Satu Mare – *Studii şi comunicări* | Vol. I – Ştiinţele naturii | pp. 38 - 44 | Mai 2000

CRICETUS CRICETUS GIGAS N. SSP. (RODENTIA, MAMMALIA) FROM THE LOWER PLEISTOCENE OF THE CARPATHIAN BASIN

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INTRODUCTION

Although the cricetids from the Carpathian Basin represent a rather well known micro mammalian group, there are only few studies dealing with the Pleistocene hamsters. Especially the big form of the lower Pleistocene hamster - *sensu* Kretzoi (1941) - is insufficiently studied yet. Only Schaub (1930), Kretzoi (1941), Hír & Venczel (1993) describe such material. These authors assign their lower Pleistocene specimens to upper Pleistocene taxa like the subspecies *Cricetus cricetus major*, or they determine them simple as *Cricetus* sp. The stratigraphy, taxonomy and nomenclature of the big form of the lower Pleistocene hamster being unsolved, these practices are easy to understand. However, the specimens are not only generically determinable, but also at specific and subspecific ranks. The species nevertheless is *Cricetus cricetus*. The stratigraphic separation of the lower Pleistocene material needs therefore a subspecies. Because no such a subspecies was so far described, a new subspecies should be created.

Owing to the discovery in 1989, of the new locality Subpiatră - near Aleşd town, Bihor County, Western Rumania - the author collected new and interesting fossil fauna material. Some of the collected bones belong to the big form of the hamster, and constitute the subject of the present paper.

THE NEW LOCALITY SUBPIATRĂ

The site of the new locality Subpiatră (Fig. 1) - known under the name 'Subpiatră Pot-Hole' - was situated in a big limestone quarry (Pl. I - 2). The limestones are exploited by the Enterprise for Cement from Aleşd. They contain numerous Barremian Pachyodonts (Pl. I - 1). Reddish breccia deposit filled out the diaclases of the limestones. On the occasion of the dynamiting activities in the quarry, the miners discovered the 'Pot-Hole'. The explosion unfortunately destroyed it, so we cannot 'in situ' study the field anymore. The author and Dr. Árpád Bíró from the Enterprise, saved many breccia fragments with fossil vertebrate bones by collecting, and transporting them into the Natural Sciences Department of the Ţării Crişurilor Museum at Oradea (TCMO-NS).

Venczel (1990, 1992, 1993), Czier (1992), Codrea & Czier (1993a, 1993b), Hír & Venczel (1993) studied and published part of the fossil fauna material. Another part still is in preparation in the Palaeontological Laboratories of the Ţării Crişurilor Museum Oradea, as well as at the Babeş-Bolyai University Cluj-Napoca.

According to Codrea and Czier (1993a), the vertebrate fossils of Subpiatră fit in the M_mQ-3B Biozone of Agustí *et al.* (1987). In the Carpathian Basin, this

assemblage corresponds to the lower Biharian substage - the Templomhegy horizon. The papers of Jánossy (1979, 1986) contain useful correlation of the horizon.

