Someşului Cald, Cetăţile Rădesei, ca. 1250 m, 8.VIII.2007 (Lengyel & Páll-Gergely leg.); 2: Bihor county, Bihor Mts, Vârf Boghii, beech forest, ca. 1340 m, 8.VIII.2007 (Lengyel & Páll-Gergely leg.); 3: Bihor county, Bihor Mts., Valea Boghii, ca. 580 m, 9.VIII.2007 (Lengyel & Páll-Gergely leg.); 3:; 1: Alba county, Bihor Mts., Valea Ursilor, South-facing cliffs, 1200 m, 10.VIII.2007 (Lengyel & Páll-Gergely leg.).; 1: Alba county, Bihor Mts., Valea Ursilor, North-facing cliffs, 1200 m, 10.VIII.2007 (Lengyel & Páll-Gergely leg.).

Distribution: European.

Notes: Numerous publications (e.g. Váncsa 2006) record *Aegopinella nitens* (Michaud, 1831) from different regions of Romania. The two species can be distinguished only using anatomical dissection (Fig. 2). During our investigation we didn't find *Ae. nitens* therefore we think that it does not live in the study area.

Aegopinella pura (Alder, 1830)

Data: 1: Cluj county, Vlădeasa Mts., Răchiţele, Valea Seacă, 1150 m, 6.VIII.2007 (Lengyel & Páll-Gergely leg.); 2: Bihor county, Bihor Mts., Padiş plateau, NW of Cabana Padiş, beech forest, 1300 m, 7.VIII.2007 (Lengyel & Páll-Gergely leg.); 1: Bihor county, Bihor Mts., Valea Boghii, ca.

580 m, 9.VIII.2007 (Lengyel & Páll-Gergely leg.).

Distribution: European.

Morlina glabra striaria (Westerlund, 1881)

Data: 2: Bihor county, Bihor Mts., Valea Boghii, ca. 580 m, 9.VIII.2007 (Lengyel & Páll-Gergely leg.).

Distribution: South- and Middle-European.

Gastrodontidae

Zonitoides nitidus (O. F. Müller, 1774)

Data: 2: Cluj county, Vlădeasa Mts., Răchiţele, Valea Seacă, 1150 m, 6.VIII.2007 (Lengyel & Páll-Gergely leg.).

Distribution: Holarctic.

Euconulidae

Euconulus fulvus (O. F. Müller, 1774)

Data: 1: Alba county, Bihor Mts., Peştera Caput, 1060 m, 10.VIII.2007 (Lengyel & Páll-Gergely leg.).

Distribution: Holarctic.

Clausiliidae

Cochlodina laminata (Montagu, 1803)

Data: 12: Cluj county, Vlădeasa Mts., Răchiţele, Valea Seacă, 1150 m, 6.VIII.2007 (Lengyel & Páll-Gergely leg.); 1: Cluj county, Vlădeasa Mts., Răchiţele, Pietrele Albe, 1360 m, 7.VIII.2007 (Lengyel & Páll-Gergely leg.); 5: Bihor county, Bihor Mts., Padiş plateau, NW of Cabana Padiş, beech forest, 1300 m, 7.VIII.2007 (Lengyel & Páll-Gergely leg.); 1: Bihor county, Bihor Mts., Bazarul (Cetăţile) Someşului Cald, Cetăţile Rădesei, ca. 1250 m, 8.VIII.2007 (Lengyel & Páll-Gergely leg.); 8: Bihor county, Bihor Mts, Vârf Boghii, beech forest, ca. 1340 m, 8.VIII.2007 (Lengyel & Páll-Gergely leg.); 5: Bihor county, Bihor Mts., Valea Boghii, ca. 580 m, 9.VIII.2007 (Lengyel & Páll-Gergely leg.); 1: Alba county, Bihor Mts., Peştera Caput, 1060 m, 10.VIII.2007 (Lengyel & Páll-Gergely leg.); 6: Alba county, Bihor Mts., Valea Ursilor, South-facing cliffs, 1200 m, 10.VIII.2007 (Lengyel & Páll-Gergely leg.); 1: Alba county, Bihor Mts., Valea Ursilor, North-facing cliffs, 1200 m, 10.VIII.2007 (Lengyel & Páll-Gergely leg.).

Distribution: European.

Cochlodina (*Paracochlodina*) *orthostoma* (Menke, 1828)

Data: 1: Cluj county, Vlădeasa Mts., Răchiţele, Valea Seacă, 1150 m, 6.VIII.2007 (Lengyel & Páll-Gergely leg.); 11: Bihor county, Bihor Mts, Vârf Boghii, beech forest, ca. 1340 m, 8.VIII.2007 (Lengyel & Páll-Gergely leg.); 21: Bihor county, Bihor Mts., Valea Boghii, ca. 580 m, 9.VIII.2007 (Lengyel & Páll-Gergely leg.).

Distribution: Middle- and East-European.

Ruthenica filograna (Rossmässler, 1836)

Data: 4: Cluj county, Vlădeasa Mts., Răchiţele, Pietrele Albe, 1360 m, 7.VIII.2007 (Lengyel & Páll-Gergely leg.); 20: Bihor county, Bihor Mts, Vârf Boghii, beech forest, ca. 1340 m, 8.VIII.2007 (Lengyel & Páll-Gergely leg.); 71: Bihor county, Bihor Mts., Valea Boghii, ca. 580 m, 9.VIII.2007 (Lengyel & Páll-Gergely leg.); 7: Alba county, Bihor Mts., Valea Ursilor, South-facing cliffs, 1200 m, 10.VIII.2007 (Lengyel & Páll-Gergely leg.); 2: Bihor county, Bihor Mts., Sighiştel, Peştera Alba, ca. 560 m, 8.VIII.2004 (*Lengyel leg.*).

Distribution: East-European.

Notes: This is a very variable species, as illustrated by specimens we collected in the same locality (Fig. 3 a - c). Bigger specimens of this species from the Apuşeni Mountains have often been cited as *Ruthenica gallinae* (Bielz, 1861) (e. g. Váncsa 2006). We believe that *R. gallinae* is an invalid species, and the big individuals fit in the variations of the *R. filograna*. A revision of *R. gallinae* is required.

Clausilia cruciata Studer, 1820

Data: 12: Cluj county, Vlădeasa Mts., Răchiţele, Valea Seacă, 1150 m, 6.VIII.2007 (Lengyel & Páll-Gergely leg.).

