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NEW CONTRIBUTIONS TO THE FOSSIL HERPETOFAUNA OF SUBPIATRĂ (BIHOR COUNTY, ROMANIA)

by
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Introduction

The fossil site near locality of Subpiatră (discovered in a limestone quarry, during 1989) as it has been reported earlier (VENCZEL, 1990), yielded numerous vertebrate remains. Following the micromammals the age of the fauna is Lower Pleistocene (Early Biharian) (HIR & VENCZEL, 1991).

In the abundant amphibian and reptilian materials, consisting of about 3 500 bones (*Amphibia* — 9%; *Reptilia* — 91%), the following taxa have been recognized:

- Triturus cristatus* (LAURENTI, 1768)
- Triturus vulgaris* (LINNAEUS, 1758)*
- Bombina cf. variegata* (LINNAEUS, 1758)*
- Pliobatrachus cf. langhae* FEJÉRVÁRY, 1917*
- Bufo bufo* (LINNAEUS, 1758)
- Bufo cf. viridis* LAURENTI, 1768
- Rana cf. ridibunda* PALLAS, 1771
- Rana sp.*
- Emys sp.*
- Anguis fragilis* LINNAEUS, 1758
- Lacerta cf. viridis* (LAURENTI, 1768)
- Coluber cf. viridiflavus* (LACEPEDE, 1789)*
- Elaphe longissima* (LAURENTI, 1768)
- Coronella cf. austriaca* LAURENTI, 1768
- Natrix natrix* (LINNAEUS, 1758)
- Natrix tessellata* (LAURENTI, 1768)
- Vipera cf. berus* (LINNAEUS, 1758)

The above list also include four species (marked by asterisks), which remained undescribed in my previous paper (VENCZEL, supra cit.). The purpose of the present article is to describe these forms. The entire material described in this paper belongs to the Muzeul Țării Crișurilor, Oradea.

Systematic part

AMPHIBIA

Urodela

Triturus vulgaris

Material: 1 fragmentary atlas; 11 fragmentary vertebrae.

The vertebrae of *Triturus vulgaris* can be distinguished from those of *Triturus cristatus* and from the other members of *Triturus vulgaris* species group by their morphology and dimension (SANCHIZ & MLYNARSKI, 1979 b; HODROVA, 1984; 1987). All the vertebrae are opisthocoelous, with centrum length 1,03—1,93 mm. The neural arch is vaulted, with high and caudally forked neural spine. The rib-bearers are interconnected by an osseous lamella along their whole length. The dorsal lateral crests are slightly constricted. The ventral lateral crests are well developed cranially and caudally, between centrum and lower rib bearers. Foramina subcentralia are large (fig. 1).

The fossil record of this species is not very numerous. The earliest finds of *Triturus vulgaris* are reported from the Upper Pliocene localities of Ivanovce and Vcelare — Czechoslovakia (HODROVA, 1984). Remains from the Quaternary, related to this species are known from Poland (Kielniki 3A — Early Biharian; Kozi Grzbiet — Late Biharian; Duza Sowa Cave — late Holocene) (MLYNARSKI & SZYNDLAR, 1989), Czechoslovakia (Vcelare 6/3+1 and 6/8 — early Biharian) (HODROVA, 1985) and Germany (Pisede bei Malchin — Upper Pleistocene) (BÖHME, 1979).

Anura

Bombina cf. *variegata*

Material: 4 fragmentary ilia; 2 fr. vertebrae.

A small ilium fragment from Subpiatră was identified to the generic level only (VENCZEL, 1990). According to diagnostic features discussed by SANCHIZ & MLYNARSKI (1979 a) and HODROVA (1981, 1985, 1987), 3 other bones, from which one is almost completely preserved, have been assigned to *B. variegata*. Tuber superius is poorly developed; junctura ilioischiadica corresponds in shape to recent *B. variegata*; preacetabular fossa is absent; pars descendens and the tubercle on antero-median part of pars descendens are undeveloped.

The phylogenetic relationships of *Bombina*-group are lesser-known. According to SANCHIZ & MLYNARSKI (1979 a), some iliac characters in *Bombina*, as reduced tuber superius and undeveloped pars descendens ossis ilii can be considered as derived conditions. Consequently *Bombina bombina* (with higher tuber superius and better developed pars descendens) must be phylogenetically older than *Bombina variegata*, although a form closely related to the later was reported by HODROVA (1987) from the Upper Miocene locality of Suchomasty 3.