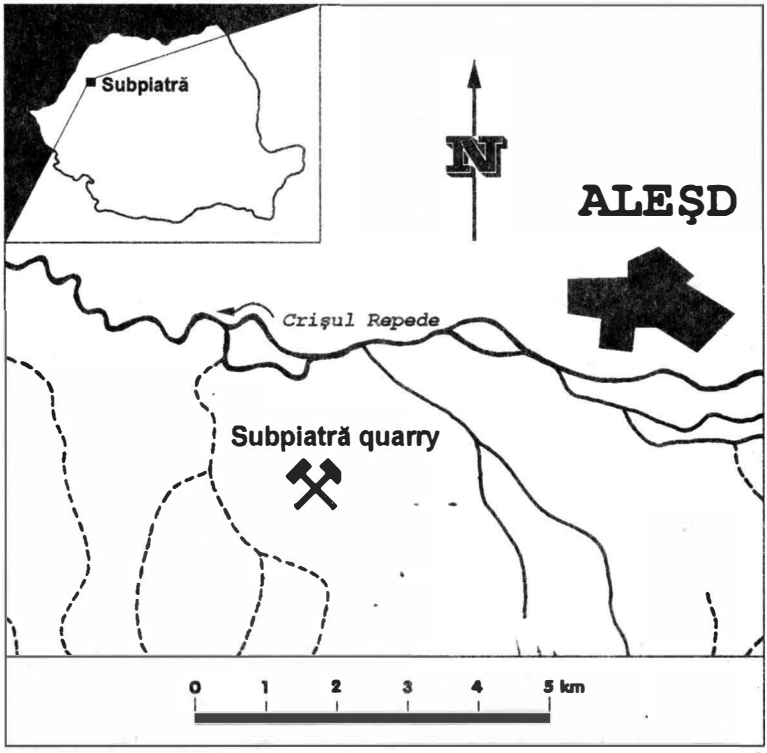

Figure 1. - Geographical setting of the type locality Subpiatră in Western Rumania

SYSTEMATIC PALAEONTOLOGY

Family Cricetidae Roquebrune 1883
Subfamily Cricetinae Murray 1886
Genus *Cricetus* Leske 1779
Cricetus cricetus Linnaeus 1758

Cricetus cricetus gigas Czier n. ssp. (Fig. 2; Pl. I - 3)

1930 *Cricetus cricetus major* Woldrich. Schaub, p. 27 (partim), fig. 19
1941 *Cricetus* sp. Kretzoi, p. 247.
1990 *Cricetus cricetus praeglacialis*. Venczel, p. 543
1993 *Cricetus* sp. Hír & Venczel, p. 92; appendix, p. 104, 105 (partim)

Holotype. TCMO-NS-17342. The author's preparation[1].
Paratypes. TCMO-NS- the specimens published by Hír and Venczel (1993).
Other specimens. Published by Schaub (1930) and Kretzoi (1941) as noted above.
Derivatio nominis. After the big dimensions.
Locus typicus. Subpiatră - 'Pot Hole' - Bihor County, Rumania.

[1] I prepared the material using acid acetic, and washing with water. I repeated these operations several times. By the last washing, I used distillate water. I impregnated the material with a polymer, after a period of a month.

Stratum typicum. The breccia deposit of Subpiatră.
Age. Lower Biharian.

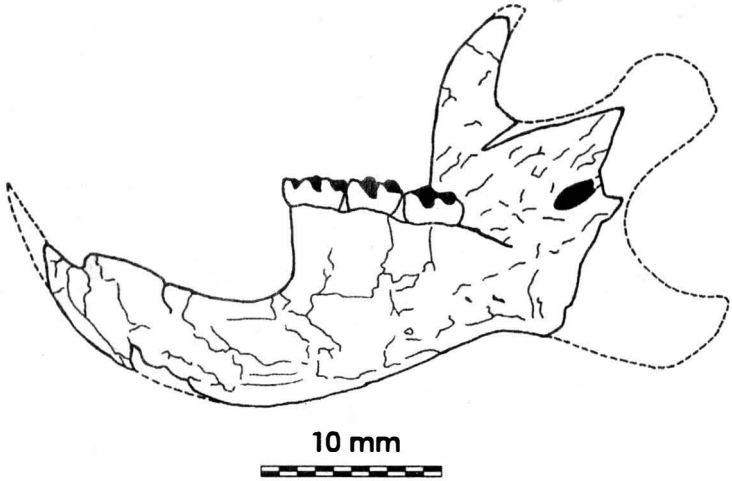

Figure 2. - *Cricetus cricetus gigas* n. ssp. Mandible dext., inner view. Holotype (TCMO-NS-17342). From the lower Biharian of Subpiatră.

Diagnosis. Subspecies defined as the big form of the lower Pleistocene *Cricetus cricetus* L., with $LM_{1-3} > 8.6$ mm.
Biometrics. The holotype consists from a mandible dext. Table no. 1 contains the results of the teeth's measurements[2]. .

The paratypes consist from a cranium, a mandible, and teeth (M^2, M^3, M_1, M_3). Hír and Venczel (1993) publish theirs measurements. Venczel (1990) determined first these specimens as *Cricetus cricetus praeglacialis*, but Hír and Venczel (1993) revise the determination, as *Cricetus* sp. However, the specimens are determinable not only at generic rank. The statistical data clearly show that they belong to the big form of the hamster.

Table No. 1

Dental biometrics of the holotype of Cricetus cricetus gigas n. ssp.