Distribution: Alpine and North-European.

Alinda biplicata (Montagu, 1803)

Data: 1: Bihor county, Bihor Mts., Padiş plateau, NW of Cabana Padiş, beech forest, 1300 m, 7.VIII.2007 (Lengyel & Páll-Gergely leg.); 1: Bihor county, Bihor Mts., Valea Boghii, ca. 580 m, 9.VIII.2007 (Lengyel & Páll-Gergely leg.).

Distribution: Middle European.

Notes: According to our unpublished data from other localities in Romania, this species is rare in Romania.

Pseudalinda stabilis (L. Pfeiffer, 1847)

Data: 1: Cluj county, Răchiţele, Cascadă Răchiţele, ca. 1000 m, 6.VIII.2007 (Lengyel & Páll-Gergely leg.); 3: Cluj county, Vlădeasa Mts., Răchiţele, Valea Seacă, 1150 m, 6.VIII.2007 (Lengyel & Páll-Gergely leg.); 3: Bihor county, Bihor Mts., Padiş plateau, NW of Cabana Padiş, beech forest, 1300 m, 7.VIII.2007 (Lengyel & Páll-Gergely leg.); 9: Bihor county, Bihor Mts., Bazarul (Cetăţile) Someşului Cald, Cetăţile Rădesei, ca. 1250 m, 8.VIII.2007 (Lengyel & Páll-Gergely leg.); 8: Bihor county, Bihor Mts, Vârf Boghii, beech forest, ca. 1340 m, 8.VIII.2007 (Lengyel & Páll-Gergely leg.); 9: Bihor county, Bihor Mts., Valea Boghii, ca. 580 m, 9.VIII.2007 (Lengyel & Páll-Gergely leg.); 1: Alba county, Bihor Mts., Peştera Caput, 1060 m, 10.VIII.2007 (Lengyel & Páll-Gergely leg.); 2: Alba county, Bihor Mts., Valea Ursilor, South-facing cliffs, 1200 m, 10.VIII.2007 (Lengyel & Páll-Gergely leg.).

Distribution: Carpathian.

Vestia elata (Rossmässler, 1836)

Data: 1: Cluj county, Vlădeasa Mts., Răchiţele, Valea Seacă, 1150 m, 6.VIII.2007 (Lengyel & Páll-Gergely leg.).

Distribution: Carpathian.

Bulgarica (*Strigilecula*) *vetusta* (Rossmässler, 1836)

Data: 18: Cluj county, Răchiţele, Cascadă Răchiţele, ca. 1000 m, 6.VIII.2007 (Lengyel & Páll-Gergely leg.); 7: Cluj county, Vlădeasa Mts., Răchiţele, Pietrele Albe, 1360 m, 7.VIII.2007 (Lengyel & Páll-Gergely leg.); 4: Bihor county, Bihor Mts., Padiş plateau, NW of Cabana Padiş, beech forest, 1300 m, 7.VIII.2007 (Lengyel & Páll-Gergely leg.); 38: Bihor county, Bihor Mts., Bazarul (Cetăţile) Someşului Cald, Cetăţile Rădesei, ca. 1250 m, 8.VIII.2007 (Lengyel & Páll-Gergely leg.); 55: Bihor county, Bihor Mts, Vârf Boghii, beech forest, ca. 1340 m, 8.VIII.2007 (Lengyel & Páll-Gergely leg.); 90: Bihor county, Bihor Mts., Valea Boghii, ca. 580 m, 9.VIII.2007 (Lengyel & Páll-Gergely leg.); 29: Alba county, Bihor Mts., Peştera Caput, 1060 m, 10.VIII.2007 (Lengyel & Páll-Gergely leg.); 29: Alba county, Bihor Mts., Valea Ursilor, South-facing cliffs, 1200 m, 10.VIII.2007 (Lengyel & Páll-Gergely leg.); 4: Alba county, Bihor Mts., Valea Ursilor, North-facing cliffs, 1200 m, 10.VIII.2007 (Lengyel & Páll-Gergely leg.); 1: Bihor county, Bihor Mts., Sighiştel, Peştera Alba, ca. 560 m, 8.VIII.2004 (*Lengyel leg.*).

Distribution: South-East-European.

Notes: In contrast with the relative rareness of this species in its distribution area, the populations in Munţii Apuseni are an exception, because it is among the most numerous ones in the region. Like *Ruthenica filograna*, this species is very variable, too (Fig. 4 a - c).

Hygromiidae

Monachoides vicinus (Rossmässler, 1842)

Data: 3: Cluj county, Vlădeasa Mts., Răchiţele, Valea Seacă, 1150 m, 6.VIII.2007 (Lengyel & Páll-Gergely leg.).

Distribution: Carpathian.

Petasina bielzi (A. Schmidt, 1860)

Data: 1: Cluj county, Vlădeasa Mts., Răchiţele, Valea Seacă, 1150 m, 6.VIII.2007 (Lengyel & Páll-Gergely leg.); 2: Bihor county, Bihor Mts., Valea Boghii, ca. 580 m, 9.VIII.2007 (Lengyel & Páll-Gergely leg.); 1: Alba county, Bihor Mts., Peştera Caput, 1060 m, 10.VIII.2007 (Lengyel & Páll-Gergely leg.); 1: Alba county, Bihor Mts., Valea Ursilor, South-facing cliffs, 1200 m, 10.VIII.2007 (Lengyel & Páll-Gergely leg.); 1: Alba county, Bihor Mts., Valea Ursilor, North-facing cliffs, 1200 m, 10.VIII.2007 (Lengyel & Páll-Gergely leg.).

Distribution: East-Carpathian.

Lozekia cf. *transsylvanica* (Westerlund, 1876)

Data: 13: Bihor county, Bihor Mts., Valea Boghii, ca. 580 m, 9.VIII.2007 (Lengyel & Páll-Gergely leg.).

Distribution: Carpathian.

Euomphalia strigella (Draparnaud, 1801)

Data: 2: Bihor county, Bihor Mts., Valea Boghii, ca. 580 m, 9.VIII.2007 (Lengyel & Páll-Gergely leg.).

Distribution: Middle-European.

