

Giant hyena, *Hyaena brevirostris* Aymard (Mammalia, Carnivora), from the Middle Pleistocene of Manastirec, Yugoslavia

Björn Kurtén[†] & Risto Garevski

Kurtén, B. & Garevski, R. 1989: Giant hyena, *Hyaena brevirostris* Aymard, from the middle Pleistocene of Manastirec, Yugoslavia. — Ann. Zool. Fennici 26:145–147.

Three mandibles of *Hyaena brevirostris* Aymard were found in a bone breccia by the village of Manastirec in Macedonia, Yugoslavia. They serve to increase the data base of this comparatively rare species in Europe. The fauna as a whole indicates an early middle Pleistocene (Galerian) date.

R. Garevski, ul. Dim. Mirasciev 15, 91000 Skopje, Yugoslavia.

1. Introduction

A cave in dolomite limestone close to the village of Manastirec, Macedonia, Yugoslavia, has yielded a fossil fauna of middle Pleistocene age, which will be reported on in more detail elsewhere. It is situated at an elevation of about 15 m above the creek which flows through the village. The main part of the cave fill is a bone breccia about 2 m in depth, and topped by a sterile clay containing limestone and other boulders. Preliminary identifications include:

- 1) *Dicerorhinus etruscus* and *D. kirchbergensis* (lower jaw fragment, isolated upper and lower teeth)
- 2) *Sus scrofa* (a few cheek teeth and canines)
- 3) *Bison* sp. (isolated teeth, metapodials)
- 4) *Castor fiber* and *Hystrix* sp. (isolated teeth, lower jaws)
- 5) *Canis* sp. (lower jaw fragment)
- 6) *Ursus deningeri* (upper and lower jaw fragments, isolated cheek teeth and canines)
- 7) *Hyaena brevirostris* (one nearly complete and two fragmentary lower jaws).

Finds of *Hyaena brevirostris* are comparatively scarce, and new material is important in establishing a database for this species. The Manastirec specimens are here briefly described and their measurements placed on record.

2. Description and comparison

Family **Hyaenidae** Gray, 1869

Genus ***Hyaena*** Brisson, 1762

Subgenus ***Pachyrocuta*** Kretzoi, 1938

Species ***Hyaena brevirostris*** Aymard, 1846

Material (see Fig. 1): No. 296, left ramus fragment of young adult with P3–4; No. 297, left ramus of slightly older individual with C–M1; No. 298, right ramus fragment of very young individual with P4–M1 in situ and P3 emerging. The specimens belonged to three different individuals.

Measurements of the teeth from Manastirec have been compared with data for European *Hyaena brevirostris* (Table 1). The latter sample dates from the early Pleistocene, i.e. late Villafranchian (localities Valdarno and Olivola) and early middle Pleistocene, i.e. Galerian (localities Forest Bed, Sainzelles, Süssenborn, Gombaszög, Meiningen and Stránská skála) (see Kurtén 1972 and references therein). The Villafranchian and Galerian subsamples have been compared and show no significant differentiation; the combined sample has very low variation (all coefficients of variation are between 3.2 and 5.9, a characteristic range in homogeneous populations). Thus, there is no evidence of evolutionary change during the species' existence in Europe. The measurements of the Manastirec material fall comfortably within the observed ranges of the Villafranchian to Galerian.

The canine (in No. 297) is badly broken and no measurement of the crown is possible. However, the

[†]28.12.1988

Table 1. Measurements of mandibular cheek teeth in *Hyaena brevirostris* from Manastirec, and statistics for comparative sample from Europe, Villafranchian to Galerian. *N*, number of specimens; *SE*, standard error; *SD*, standard deviation; L, length; B, breadth; a, approximate measurement.

		Manastirec			<i>N</i>	Europe: Villafranchian to Galerian			<i>SD</i>
		No. 296	No. 297	No. 298		Range	Mean	<i>SE</i>	
P2	L	—	19.2	—	18	17.8–21.5	18.80	0.21	0.87
	B	—	13.6	—	18	12.2–15.5	13.70	0.18	0.75
P3	L	25.3	27.5	25.9	26	22.7–26.3	24.52	0.20	1.02
	B	19.0	18.6	17.7	23	16.0–19.4	17.94	0.19	0.93
P4	L	26.0	27.5	28.0	28	25.2–29.2	26.81	0.21	1.12
	B	17.0	18.8	17.6	27	15.4–20.0	17.55	0.20	1.04
M1	L	—	28.6	30.3	19	27.2–32.0	29.43	0.31	1.33
	B	—	16	a15.4	19	13.7–17.0	15.08	0.19	0.83
P2–M1		—	94	—	14	88–99	92.5	0.8	3.0

root testifies to the large size of this tooth, as in *H. brevirostris*.

The second premolar, as always in *Hyaena*, is a comparatively large, high-crowned tooth with big protoconid and small posterior cusp (in *Crocuta* the protoconid is low and the posterior cusp large). The tooth is keeled fore and aft and the anterior keel roots itself in the prominent basal triangle which is also a typical *Hyaena* character, and which is seen on the other premolars as well.

The third premolar is present in all specimens and completely unworn in No. 298. It has the configuration of *Hyaena* with a small posterior cusp intervening between protoconid and cingulum. The crown height of No. 298 (from basal incurvation) is 24.8 mm.

The fourth premolar is also represented by three specimens, of which No. 298 is unworn, with a crown height of 21.3 mm. The anterior and posterior cusps are high and less separated from the protoconid than in *Crocuta*, which gives the tooth a very different profile in the two genera.

