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Craniomandibular remains of *Anancus arvernensis* (Proboscidea, Mammalia) from Greece: The samples from Kallíphytos (E. Macedonia) and Sésklo (Thessaly)

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ABSTRACT

Anancus arvernensis is frequent in the European Pliocene and Lower Pleistocene, but it is mostly represented by isolated molars, as mandibular and particularly cranial finds are rare. An almost complete mandible from Kallíphytos, a new locality in N. Greece, and a partial skull from Sésklo are described in the present study. The mandible is very robust, brevirostrine and tuskless. It preserves the third molars on both sides, which are of simple structure and exhibit the alternating semilophid pattern (anancoidy), a characteristic dental feature of this species. The Kallíphytos specimen is very similar morphologically and metrically to a previously published mandible from Sésklo and other finds from Europe, as the sample from Chilhac.

The skull from Sésklo is massive, high domed and brachycephalic, referred to a male individual. It has a markedly convex dorsal profile, unlike most available cranial specimens or reconstructions of *Anancus* from Europe and Asia. It is larger from the female skull from Chilhac, a difference attributed to sexual dimorphism.

1. Introduction

Fossil Proboscidea are common in the fossil record of Greece, being known from more than 75 sites (Doukas and Athanassiou, 2003). Most of these occurrences refer to members of the family Elephantidae, as older, less derived proboscideans are comparatively underrepresented. An exception to this is the genus *Anancus* Aymard, 1855, the last gomphothere to have survived in Europe: *Anancus* is known from at least twelve localities in Greece spread throughout continental Greece and certain Eastern Aegean islands (Fig. 1). It is the most common non-elephantid proboscidean in the country (Athanassiou and Kostopoulos, 2001; Doukas and Athanassiou, 2003). In most localities, the available samples consist of isolated dental material, as a result of occasional fossil discoveries and collections usually by non-specialists. Nevertheless, important craniodental specimens have also been found during the last decades. An almost complete mandible and a taphonomically associated partial skull were unearthed in 1971 from the clay pit of Sésklo (Magnesia, Thessaly) during quarrying works (Tataris, 1975; Symeonidis and Tataris, 1983; Athanassiou, 1998). Sésklo is an Early Pleistocene locality with a rich fossil mammal diversity. In 1995, a juvenile partial skull with both tusks and molars in situ was spotted and excavated in a road section cut in Pliocene deposits at Apolakkiá, Rhodes (Theodorou et al., 2000). Another almost complete mandible was excavated in 2005 by the village Kallíphytos near to the town of Dráma (Eastern Macedonia). The latter specimen has been the occasion of this study and it is described and is compared here to the already published Sésklo mandible. The partial skull from Sésklo, which was preliminarily presented by Athanassiou (1998) and Athanassiou and Kostopoulos (2001) but remained largely unprepared until very recently, is also described here, in order to offer a more complete picture of the craniomandibular specimens from Greece referred to the genus *Anancus*.

1.1. Methods

The general terminology used follows standard anatomical reference publications, as König and Liebich (2004) and I.C.V.G.A.N