Helicidae

Isognomostoma isognomostomos (Schröter, 1784)

Data: 2: Cluj county, Vlădeasa Mts., Răchiţele, Valea Seacă, 1150 m, 6.VIII.2007 (Lengyel & Páll-Gergely leg.); 1: Bihor county, Bihor Mts., Padiş plateau, NW of Cabana Padiş, beech forest, 1300 m, 7.VIII.2007 (Lengyel & Páll-Gergely leg.); 2: Bihor county, Bihor Mts., Bazarul (Cetăţile) Someşului Cald, Cetăţile Rădesei, ca. 1250 m, 8.VIII.2007 (Lengyel & Páll-Gergely leg.); 3: Bihor county, Bihor Mts, Vârf Boghii, beech forest, ca. 1340 m, 8.VIII.2007 (Lengyel & Páll-Gergely leg.); 6: Bihor county, Bihor Mts., Valea Boghii, ca. 580 m, 9.VIII.2007 (Lengyel & Páll-Gergely leg.); 3: Alba county, Bihor Mts., Peştera Caput, 1060 m, 10.VIII.2007 (Lengyel & Páll-Gergely leg.); 4: Alba county, Bihor Mts., Valea Ursilor, South-facing cliffs, 1200 m, 10.VIII.2007 (Lengyel & Páll-Gergely leg.); 1: Alba county, Bihor Mts., Valea Ursilor, North-facing cliffs, 1200 m, 10.VIII.2007 (Lengyel & Páll-Gergely leg.).

Distribution: Alpine and Carpathian.

Faustina faustina (Rossmässler, 1835)

Data: 20: Bihor county, Bihor Mts., Valea Boghii, ca. 580 m, 9.VIII.2007 (Lengyel & Páll-Gergely leg.).

Distribution: Carpathian.

Drobacia banatica (Rossmässler, 1838)

Data: 6: Cluj county, Vlădeasa Mts., Răchiţele, Valea Seacă, 1150 m, 6.VIII.2007 (Lengyel & Páll-Gergely leg.); 7: Bihor county, Bihor Mts., Padiş plateau, NW of Cabana Padiş, beech forest, 1300 m, 7.VIII.2007 (Lengyel & Páll-Gergely leg.); 16: Bihor county, Bihor Mts., Bazarul (Cetăţile) Someşului Cald, Cetăţile Rădesei, ca. 1250 m, 8.VIII.2007 (Lengyel & Páll-Gergely leg.); 6: Bihor county, Bihor Mts, Vârf Boghii, beech forest, ca. 1340 m, 8.VIII.2007 (Lengyel & Páll-Gergely leg.); 16: Bihor county, Bihor Mts., Valea Boghii, ca. 580 m, 9.VIII.2007 (Lengyel & Páll-Gergely leg.); 4: Alba county, Bihor Mts., Peştera Caput, 1060 m, 10.VIII.2007 (Lengyel & Páll-Gergely leg.); 5: Alba county, Bihor Mts., Valea Ursilor, South-facing cliffs, 1200 m, 10.VIII.2007 (Lengyel & Páll-Gergely leg.); 4: Alba county, Bihor Mts., Valea Ursilor, North-facing cliffs, 1200 m, 10.VIII.2007 (Lengyel & Páll-Gergely leg.).

Distribution: East- and South-Carpathian.

Notes: Wenz described *Helicigona* (*Drobatia*) *moetica* from Romania as a fossil species in Krejci & Wenz (1926). Lupu (1966) recorded this species from Romania as a living species. According to Grossu (1983), *Drobatia moetica* lives in the Apuşeni Mountains. As Domokos (2001) demonstrated, there are transitional

examples between the shells of *D. banatica* and *D. moetica*. The anatomical structures do not even show the clear separation of the two forms (Domokos, pers. comm.). As we see now, we rather publish our data as *D. banatica*.

Arianta arbustorum (Linnaeus, 1758)

Data: 4: Bihor county, Bihor Mts., Bazarul (Cetăţile) Someşului Cald, Cetăţile Rădesei, ca. 1250 m, 8.VIII.2007 (Lengyel & Páll-Gergely leg.); 1: Bihor county, Bihor Mts, Vârf Boghii, beech forest, ca. 1340 m, 8.VIII.2007 (Lengyel & Páll-Gergely leg.).

Distribution: West- and Middle-European.

Helix pomatia Linnaeus, 1758

Data: 1: Bihor county, Bihor Mts., Valea Boghii, ca. 580 m, 9.VIII.2007 (Lengyel & Páll-Gergely leg.); 1: Alba county, Bihor Mts., Valea Ursilor, South-facing cliffs, 1200 m, 10.VIII.2007 (Lengyel & Páll-Gergely leg.).

Distribution: Middle- and Southeast-European.

OPILIONES

Nemastomatidae

Nemastoma cf. *transsylvanicum* Gruber & Martens, 1968

Data: 1 ♂: Bihor county, Bihor Mts., Valea Boghii, ca. 580 m, 9.VIII.2007 (Lengyel & Páll-Gergely leg.); 1 ♂: Alba county, Bihor Mts., Valea Ursilor, South-facing cliffs, 1200 m, 10.VIII.2007 (Lengyel & Páll-Gergely leg.).

Distribution: Carpathian endemic.

Notes: The penis of our specimen (Fig. 5) has two pairs of lateral spines on the glans. It is unequivocally differs from the original description drawings (Gruber & Martens, 1968). The chelicera (Fig. 6 a - b) is close to the type form, with some little differences in shape. Not any characteristic difference can be seen on the pedipalp's proportion. To decide the taxonomic value of these features we need more specimens to investigate. Our specimen may be a variation of the nominal species (Martens, pers. comm. 2007) or a new taxon.

Paranemastoma ancae Avram, 1973

Data: 2 ♂, 1 ♀, 1 juv.: Bihor county, Sighiştel, Valea Sighiştelului, ca. 500 m, 6.VIII.2004. (*Lengyel leg.*)

Distribution: Carpathian endemic.

Paranemastoma sillii (Herman, 1871)

Data: 1 ♂: Bihor county, Bihor Mts., Padiş plateau, NW of Cabana Padiş, beech forest, 1300 m, 7.VIII.2007 (Lengyel & Páll-Gergely leg.); 1 ♀: Bihor county, Bihor Mts., Bazarul (Cetăţile) Someşului Cald, Cetăţile Rădesei, ca. 1250 m, 8.VIII.2007 (Lengyel & Páll-Gergely leg.); 1 ♀: Bihor county, Bihor Mts., north to Cetăţile Rădesei, ca. 1300 m, 8.VIII.2007 (*Lengyel leg.*).