The carnassial is a stout tooth with a very broad trigonid and small talonid. No. 298 is unworn but damaged on the buccal face; No. 297 is well preserved but worn. Neither specimen carries a metaconid; this element is but rarely seen in *H. brevirostris*. The talonid has a single trenchant cusp. This is the most common condition in *H. brevirostris*, but a fair number of specimens have two talonid cusps and

Table 2. Frequency of talonid cusp numbers in lower carnassial of *Hyaena brevirostris*, Villafranchian and Galerian.

	Number of talonid cusps		
	1	2	3
Villafranchian	6	4	1
Galerian	6	4	1

Table 3. Mandibular measurements of *Hyaena brevirostris*, Manastirec.

	No. 296	No. 297
Length of fragment	70	136
Depth between P2–P3	—	47.5
Depth between P3–P4	47	—
Thickness beneath P2	—	30.5
Thickness between P3–P4	24	27.5
Thickness beneath P4	—	22
Diastema C–P2	—	13

there are occasional variants with three. There is no association between geological age and number of talonid cusps (Table 2).

The enamel is rough and wrinkled in all the teeth.

The mandibular fragments testify to the large dimensions and robusticity of the jaws (see Table 3). The measurements are typical for *H. brevirostris*.

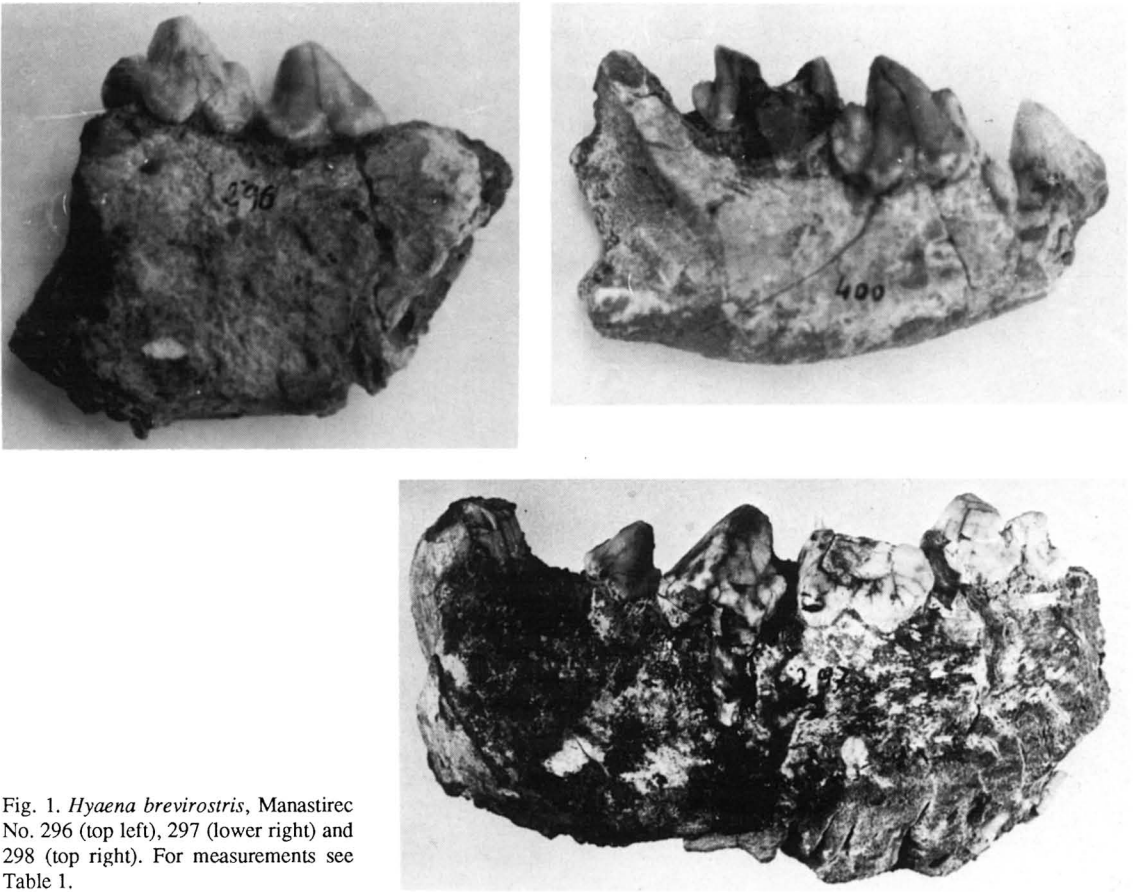


Fig. 1. *Hyaena brevirostris*, Manastirec No. 296 (top left), 297 (lower right) and 298 (top right). For measurements see Table 1.

3. Discussion

Hyaena brevirostris is known from the late Villafranchian (e.g. Valdarno, Olivola) and from the Galerian, or early middle Pleistocene, in Europe. Galerian sites are numerous and include the Forest Bed, Westbury, Sainzelles (type locality), Süssenborn, Meiningen, Stránská skála, Gombaszög and Petralona; mostly, the species is represented only by one or a few specimens, the somewhat larger Valdarno sample being an exception. On present evidence, the species persisted throughout this span of time with no discernible change. The Manastirec sample thus could be either late Villafranchian or Galerian.

The accompanying fauna excludes the possibility of a Villafranchian age. Association with *Ursus deningeri*, *Dicerorhinus kirchbergensis* and *Bison* proves that the age of the fauna is Galerian, or broadly 0.5–1 MA.

Reference

- Kurtén, B. 1972: Fossil Hyaenidae from the excavations at Stránská skála. — *Anthropos, Studia Musei Moraviae* 20:113–120.

Received 18.XI.1988

Printed 24.XI.1989