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DINOSOREX ZAPFEI ENGESSER 1975 (*INSECTIVORA, MAMMALIA*) FROM THE VOLHYNIAN OF BOGATA (WESTERN MOLDAVIAN PLATFORM)

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Abstract. The paper deals with the first micromammal fossil ever found in the Moldavian Platform. It belongs to an Insectivore, *Dinosorex zapfei* ENGESSER, found in the Lower Sarmatian (Volhynian) deposits from Bogata, near Fălticeni. The fossil was found in lacustrine sediments, with swampy tendencies, documenting a subtropical climate.

Keywords: Vertebrate palaeontology; Mammalia; Insectivora; Middle Miocene; Romania; Moldavian Platform.

INTRODUCTION

Until now, very few data are known about the Middle Miocene micromammals from our country. For the Moldavian Platform, this kind of evidence is completely missing. There, the researches were never focused on such a topic.

In this context, the recent discovery of an Insectivore in the Lower Sarmatian formations located near Fălticeni, offers a favourable opportunity for a discussion about this group of fossil mammals, too little investigated in Romania. Up to the present, the only data concerning Middle Miocene Insectivores come from Tauţ (Arad county; site initially assigned by Feru et al. 1979 to MN 7/8, later to MN 9 by Rădulescu & Samson, 1988), where Feru et al. (1979) mentioned the following taxa: *Amphechinus* sp., *Lanthanotherium* sp., Soricide gen et sp. indet., *Spermophilinus bredai* (H. VON MEYER), *Miopetaurista* sp., *Forsithya*, *Blackia*.

Excepting Tauţ, only an Upper Badenian core sample from the Bozovici Basin (Banat) yielded some teeth assigned to *Galeryx* sp. (CV, unpublished data).

GEOLOGICAL SETTING

It is well known that the Volhynian formations from the Moldavian Platform were generally sedimented in a brackish basin. However, this rule is broken in the westernmost sector of the platform, in the neighbourhood of the contact with the Carpathian Orogene. This situation is due to a very peculiar palaeogeographical evolution. In this area, in the Upper Volhynian several rivers running from the new erected Perimoldavian napes were flowing eastward into the brackish basin. In this manner, in the whole area a pile of fluvio-deltaic and lacustrine fresh-water deposits begun to accumulate. The lakes were probably connected episodically to the large brackish basin.

At least a part of these lakes had a dense eutrophisation, with a coal-generating vegetation. As a result of the geological surveys, in the sector comprised between Fălticeni - Baia - Boroaia, three lignite intercalations were discovered. These intercalations, named by the S.C. Geomold S.A. Câmpulung Moldovenesc prospectors A, B and C, have an average thickness of 0.3-0.4 m, with a fair lateral continuity.

The fresh-water lacustrine deposits are documented by the presence of *Anodonta* shells at the base of the B coal bed, as well as by *Anodonta* and *Planorbis* at the base of A coal bed.

Brackish sequences (cca 10‰) are documented too, by some *Congeria* lumachelles at the base of bed A, on the Niclaus Creek. In some intercalations, some snails and even a cervid antler fragment were collected (Ţibuleac & Codrea, 1997).

The level where the fossil Insectivore remain was discovered is located at the site named "Râpa Băieşilor", at Bogata, a little village near Fălticeni (12 km SW from the town).

The outcrop that includes a succession of Lower Sarmatian sediments (Upper Volhynian) is located on the right bank of the Moldova River, 1 km upward from the bridge linking Baia and Bogata.

Previous information concerning this outcrop is due to Athanasiu (1925) or Macarovici (1950, 1955 and 1964).

Some recent investigations carried on by one of us (PT) documented several new, until now unknown details. In the Moldova Valley riverbed one can distinguish (when not covered by landslides), limy clays with coal lamina, leaf imprints, seeds and snails. It represents probably the sequence mentioned once by Athanasiu (1925), when he found a coal layer, which was cropping out on the Bogata Creek, near the confluence with the Moldova River.