Distribution: Carpathian endemic.

Trogulidae

Trogulus cf. *tricarinatus* (Linnaeus, 1767)

Data: 1 ♀: Bihor county, Sighiştel, Peştera Alba, ca. 560 m, 08.VIII.2004. (*Lengyel leg.*)

Distribution: European.

Trogulus cf. *nepaeformis* (Scopoli, 1763)

Data: 3 ♂, 1 ♀: Bihor county, Sighiştel, Valea Sighiştelului, ca. 500 m, 6.VIII.2004. (*Lengyel leg.*).

Distribution: European.

Notes: Our specimens' penis best resemble to the form shown on figure 270. in Martens (1978).

Ischyropsalididae

Ischyropsalis manicata L. Koch, 1865

Data: 1 ♂, 1 ♀: Bihor county, Bihor Mts., Sighiştel, Peştera Feţii, ca. 500 m, 5.VIII.2004. (*Lengyel leg.*).

Distribution: Carpathian endemic.

Phalangiidae

Lacinius ephippiatus (C. L. Koch, 1835)

Data: 1 ♀: Cluj county, Vlădeasa Mts., Răchiţele, Valea Seacă, 1150 m, 6.VIII.2007 (Lengyel & Páll-Gergely leg.); 1 ♂: Bihor county, Bihor Mts., Sighiştel, Peştera Alba, ca. 560 m, 8.VIII.2004. (*Lengyel leg.*).

Distribution: European.

Mitopus morio (Fabricius, 1799)

Data: 2 ♂, 2 ♀: Cluj county, Vlădeasa Mts., Răchiţele, Valea Seacă, 1150 m, 6.VIII.2007 (Lengyel & Páll-Gergely leg.); 1 ♂, 1 ♀: Bihor county, Bihor Mts., Bazarul (Cetăţile) Someşului Cald, Cetăţile Rădesei, ca. 1250 m, 8.VIII.2007 (Lengyel & Páll-Gergely leg.); 2 ♀: Alba county, Bihor Mts., Valea Ursilor, South-facing cliffs, 1200 m, 10.VIII.2007 (Lengyel & Páll-Gergely leg.).

Distribution: Holarctic.

Oligolophus tridens (C. L. Koch, 1836)

Data: 1 juv: Cluj county, Răchiţele, Cascadă Răchiţele, ca. 1000 m, 6.VIII.2007 (Lengyel & Páll-Gergely leg.); 1 ♀: Cluj county, Vlădeasa Mts., Răchiţele, Valea Seacă, 1150 m, 6.VIII.2007 (Lengyel & Páll-Gergely leg.); 1 juv: Bihor county, Bihor Mts., Valea Boghii, ca. 580 m, 9.VIII.2007 (Lengyel & Páll-Gergely leg.).

Distribution: European.

Opilio dinaricus Šilhavý, 1938 (Fig. 7)

Data: 1 ♀: Cluj county, Vlădeasa Mts., Răchiţele, Pietrele Albe, 1360 m, 7.VIII.2007 (Lengyel & Páll-Gergely leg.).

Distribution: Central-European.

Notes: This species, inhabiting disjunct areas in Central-Europe. In Romania it has been only cited from the SW montane areas: Oraviţa, Baziaş, Băile-Herculane (Rafalski 1962), Munţii Cernei and Munţii Almajului (Dumitrescu 1972). Our finding is the first record to the fauna of the Apuseni Mountains.

Platybunus pinetorum (C. L. Koch 1839)

Data: 1 ♂: Bihor county, Bihor Mts., Bazarul (Cetăţile) Someşului Cald, Cetăţile Rădesei, ca. 1250 m, 17.VII.2006. (*Murányi leg.*).

Distribution: European-montane.

Notes: The Carpathian species of the genus *Platybunus* need taxonomic revision because of the doubtful taxonomic state of the endemic species (Murányi & Lengyel 2006). The penis (Fig. 8) and the pedipalp of our specimen best resemble to the drawings of *P. pinetorum* in Martens (1978).

Sclerosomatidae

Gyas titanus Simon, 1879

Data: 1 ♂, 1 juv.: Cluj county, Răchiţele, Cascadă Răchiţele, ca. 1000 m, 6.VIII.2007 (Lengyel & Páll-Gergely leg.); 1 ♂: Cluj county, Vlădeasa Mts., Răchiţele, Valea Seacă, 1150 m, 6.VIII.2007 (Lengyel & Páll-Gergely leg.); 6 ♂, 4 ♀, 4 juv.: Bihor county, Bihor Mts., Bazarul (Cetăţile) Someşului Cald, Cetăţile Rădesei, ca. 1250 m, 8.VIII.2007 (Lengyel & Páll-Gergely leg.); 1 ♂, 1 ♀, 2 juv.: Bihor county, Bihor Mts., Valea Boghii, ca. 580 m, 9.VIII.2007 (Lengyel & Páll-Gergely leg.); 1 ♂: Bihor county, Bihor Mts., Pietroasa, near Crişul Pietros, ca. 420 m, 10.VIII.2007 (*Lengyel leg.*); 3 juv.: Bihor county, Sighiştel, Valea Sighiştelului, ca. 500 m, 6.VIII.2004. (*Lengyel leg.*).

Distribution: European-montane.

Note: The penis of our male specimen differs from the typical shape presented in Martens (1978), but corresponds to the drawings of Murányi & Lengyel (2006).

Leiobunum tisciae Avram, 1968

Data: 1 ♂, 2 ♀, 13juv: Bihor county, Bihor Mts, Vârf Boghii, beech forest, ca. 1340 m, 8.VIII.2007 (Lengyel & Páll-Gergely leg.); 2 ♂, 1 ♀, 3 juv: Bihor county, Bihor Mts., Valea Boghii, ca. 580 m, 9.VIII.2007 (Lengyel & Páll-Gergely leg.); 2 juv: Bihor county, Sighiştel, Peştera Corbaska, ca. 590 m, 6.VIII.2004. (*Lengyel leg.*).

Distribution: The distributional type is not known. The species occurs in the upper

Tisa (Tisza) valley in Hungary (Avram 1968; Lengyel & Murányi 2006), in some regions of Romania (Murányi & Lengyel 2006), and Slovakia (Weiss 1996, Klimeš 2000) and in Slovenia (Novak et al. 2006). Anyway, the investigated area seems to be near the centre of its possible distribution.

