

## ***Elephas antiquus* (Mammalia: Proboscidea) in Bulgaria**

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**Abstract.** The paper describes the few remains of *Elephas antiquus* – teeth and dental fragments – known from the territory of Bulgaria. Most of the specimens are previously unpublished. The majority of the finds are from NE Bulgaria, often from the bottom of the Danube.

**Key words:** Proboscidea, Elephantidae, *Elephas antiquus*, Bulgaria, Pleistocene

### **Introduction**

As with the rest of mainland Europe, genus *Elephas* is represented in the Pleistocene of Bulgaria with a single species, *Elephas antiquus* Falconer & Cautley, 1845. Three finds were described by BAKALOV & NIKOLOV (1964); several others are stored at the collections of the Regional History Museum – Russe (NE Bulgaria). Briefly mentioned by MARKOV (2004), they have not been published so far.

### **Material and methods**

Material: SU322: d4 sin; SU320: M2 dext; NMNH FM2016: M2 sin; RIM584: M3 sin; RIM1518: m3 sin; RIM580: m3 dext; RIM581: m2? dext; RIM577: posterior fragment of a first or second lower molar.

Methods: Dental measurements follow LISTER (1996).

Institutional abbreviations:

SU: Palaeontology Museum of the Sofia University, Sofia.

RIM: Regional History Museum, Russe.

NMNH: National Museum of Natural History, Sofia.

Table 1

***Elephas antiquus* from Bulgaria, dental measurements. L: length; W: width; P: plate number; LF: lamellar frequency; H: height; ET: enamel thickness; x: talon(id)s; -: missing part of the tooth; e: estimated value. All measurements in mm**

| Specimen         | L    | W  | P       | LF   | H    | ET  | locality      |
|------------------|------|----|---------|------|------|-----|---------------|
| SU 322: d4s      | >89  | 60 | (x)-6x  | ?    | ?    | 2.0 | Russe         |
| RIM 577: ?m1/2   | >130 | 64 | -6x     | 5    | >97  | 2.0 | Silistra      |
| RIM 581: m?2d    | >182 | 66 | -10x    | 6    | 115  | 2.0 | Ryahovo       |
| RIM 580: m3d     | 370e | 86 | x17x    | 5.5  | 172  | 2.5 | Ryahovo       |
| RIM 1518: m3s    | 370  | 93 | (x)-16x | 4.75 | >150 | 2.5 | unknown       |
| SU 320: M2d      | >100 | 72 | -6x     | 6    | >90  | 2.5 | near Dupnitsa |
| NMNH FM2016: M2s | 188  | 93 | -10x    | 6    | >120 | 2.3 | unknown       |
| RIM 584: M3s     | >230 | 71 | x14-(x) | 6.5  | >183 | 2.0 | Ryahovo       |

### Description and discussion

(See Table 1 for metrical data and Fig. 1 for a map of the localities).

The three previously published finds of *Elephas antiquus* from Bulgaria are:

SU 322, d4 sin from Russe, NE Bulgaria. Precise locality unknown. Published by BAKALOV & NIKOLOV (1964, Pl. XX, Fig. 1: NOT Fig. 2, as erroneously stated in the text and figure caption), as “deciduous m2”. In the figure caption the tooth is designated as m2 (with “deciduous” missing). The tooth is almost intact: six plates and the posterior talonid (-6x) preserved within a fragment of the mandible. The anterior part of the crown is damaged, but the anterior wall of the root is intact. Probably only the anterior talonid is missing. Occlusion on all six plates. The enamel is thick, slightly plicated, plates with visible sinuses.

SU 320, M2 dext from the area of Dupnitsa, SW Bulgaria: BAKALOV & NIKOLOV (1964, p. 204). Partially preserved (six plates and talon).

NMNH FM2016, M2 sin, locality unknown. Published by BAKALOV & NIKOLOV (1964, Pl. XIV, Fig. 1: NOT Fig. 2, as erroneously stated in the text and figure caption). The collection number of the specimen given by BAKALOV & NIKOLOV (1964) is SU 240; another number visible on the specimen is SU 321. Partially preserved (-10x); the full plate number was most probably 11 or 12. The posterior talon is very weak, almost absent: asymmetric and deformed by the pressure of the M3. A significant part of the posterior root’s posterior wall is preserved. Occlusion on all plates. The enamel is strongly plicated, plates with one or three sinuses on the posterior walls.