The Râpa Băieşilor outcrop succession is dominated by arenites, with some thin (under 1-m) sandstone and limy clays intercalations. The mollusc fauna here described is typically brackish (Fig. 1).

Another detail, interesting too, concerns the top of this succession, where a 2.5-m thick sequence, contains clay and silty clay. In its middle part, there is a 0.30-0.35 m thick bed with coaly clay. The Insectivore fossil originated from the limy clay located immediately under this coaly layer. The fossil assemblage is represented by terrestrial gastropods. The most spectacular record is the *Limax* genus, as well as *Helix* and possibly, *Cepaea*. Exclusively seeds (possibly *Carya*) can be found, missing the leaf imprints documenting the macrofloraflora.

At the upper part of the pelitic sequence, above the coaly intercalation and sometimes even at its terminal part, a rich brackish mollusc assemblage can be studied, comprising: *Plicatiforma plicata plicata* (EICHWALD, 1853), *P. plicata latisulca* (MUNSTER, in GOLDFUSS, 1834), *Potamides nimpha* (EICHWALD, 1850), *P. mitralis mitralis* (EICHWALD, 1830), *P. mitralis nodosus* (SIMIONESCU & BARBU, 1940), *P. disjunctum disjunctum* (SOWERBY, 1832).

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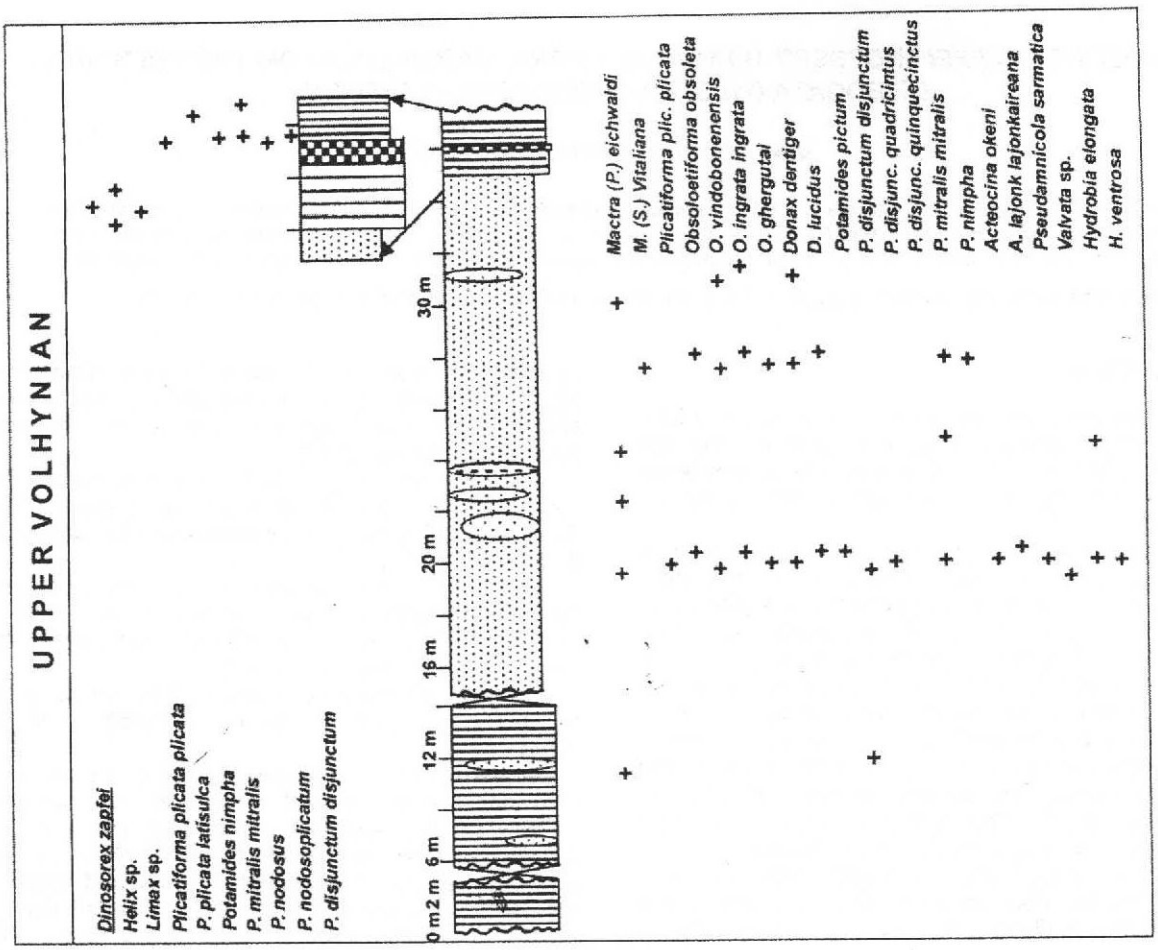