Notes: There are several data which may refer to this species (see Martens 1978, Weiss 1996, Klimeš 2000). In the genus *Leiobunum* it is not easy to identify a specimen according to the penis shape, while the color pattern of the body may be typical of the species, as in the case of *L. tisciae* (Fig. 9). The females can be identified according to the shape of receptaculum seminis (Martens 1978, Lengyel & Murányi 2006).

Discussions

In the Bihor and Vlădeasa Mountains in western Romania, we found 43 landsnail species belonging to 16 families, eight of them to Clausiliidae and seven to Zonitidae s. l. This is consistent with expectations of collecting in wet and rocky habitats.

We found 11 species whose distribution areas are Carpathian or closer, but there is no information about real endemic species. The presence of *Orcula jetschini* is a valuable information about this rare species. Most species of landsnails, 32 in number, were collected in the Valea Boghii where soil sampling was performed in diverse wet habitats. Additionally, *Clausilia cruciata*, *Vestia elata*, *Vallonia costata*, *Monachoides vicinus* and *Zonitoides nitidus* were found only in Valea Seacă. The four most abundant species were *Cochlodina laminata, Bulgarica vetusta, Isognomostoma isognomostomos* and *Drobatia banatica*. In malacological point of view, the investigated area is characterized by *B. vetusta* and *D. banatica*. These species are quite rare in other places of Romania, but in this region they were relatively abundant.

Considering the harvestmen, we found 13 species of four families. The most frequent species were *Leiobunum tisciae* and *Gyas titanus* which are characteristic to this region. Besides, four rare Carpathian endemic species were found: *Nemastoma* cf. *transsylvanicum, Paranemastoma ancae* and *P. sillii* (all of them from the family Nemastomatidae), and *Ischyropsalis manicata* (Ischyropsalididae).

The taxonomic status of *N.* cf. *transsylvanicum* and *G. titanus* deserve a revision because there are explicit differences between the original description (Gruber & Martens 1968; Martens 1978) and those in the Carpathian populations. Further on, the finding of two rare species, *Opilio dinaricus*, and *Holoscotolemon jaqueti* reported from the Padis karst (Avram 1978) have to be stressed. In total 20 harvestman species of the 46 known from Romania can be found in the region. In the Bihor and Vlădeasa Mountains we expect a few more species (e.g. *Lophopilio palpinalis* (Herbst, 1799), *Rilaena triangularis* (Herbst, 1799), *Lacinius*, *Opilio* and *Platybunus* spp.) because there are some undiscovered habitats in the region.

Our study tried to demonstrate, that these two taxa (landsnails and harvestmen) can collected together with very less extra effort and one could give valuable data very easily to the colleagues dealing with the other group.

Acknowledgements

We are very thankful to Gábor Áron Vitályos, who organized our trip and helped us much in the field. We are grateful to Ildikó Lengyelné Király for linguistic help and to Catalin Roibu for translating the

abstract. We express our special thanks to Péter Subai for his help in identifying snails (mainly Aciculidae). We also thank to Tamás Domokos for providing us some missing literature. The investigation was financially supported by Student Union of Faculty of Sciences, University of Pécs (Hungary).

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Table 1. Data to Fig. 1 on the collecting localities in Bihor and Vlădeasa Mts.

No. of localities	Data of the localities (county/settlement/locality/altitude/datum/collector)	GPS-data
1	Cluj county, Răchițele, Cascadă Răchițele, ca. 1000 m, 6.VIII.2007 (Lengyel & Páll-Gergely leg.)	-
2	Cluj county, Vlădeasa Mts., Răchițele, Valea Seacă, 1150 m, 6.VIII.2007 (Lengyel & Páll-Gergely leg.)	46º43'21.8" N, 22º47'40.0" E
3	Cluj county, Vlădeasa Mts., Răchițele, Pietrele Albe, 1360 m, 7.VIII.2007 (Lengyel & Páll-Gergely leg.)	46º43'52.6" N, 22º48'41.3" E
4	Bihor county, Bihor Mts., Padiş plateau, NW of Cabana Padiş, beech forest, 1300 m, 7.VIII.2007 (Lengyel & Páll-Gergely leg.)	46º36'27.7" N, 22º43'2.3" E
5	Bihor county, Bihor Mts., Bazarul (Cetățile) Someşului Cald, Cetățile Rădesei, ca. 1250 m, 8.VIII.2007 (Lengyel & Páll-Gergely leg.)	-
6	Bihor county, Bihor Mts., Bazarul (Cetățile) Someşului Cald, Cetățile Rădesei, ca. 1250 m, 17.VII.2006 (*Murányi leg.*)	-
7	Bihor county, Bihor Mts, Vârf Boghii, beech forest, ca. 1340 m, 8.VIII.2007 (Lengyel & Páll-Gergely leg.)	-
8	Bihor county, Bihor Mts., Valea Boghii, ca. 580 m, 9.VIII.2007 (Lengyel & Páll-Gergely leg.)	46º36'36.6" N, 22º39'32.5" E
9	Alba county, Bihor Mts., Peştera Caput, 1060 m, 10.VIII.2007 (Lengyel & Páll-Gergely leg.)	46º33'51.1" N, 22º42'48.9" E
10	Alba county, Bihor Mts., Valea Ursilor, South -facing cliffs, 1200 m, 10.VIII.2007 (Lengyel & Páll-Gergely leg.)	46º34'11.1" N, 22º44'6.5" E
11	Alba county, Bihor Mts., Valea Ursilor, North-facing cliffs, 1200 m, 10.VIII.2007 (Lengyel & Páll-Gergely leg.)	46º34'6.6" N, 22º44'3.0" E
12	Bihor county, Bihor Mts., north to Cetățile Rădesei, ca. 1300 m, 8.VIII.2007 (*Lengyel leg.*)	-
13	Bihor county, Bihor Mts., Pietroasa, near Crişul Pietros, ca. 420 m, 10.VIII.2007 (*Lengyel leg.*)	-
14	Bihor county, Sighiştel, Valea Sighiştelului, ca. 500 m, 6.VIII.2004 (*Lengyel leg.*)	-
15	Bihor county, Sighiştel, Peştera Corbaska, ca. 590 m, 6.VIII.2004 (*Lengyel leg.*)	-
16	Bihor county, Sighiştel, Peştera Feții, ca. 500 m, 5.VIII.2004 (*Lengyel leg.*)	-
17	Bihor county, Bihor Mts., Sighiştel, Peştera Alba, ca. 560 m, 8.VIII.2004 (*Lengyel leg.*)	-

Table 2. List of the harvestman species known from Bihor and Vlădeasa Mts.