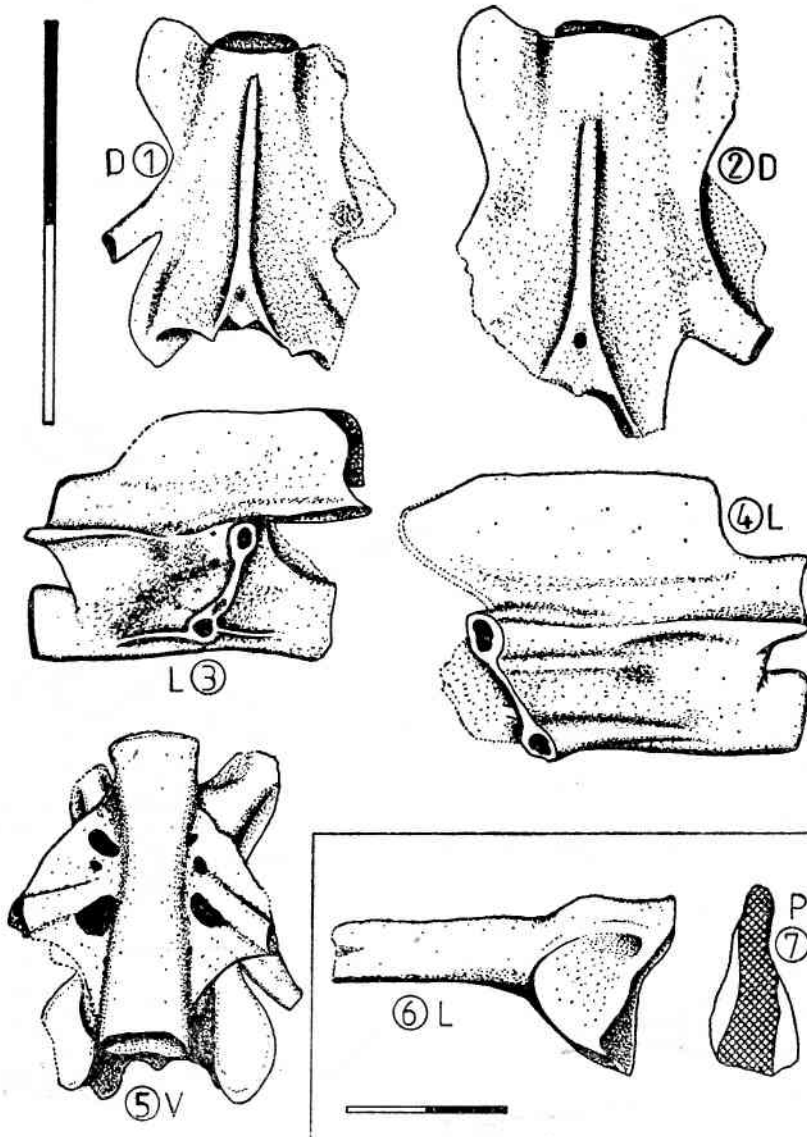


Fig. 1. Amphibian remains from Subpiatră. 1—5: *Triturus vulgaris* — vertebrae. 6—7: *Bombina cf. variegata* — left ilium. D dorsal, L lateral, P posterior, V ventral views. Scale equals 2 mm.