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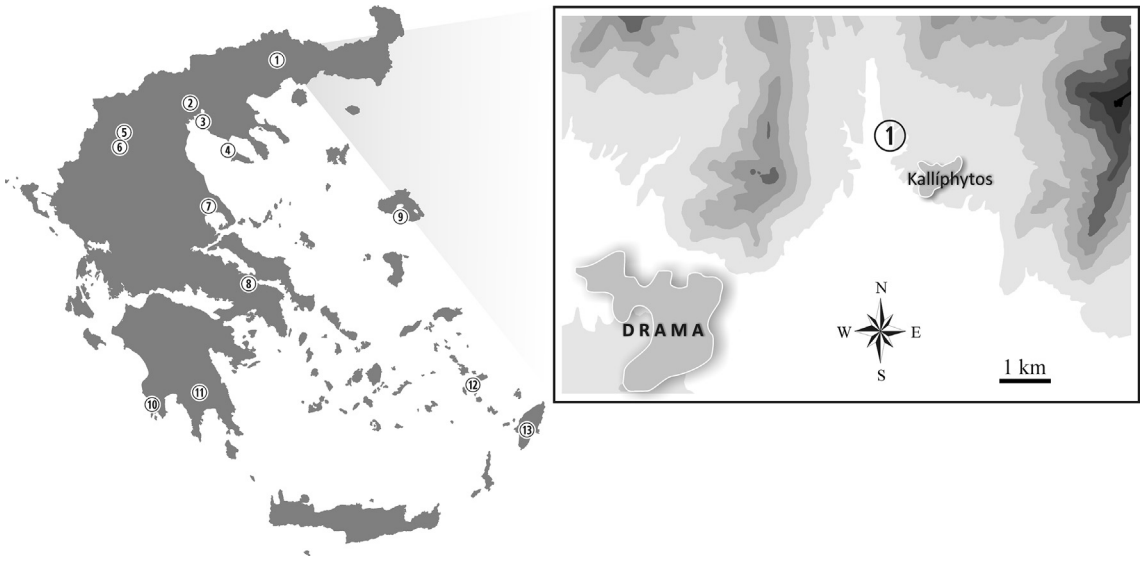

Fig. 1. Geographic location of the new locality Kallíphytos, region of Dráma, East Macedonia, Greece (41.1802°N, 24.2035°E, WGS84 datum, elevation: 198 m), together with a map of Greece showing the distribution of known *Anancus* occurrences: (1) Kallíphytos, (2) Géphyra (Axiós River dam), (3) Agía Triáda, (4) Sáni, (5) Klíma, (6) Miliá, (7) Sésklo, (8) Eleónas, (9) Vaterá, (10) Pýlos, (11) Skoúra, (12) Antimáchia, (13) Apolakkiá. An additional uncertain occurrence is at Polýlakkon, very close to Klíma. Contour interval: 100 m.

(2005), as well as van der Merwe et al. (1995) regarding specifically the proboscidean osteology. The dentition is described according to the terminology of Tobien (1973), which in turn was based on Vacek's (1877) and Osborn's views (summarised in Osborn, 1942; pp. 1545–1546). More recently, the proboscidean dental terminology was systematised by Tassy (1996). The used odontological terms for gomphotheriid lower molars are briefly the following: Each transverse lophid is divided into two semilophids, the most worn (labial in lower teeth) of which is called the 'pretrite', and the least worn (lingual in lower teeth) is called the 'posttrite'. The smaller cuspids between the main pre- and posttrite conids are referred to as 'conelets', while 'conules' are the ones situated on the mesial and distal slopes of the lophids. All measurements are given in mm. The rostrocaudal, transversal and dorsoventral diameters are dubbed 'length', 'width' and 'height' respectively.

2. The Kallíphytos mandible

The presence of a fossil bone in Kallíphytos area was initially reported to the Ministry of Culture by local people. During the promptly organised expedition (November 2005) an exposed bone part was found in a dirt road section, which had apparently come to the surface due to erosion. The find is located 1300 m NW from Kallíphytos centre, at 41.1802°N, 24.2035°E (WGS84 datum) and an elevation of 198 m. The subsequent excavation revealed a proboscidean mandible in overturned position (i.e. sitting on the symphysis and the rami; Fig. 2), as it is often the case with disarticulated mandibles of elephant carcasses (e.g. Haynes and Klimowicz, 2003, fig. 2). Although there are extensive sections in the Kallíphytos area, no other fossils were found during the initial expedition, as well as in brief, more recent surveys. The specimen belongs to the

Fig. 2. *Anancus arvernensis* mandible from Kallíphytos in situ. The specimen was deposited in coarse gravel in overturned position. The symphyseal region (in the foreground) was exposed and already eroded before the excavation. Note the presence of a cobble labially to the right molar (b) and the roots that penetrate through the specimen (a, b). Hammer length: 28 cm.