No.	Species	Published data
1	*Carinostoma elegans* (Sørensen, 1894)	Avram 1978
2	*Dicranolasma scabrum* (Herbst, 1799)	Avram 1978
3	*Egaenus convexus* (C. L. Koch, 1835)	Avram 1978
4	*Gyas titanus* Simon, 1879	Avram & Dumitrescu 1969; Avram 1978, Weiss 1996
5	*Holoscotolemon jaqueti* (Corti, 1905)	Avram 1978
6	*Ischyropsalis manicata* L. Koch, 1865	Avram & Dumitrescu 1969; Herman 1879; Weiss 1996
7	*Lacinius ephippiatus* (C. L. Koch, 1835)	Avram & Dumitrescu 1969
8	*Leiobunum rupestre* (Herbst, 1799)	Avram & Dumitrescu 1969
9	*Leiobunum tisciae* Avram, 1968	Avram & Dumitrescu 1969
10	*Mitopus morio* (Fabricius, 1799)	Avram & Dumitrescu 1969; Avram 1978; Weiss 1996
11	*Mitostoma chrysomelas* (Hermann, 1804)	Avram 1978
12	*Nemastoma transsylvanicum* Gruber & Martens, 1968	Gruber & Martens 1968; Avram 1978; Weiss 1996
13	*Oligolophus tridens* (C. L. Koch, 1836)	Avram 1978
14	*Opilio dinaricus* Šilhavý, 1938	-
15	*Paranemastoma ancae* Avram, 1973	Avram 1973; Weiss 1996
16	*Paranemastoma sillii* (Herman, 1871)	Martens 1978
17	*Platybunus bucephalus* (C. L. Koch, 1835)	Avram & Dumitrescu 1969; Weiss 1996
18	*Platybunus pinetorum* (C. L. Koch, 1839)	Avram & Dumitrescu 1969
19	*Trogulus* cf. *nepaeformis* (Scopoli, 1763)	Avram 1971
20	*Trogulus* cf. *tricarinatus* (Linnaeus, 1767)	Avram 1971

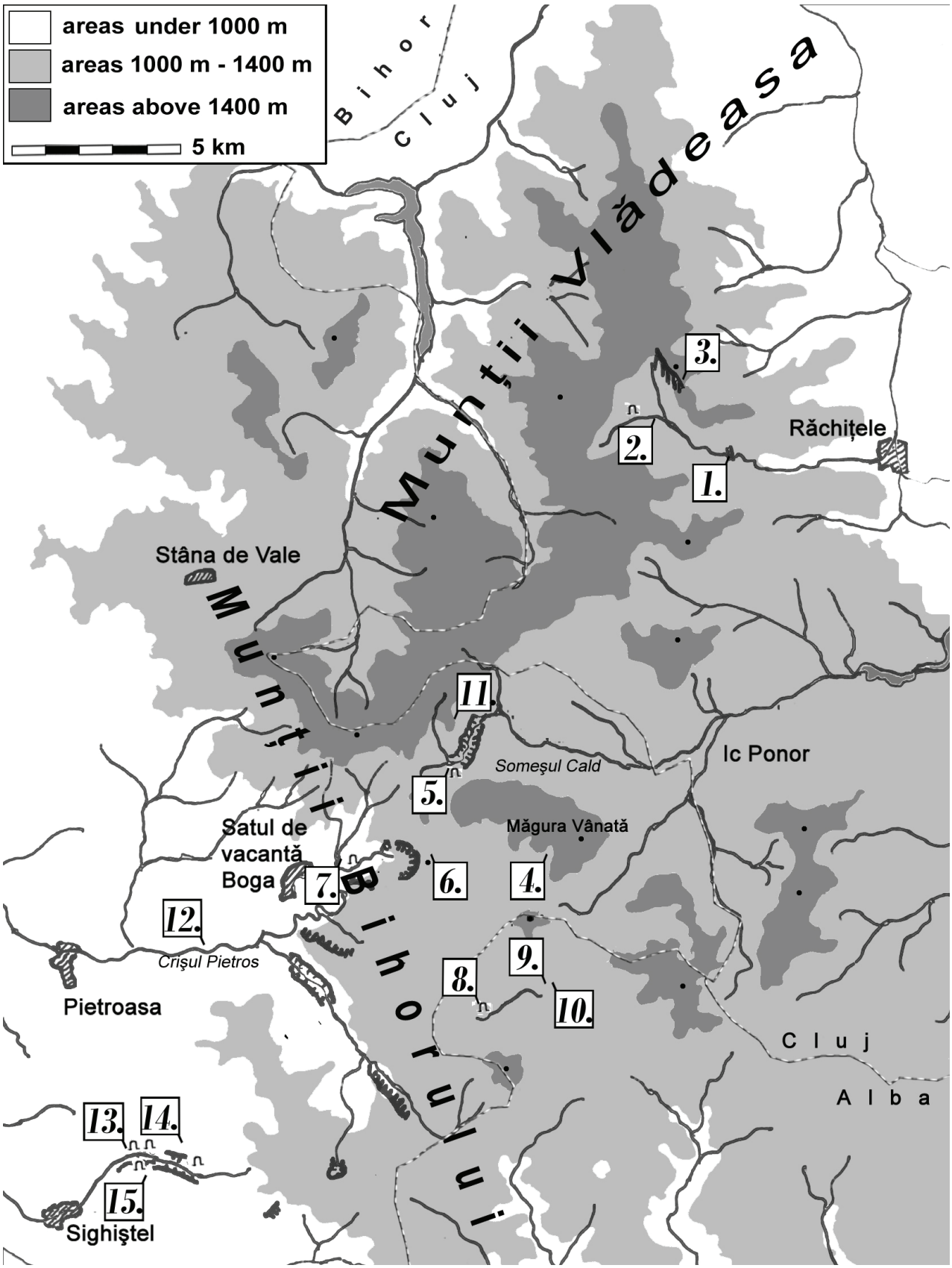

Figure 1. The study area. The list of localities are given in Table 1.