	M_1	M_2	M_3
L (mm)	3.61	3.25	3.44
W_f (mm)	1.40	2.64	2.62
W_b (mm)	1.98	2.47	-

LM_{1-3} = 10.3 mm; accuracy = 0.01 mm.

The material consists also from other pieces. A femur dext. and a tibia belong to a specimen originating from the lower Pleistocene of Nagyharsányhegy (Hungary). Schaub (1930) - on his fig. 19 - figured them under the name *Cricetus cricetus major*.

[2] The symbols are the same as in Pradel (1981).

Several dental pieces, originating from Betfia (Rumania) and from other lower Pleistocene localities of the Carpathian Basin, also appear on the list of synonymies. Kretzoi (1941) published them simply as *Cricetus* sp.

Dental limits of variation. The dimensions of the teeth are somewhat variable in the type specimens. Table no. 2 contains these limits.

Table No. 2

Dental limits of variation of the type specimens of Cricetus cricetus gigas n. ssp.

		Min.	Max.	Med.
M^1	L (mm)			4.07
	W_f (mm)			2.40
	W_b (mm)			2.62
M^2	L (mm)	3.30	3.40	3.33
	W_f (mm)	2.62	2.70	2.66
	W_b (mm)	2.35	2.70	2.54
M^3	L (mm)	2.52	2.87	2.73
	W_f (mm)	2.22	2.50	2.36
M_1	L (mm)	3.61	3.87	3.71
	W_f (mm)	1.40	1.75	1.53
	W_b (mm)	1.98	2.25	2.08
M_2	L (mm)	2.77	3.37	3.10
	W_f (mm)	2.12	2.75	2.50
	W_b (mm)	2.37	2.50	2.43
M_3	L (mm)	2.80	3.44	3.26
	W_f (mm)	2.35	2.75	2.58

The limits of variation in the new subspecies, however, I determine using also the data of the rest of the material. The low limit corresponds to the value 8.6 mm determined by Kretzoi (1941), for the big form of the lower Pleistocene hamster. The high limit, based on the data published by Schaub (1930) and Kretzoi (1941). is about 10.5 mm. It is worthy to note, that the holotype has the value LM_{1-3} = 10.3 mm, so in the new subspecies LM_{1-3} is between the limits 8.6 mm - (10.3 mm) - about 10.5 mm.

Discussion. Kretzoi (1941) has shown, that it is necessary to separate the big form of the lower Pleistocene hamster from the normal form. In this respect, he gave an extensive discussion, and I perfectly agree with him. I also agree with Hír and Venczel (1993, p. 96): the identity of the upper Pleistocene and lower Pleistocene big hamster is not probable.

I consider, that the lower Pleistocene and upper Pleistocene big hamsters stratigraphically are different subspecies. The upper Pleistocene subspecies *Cricetus cricetus major* Woldrich (1880) (or *C. major - sensu* Fahlbusch 1976), is well documented from the whole Eurasia. However, for the lower Pleistocene big form of the hamster from the Carpathian Basin, I propose the new subspecies *Cricetus cricetus gigas*. Pradel (1988) extensively studied the subspecies *Cricetus cricetus runtonensis* Newton (1909), that is a distinct northern subspecies. *Cricetus cricetus gigas* is a southern subspecies, with geographic own area, restricted to the Carpathian Basin.