Figure 1 - Lithostratigraphic log of the Upper Volhynian succession at Râpa Băieşilor, indicating the level with *D. zapfei*.

The malacofauna documents the Volhynian age of the sediment that yielded the mammal remain.

SYSTEMATICS

Family *Soricidae* GRAY 1921
Subfamily *Heterosoricinae* VIRET & ZAPFE 1951
Dinosorex zapfei ENGESSER 1975

= *Heterosorex sansaniensis* LARTET in Zapfe 1951
= *Trimylus sansaniensis* (LARTET) in Lungu 1981

Material: right mandible horizontal ramus fragment, with M/1-M/3.

Geological age: Upper Volhynian (Lower Sarmatian)

Dimensions (mm; based on Reumer 1984)

Table 1

Element	Measure	Value
M/1	L	2.52
	W1	1.60
	W2	1.64
M/2	L	2.00
	W1	1.40
	W2	1.40
M/3	L	1.80
	W1	1.20
	W2	0.90
M/1-M/3	L	6.21
Height of mandible under	M2	3.72
	M3	3.00

Description. On the mesial side, the fragment of mandible ramus is broken immediately before the first molar. On the opposite direction, the base of the ascendant ramus is broken too. The base of the incisor's root is still visible into the alveoli.

Teeth are well preserved, excepting some lingual cusps, weakly broken. The most damaged is the metaconide of the first molar.

A fundamental feature for the species assignment is the relationship between the hypoconid and entoconid. According to Engesser (1975) and Engesser et al. (1981), the link between these two cusps is diagnostic for distinguishing *D. zapfei* from *D. sansaniensis* (LARTET, 1851). In the first species, the internal end of hypolophid touches directly the distal entoconid area, without reflecting posteriorly, as in *D. sansaniensis*.

Another morphological detail concerns the cingulum amplitude. The cingulum is continuous on the labial side of each molar, but it is completely missing on the lingual side. The distal cingulums in the first two molars are not very strong, another feature in agreemrnt with Engesser's diagnosis for this species.

Biometry indicates a sizeable first molar compared to the last two. The size of molars is smaller compared to *D. sansaniensis* .

However, it is obvious that the size variability for all molars is high in both species (Viret & Zapfe, 1951; Engesser et al., 1981).

In our fossil, the size of the last molar is worth to be mentioned, resembling La Grive specimens (Viret & Zapfe, 1951).