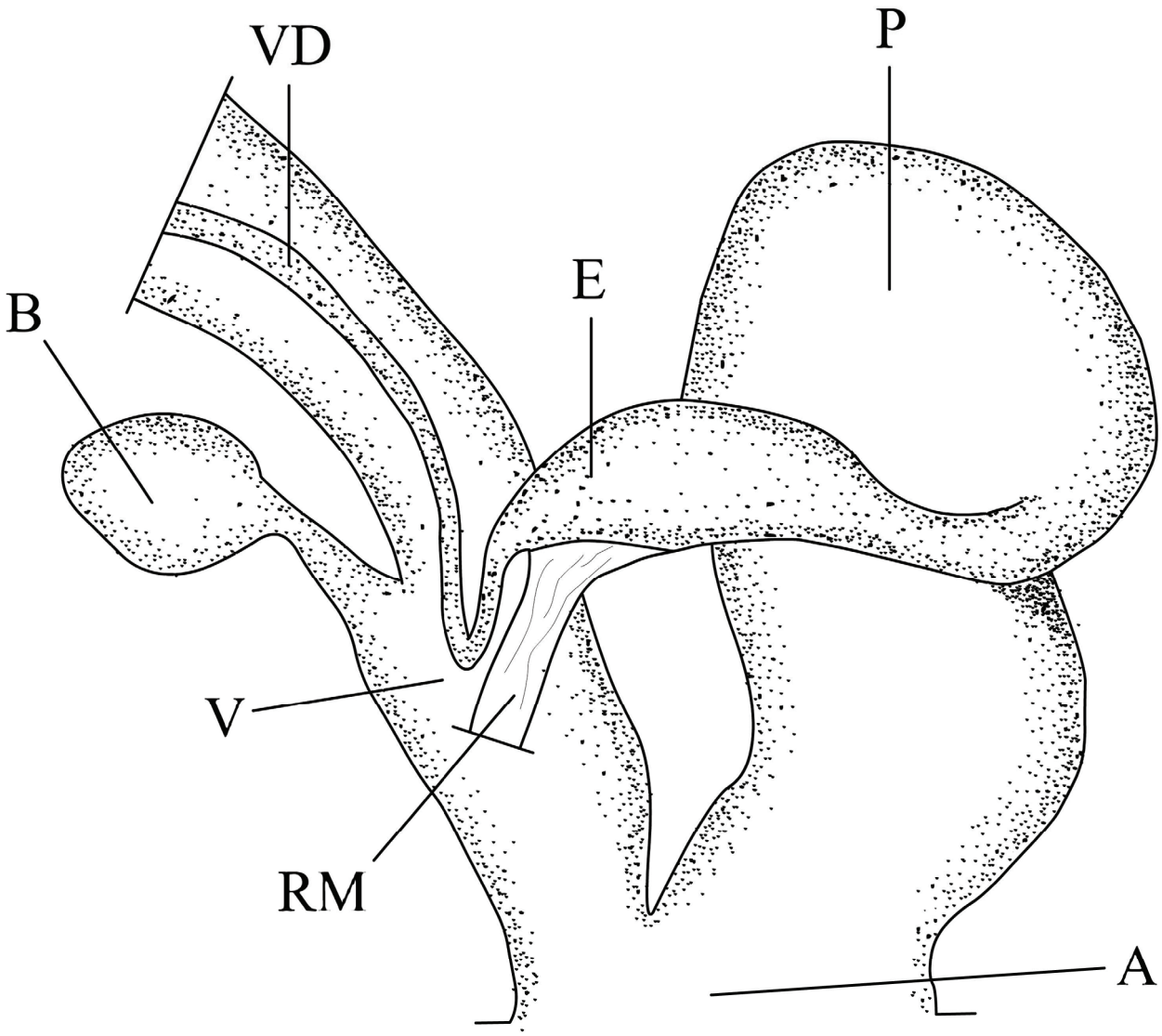

Figure 2. Genital structure of *Aegopinella epipedostoma* (Fagot, 1879).
Abbreviations: A: atrium; B: bursa copulatrix; E: epiphallus; P: penis; RM: retractor muscle; V: vagina; VD: vas deferens.

Figure 3 a - c. Shells of *Ruthenica filograna* from the same population (Valea Boghii) – bar: 1 mm.

Figure 4 a - c. Shells of *Bulgarica vetusta* from the same population (Valea Boghii) – bar: 1 mm.