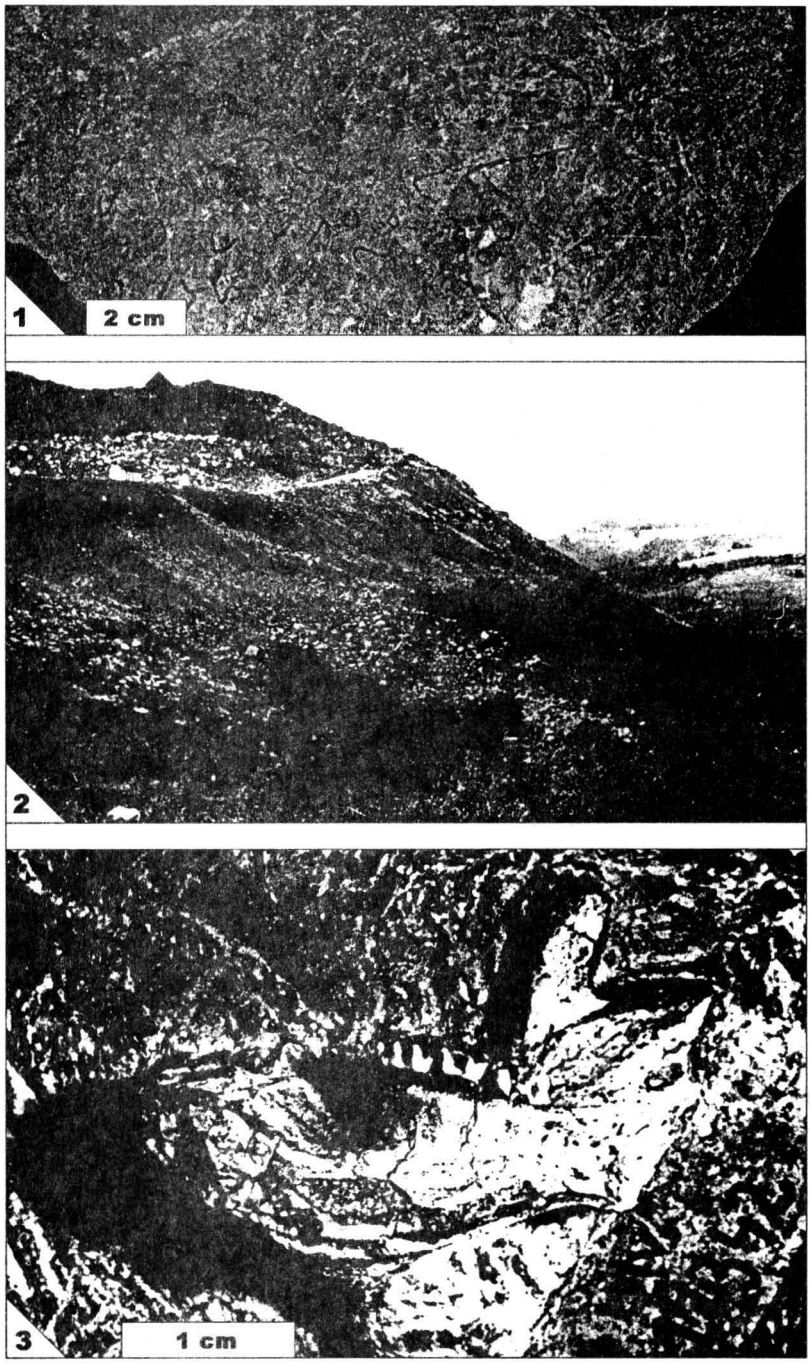

Plate I. 1. Barremian grey limestone with Pachyodonts. From Subpiatră quarry. 2. Location of 'Subpiatră Pot-Hole' in Subpiatră quarry. 3. *Cricetus cricetus gigas* n. ssp. Mandible dext., inner view. Holotype (TCMO-NS- 17342).

CONCLUSIONS

The lower Pleistocene and upper Pleistocene big hamsters belong to different subspecies.

The lower Pleistocene big hamster from the Carpathian Basin is proposed as new subspecies, named *Cricetus cricetus gigas.*

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Cricetus cricetus gigas n. ssp. (Rodentia, Mammalia) din Pleistocenul inferior al Bazinului Carpatic (Rezumat)

*Studiile publicate până în prezent au lăsat deschisă problema stratigrafică, taxonomică şi nomenclatorică a formei mari de hârciog din Pleistocenul inferior. În lipsa unui taxon infrageneric valabil pentru Pleistocenul inferior, autorii au atribuit exemplare de **Cricetus** - forma mare - unor taxoni cunoscuţi din Pleistocenul superior sau le-au determinat numai la rang de gen. Revizuirea acestor determinări şi studiul unor exemplare relevante, colectate din Biharianul inferior de la Subpiatră (Judeţul Bihor), au condus la necesitatea şi posibilitatea definirii unei subspecii noi. Subspecia este denumită **Cricetus cricetus gigas**, după dimensiunile mari ale pieselor scheletice - LM_{1-3} între 8.6 mm - (10.3 mm) - 10.5 mm. Răspândirea caracteristică este Pleistocenul inferior din Bazinul Carpatic.*