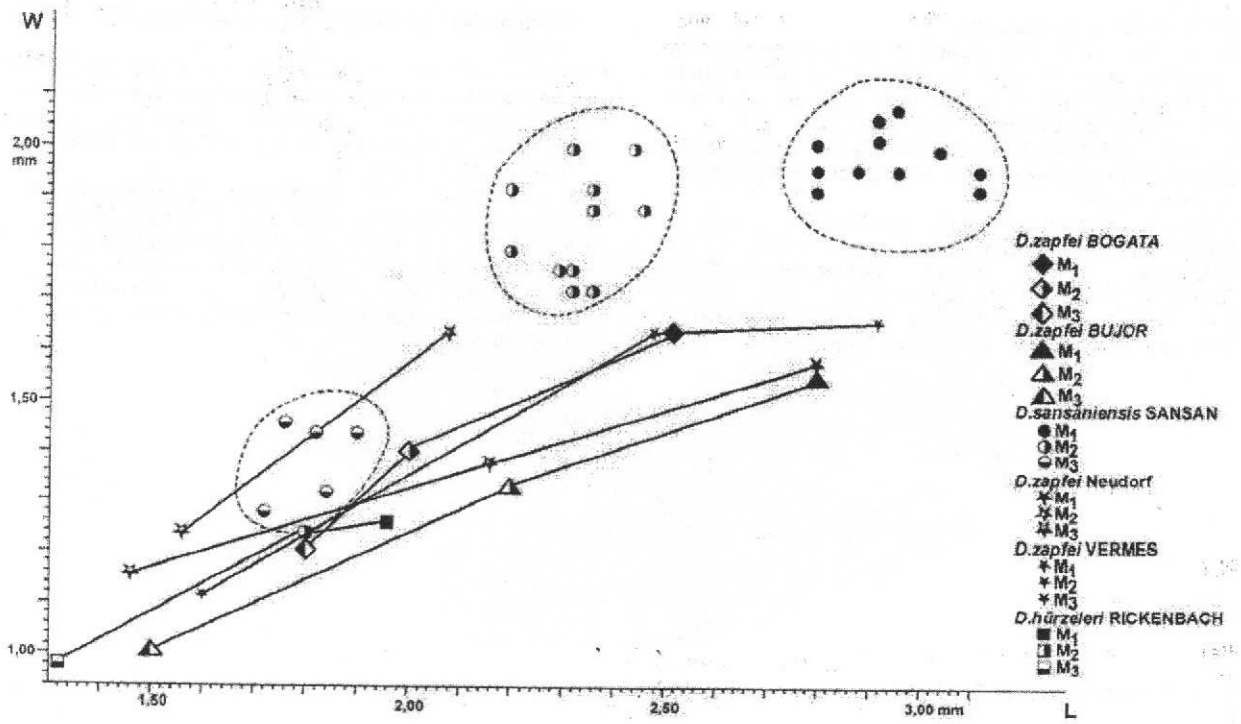

Figure 2 - Comparative measurements of M/1-M/3 of *Dinosorex zapfei*, *D. sansaniensis* and *D. hurzeleri* from various localities.

DISCUSSIONS

In some previous references, *Dinosorex* was mentioned under other generic names (*Trimylus* ROGER 1885 or *Heterosorex* GAILLARD 1915). For example, Zapfe (1951) assigned the species we determined initially to *Heterosorex sansaniensis* LARTET.

Engesser's (1975) revison clarified a lot of confusion in this subfamily.

However, it is obvious that some *D. sansaniensis'* assignments, subsequent to Engesser's article, could belong in fact to *D. zapfei*. The teeth determined as *Trimylus sansaniensis* by Lungu (1981) from the Sarmatian deposits at Bujoru (Moldavian Republic) are smaller compared to *D. sansaniensis* (Fig. 2).

The stratigraphic range of *D. zapfei* covers in Central Europe the interval between MN 6 and MN 9 units (Engesser & Ziegler, 1996).

However, Heterosoricides appear rarely in the Miocene faunas of this part of the continent. Excepting the site from the Moldavian R., two other *D. sansaniensis* sites are worth mentioning: Sibnica (Volhynian, in *Anchitherium*-Fauna assemblage; Petronijevic, 1967), where the molars have also very small size, or Sümeg (Kretzoi, 1982).

Although the palaeoecological value of the Insectivores is not a very significant one (de Jong, 1988), for the Upper Volhynian from the Bogata area, some environmental deductions can be done, based on fauna and flora data. It was a wide area besprinkled by lakes, some of them with swampy tendencies, with a rich vegetation environment, a habitat generally agreed by Insectivores. The climate was subtropical.