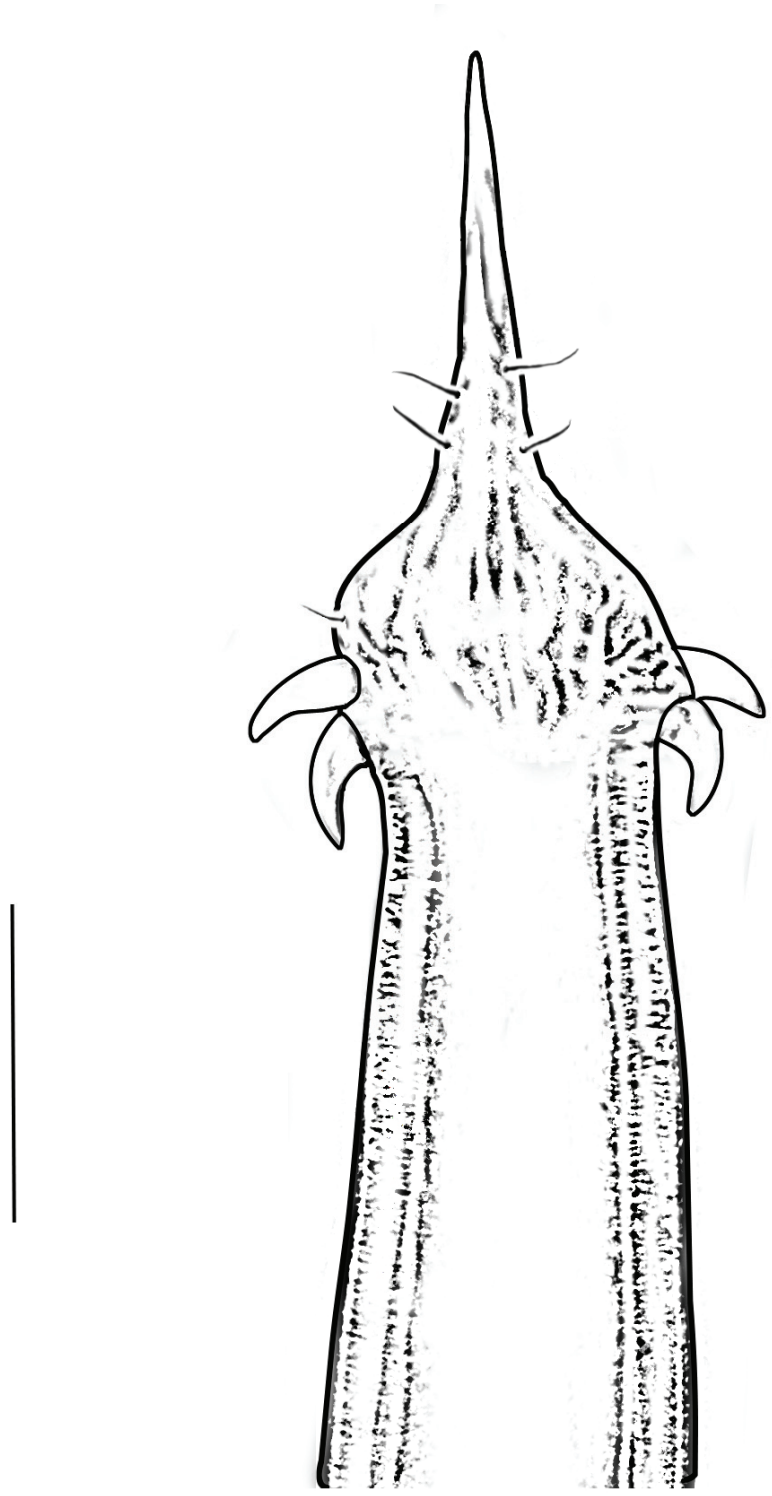

Figure 5. Glans penis of *Nemastoma* cf. *transsylvanicum*, ventral view – bar: 0.5 mm.

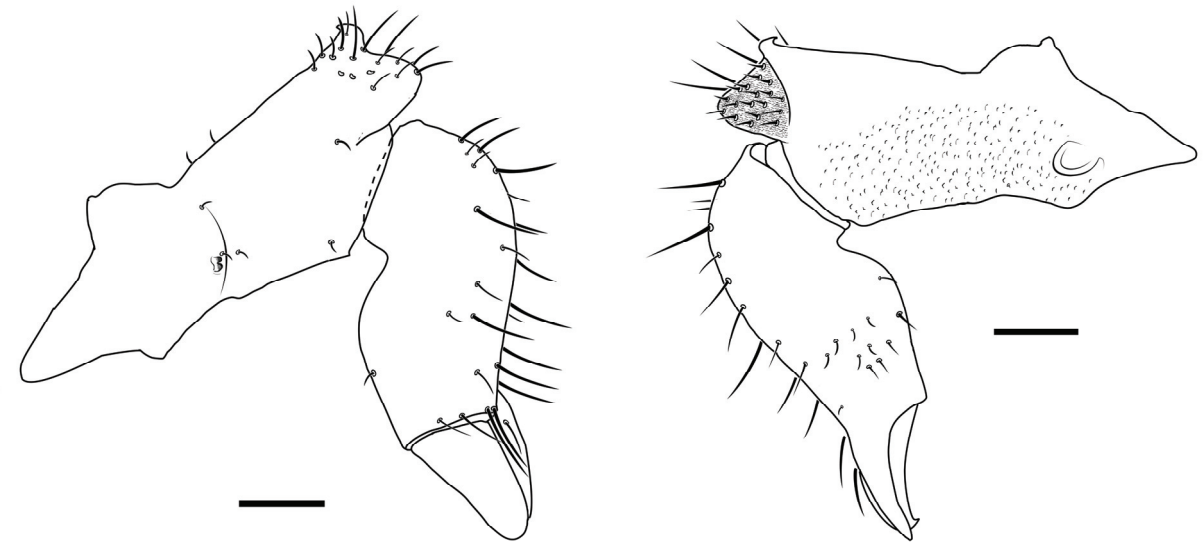

Figure 6 a - b. Right chelicera of *Nemastoma* cf. *transsylvanicum* from lateral (a) and medial (b) view – bar: 0.01 mm.

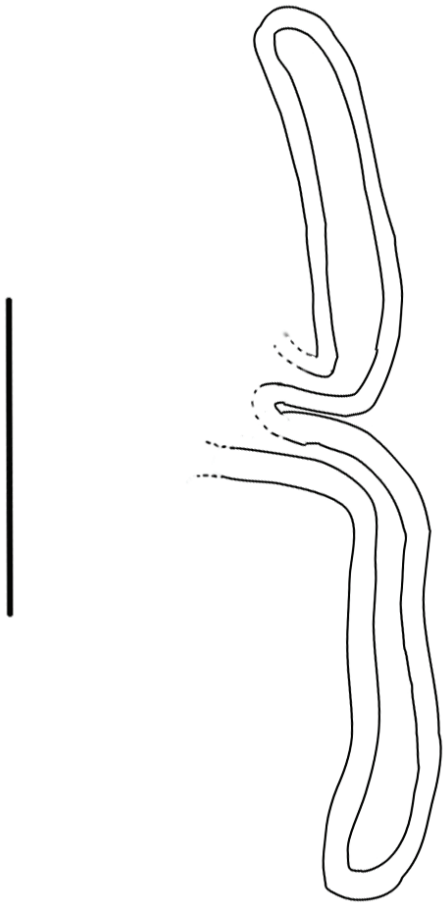

Figure 7. Receptaculum seminis of *Opilio dinaricus* – bar: 0.05 mm.

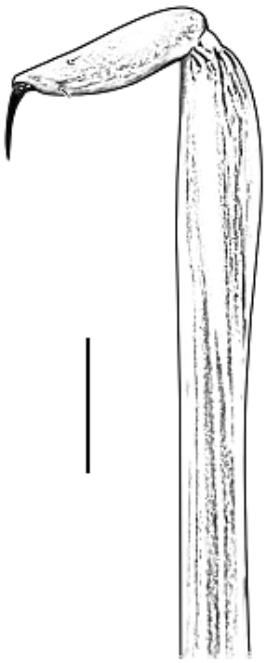

Figure 8. Glans penis of *Platybunus pinetorum* – bar: 0.5 mm.

Figure 9. Dorsal view of *Leiobunum tisciae,* male – bar: 1 mm.