The collection of the Regional History Museum – Russe (RIM) stores five other specimens, previously unpublished:

RIM 1518, m3 sin (Fig. 2). Locality unknown, apparently from the area of Russe. The tooth, found with a fragment of the hemimandible (same collection number), is almost perfectly preserved – 16 plates and the posterior talonid, most probably only the anterior talonid is missing. The tooth crown is high and narrow, as typical for the species. Well pronounced sinuses,



Fig. 1. Map of the Bulgarian *E. antiquus* localities mentioned in the text. 1: Russe; 2: Ryahovo; 3: Silistra; 4: Dupnitsa. Precise localities of all finds unknown

occlusion on all plates except the posterior talonid. Enamel strongly plicated and relatively thick. On the 11th and 12th plate, the typical “dot-dash-dot” occlusion pattern is observable. Both morphologically and metrically, this is a typical *E. antiquus* m3.

RIM 584, M3 sin from Ryahovo, NE Bulgaria<sup>1</sup>. Relatively well preserved (x14-), with probably only the posterior talonid missing. A trace of an additional half-plate can be seen on the lingual side. Occlusion on the first 10 plates (the 10th at initial stage), enamel plicated, the sinuses are not too clear.

RIM 580, m3 dext from Ryahovo. The roots are missing, the anterior part of the tooth is not intact: part of the buccal wall at the occlusal surface of the first three plates is damaged. Nevertheless, in lingual view the high contact between the first two plates is clearly visible, so most probably this is the anterior talonid, of which only the posterior wall is preserved. The posterior end of the tooth bears no traces of damage, but the posterior talonid resembles a plate in its low positioned base. However, it's about twice as narrow as the previous plate, which supports its designation as talonid. Thus the full plate number of RIM 580 should be x17x (or mostly x18x, allowing for an error on the anterior talonid). Both values are within the range quoted for *Elephas antiquus* by MAGLIO (1973). Occlusion on the first 11 plates. No pronounced sinuses on the occlusal surface, except on the third plate, but the last four plates and the posterior talonid have visible sinuses at their bases in ventral view. The “dot-dash-dot” occlusion pattern is visible on the eighth and ninth plates.

RIM 581, m2? dext from Ryahovo. Partially preserved (-10x) right lower first or second molar. Broken in two, roots are missing. The anterior end is not entirely preserved. Posterior talonid

<sup>1</sup> Materials at the RIM collection labeled “Ryahovo” are actually a heterogeneous assemblage of fossils collected for decades by a dredge operating near the village Ryahovo within an area of several square kilometres (V. Petkov, pers. comm.).