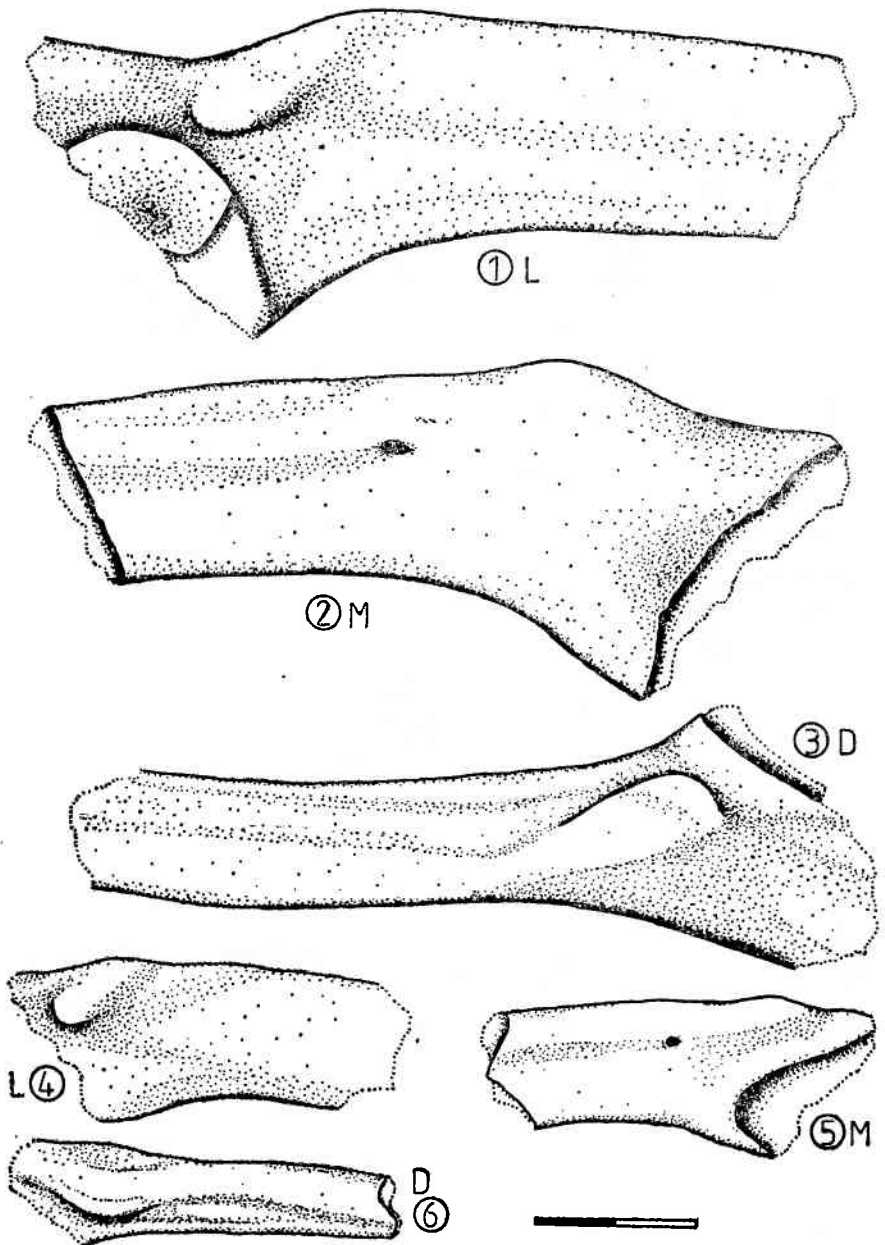


Fig. 2. *Pliobatrachus cf. langhae*. 1—3 right ilium fragment. 4—6 right ilium fragment of a small specimen. D dorsal, L lateral, M medial views. Scale equals 2 mm.

Pliobatrachus cf. langhae

Material: 2 fragmentary ilia

The postero-ventral part of acetabulum and junctura ilioischiastica of the ilia fragments are damaged (in the smaller one is lacking entirely) (Fig. 2). Corpus ilii seen from above is fairly massive. The undivided tuber superius projects laterally, its greater part situated in front of the acetabulum. Ala ossis ilii is without vexillum; a shallow groove extending longitudinally can be observed on the median surface of the bone.

The fossil finds of *Pliobatrachus* are known from several Pliocene and Pleistocene localities of Europe: Voigstedt — Lower Pleistocene (Germany) (KRETZOI, 1965); Weze 1 — Ruscinian (MN 15), Weze 2 — Ruscinian/Villanyian (MN 15–16), Rebielice Królewskie 1A — early Villanyian (MN 16), Rebielice Królewskie 2 — early Villanyian (MN 16), Zalesiaki 1 — fauna A — Biharian, Kozi Grzbiet — late Biharian (Poland) (MLY-NARSKI & SZYNDLAR, 1989); Ivanovce — Csarnótan (MN 15), Hajnácka — early Villanyian (MN 16) (Czechoslovakia) (HODROVA, 1981, 1982); Csarnóta 2 — Csarnótan (MN 15), Villány 6 — Lower Pleistocene (Hungary) (KRETZOI, 1956, 1962); Betfia 2 (=Püspökfürdő) — lower Pleistocene (Romania) (FEJERVÁRY, 1917).

REPTILIA

*Serpentes**Coluber cf. viridiflavus*

Material: 1 cervical and 16 trunk vertebrae.

All the vertebrae are damaged in a various degree. The centrum of the trunk vertebrae is short, with strongly flattened haemal keel (Fig. 3). The neural arch is moderately long, usually with a small epizygapophyseal spine. The larger vertebrae have no preserved neural spine and prezygapophyseal process. In few smaller vertebrae a low neural spine overhanging anteriorly and posteriorly is present. The prezygapophyseal process if preserved is moderately long and pointed distally. The zygosphenes are straight from above, with two lateral tubercles; the zygosphenes of the smaller vertebrae are usually with median lobes. The interzygapophyseal ridges are prominent. The subcentral ridge is present, better developed in the smaller vertebrae. The paradiapophyses are divided into two separate articular facets; the parapophyses are distinctly separated off the cotyle.

Fossil remains of *Coluber viridiflavus* have been reported from numerous Pliocene and Pleistocene localities of Europe (SZYNDLAR, 1984, and references therein). Recently, finds of *C. viridiflavus* have been reported from the early Biharian locality of Betfia VII, IX and XII (VEN-CZEL, 1991).