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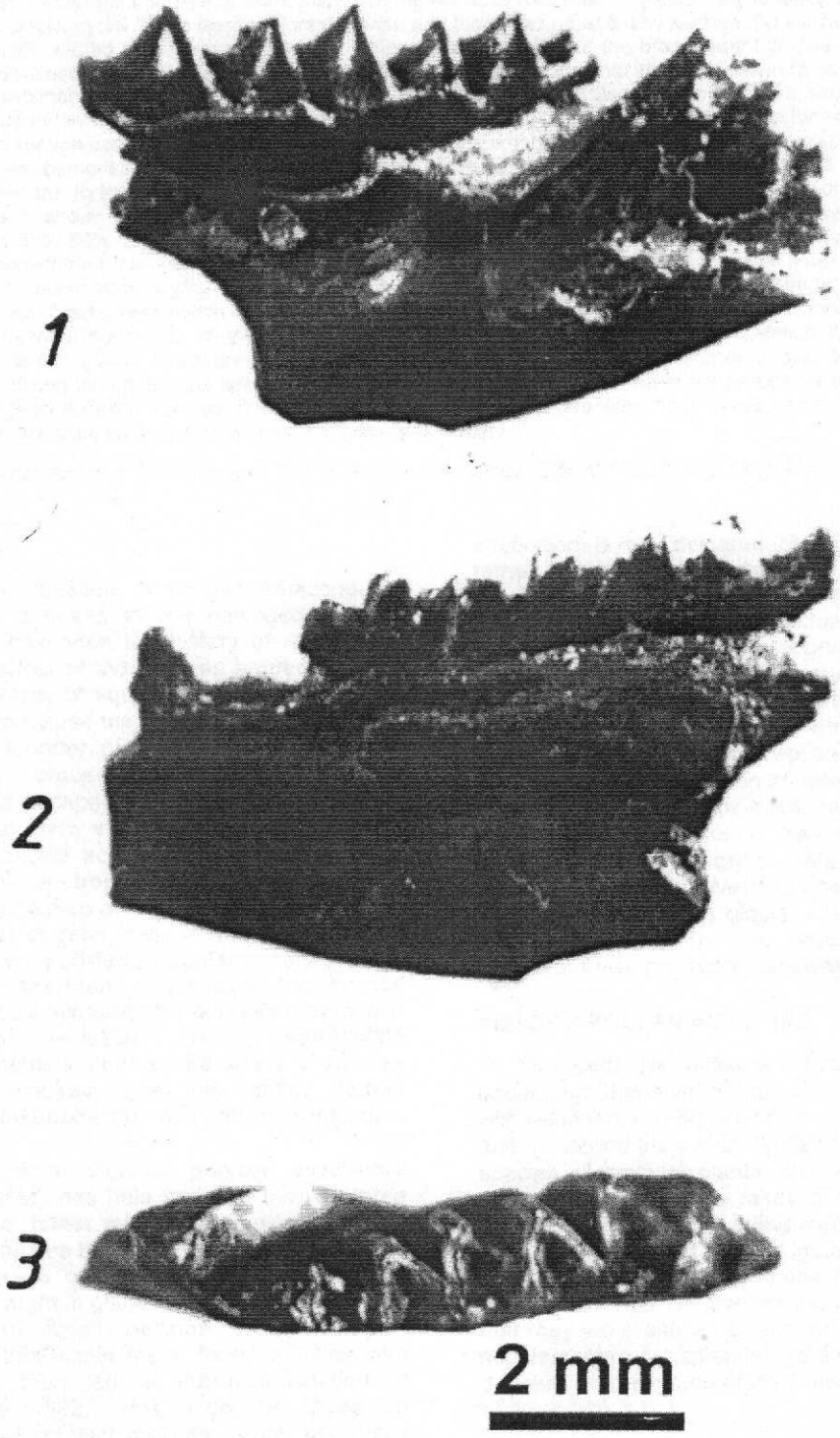
PLATES

Plate I. *Dinosorex zapfei* ENGESSER from Bogata. Mandible dext., M/1-M/3: 1 - lingual view; 2- labial view; upper view.


1
2
3
2 mm