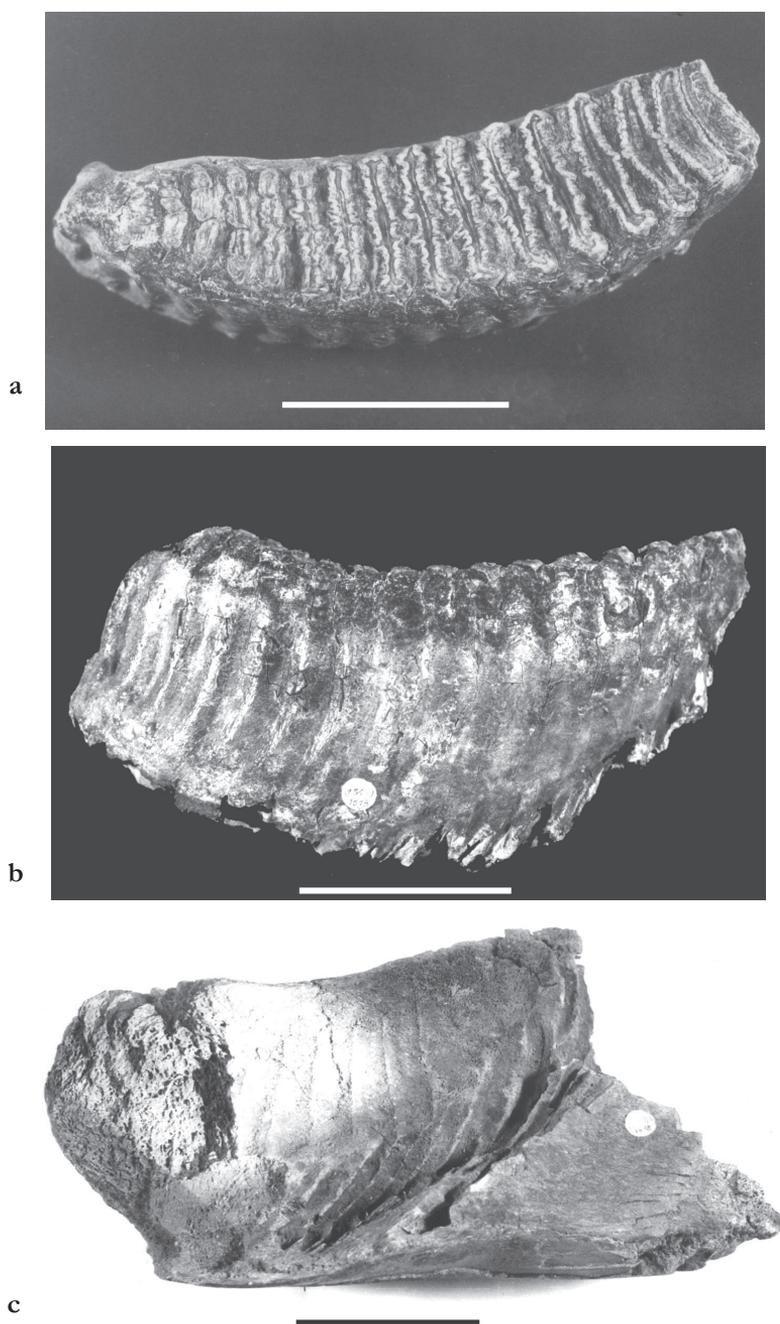


Fig. 2. RIM 1518, third left lower molar of *Elephas antiquus* with a fragment of the mandible: occlusal (a) and lingual (b) view of the tooth; (c): mandible fragment, lingual view. Scale line: 10 cm

asymmetric, displaced lingually. On its posterior wall, the contact facet with the next molar is clearly seen. Occlusion on all plates except the posterior talonid. Second, third and fourth of the preserved plates (the fifth is restored, permitting no observations) have both anterior and posterior sinuses, the first plate – only posterior. It is possible that the first preserved plate is indeed first and only the anterior talonid is missing. Even if the full plate number is only 10, the measurements of the tooth are close to the maximum values for m1 of *E. antiquus*, with the width beyond the maximum (see MAGLIO, 1973), so a second molar seems more probable.

RIM 577, posterior fragment of a first or second molar, probably lower, from Silistra (NE Bulgaria). Preserved are the last six plates and the posterior talonid, and a part of the posterior root. The first three of the preserved plates have visible posterior sinuses. Occlusion on all plates, the “dot-dash-dot” occlusion pattern is seen on the last two. At the posterior end, a contact facet is visible.

A major disadvantage is that all eight specimens described above are occasional finds not accompanied by any other fauna, the localities are approximately known if at all, data on the stratigraphy are missing, and, consequently, the age of all specimens cannot be determined except in broadest terms.

## Conclusions

So far, *Elephas antiquus* is represented in the fossil record of Bulgaria with eight finds. Most are from the NE part of the country: close to the Danube or from the river itself. All specimens are isolated finds, their precise age and localities are unknown. Thus the problem of the species time span on the territory of present day Bulgaria, compared to data from the rest of Europe, remains unresolved.

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### ***Elephas antiquus* (Mammalia: Proboscidea) в България**

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(Резюме)

Статията описва немногобройните находки на *Elephas antiquus* – зъби и зъбни фрагменти – известни от територията на България. Повечето от находките се публикуват за пръв път. По-голямата част са от северизточна България, често от дъното на река Дунав.