Concluding remarks

The main difference between the fossil and recent herpetofauna of Subpiatră (or more precisely that of the area) is marked by the presence in

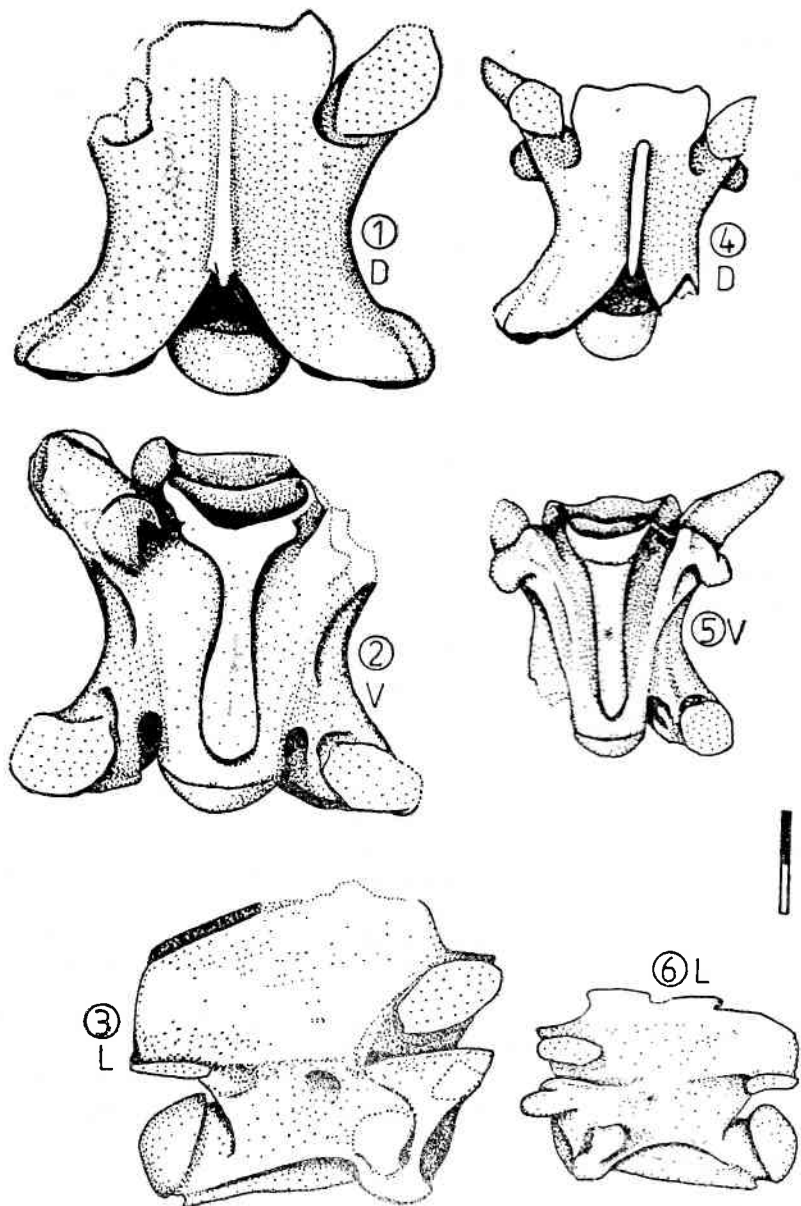


Fig. 3. *Coluber cf. viridiflavus*. 1—3 trunk vertebra. 4—6 posterior trunk vertebra. D dorsal, L lateral, V ventral views. Scale equals 2 mm.

the former of fossil palaeobatrachid *Pliobatrachus* cf. *langhae* and of *Coluber* cf. *viridiflavus*. The fossil records suggest that *Pliobatrachus langhae* survived until Middle Pleistocene. The West European snake *Coluber viridiflavus*, retreated from the area during glaciations, the present range of distribution being restricted to Italy, France and adjacent territories (SZYNDLAR, 1984).

The composition of the fossil herpetofauna from Subpiatră also required aquatic and semi-aquatic habitats, and forest vegetation too. The xeric-adapted forms are lesser represented in the fauna.

CONTRIBUȚII NOI ASUPRA HERPETOFAUNEI FOSILE DE LA SUBPIATRĂ (JUD. BIHOR, ROMANIA)

Rezumat

În această lucrare sînt aduse date noi asupra herpetofaunei pleistocene inferioare descoperite în depozitul fosilifer de la Subpiatră (VENCZEL, 1990), lista faunistică fiind completată cu 4 specii: *Triturus vulgaris*, *Bombina* cf. *variegata*, *Pliobatrachus* cf. *langhae*, *Coluber* cf. *viridiflavus*. Prezența speciei fosile *Pliobatrachus* cf. *langhae* precum și a lui *Coluber* cf. *viridiflavus* dă faunei un caracter aparte. Compoziția faunei herpetologice sugerează totodată prezența (în timpul respectiv) unei vegetații forestiere cu habitate acvatice și semiacvatice. Speciile xerofile sînt mai slab reprezentate.

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