

Proboscidea from the Late Miocene of Kerassiá (Euboea, Greece)

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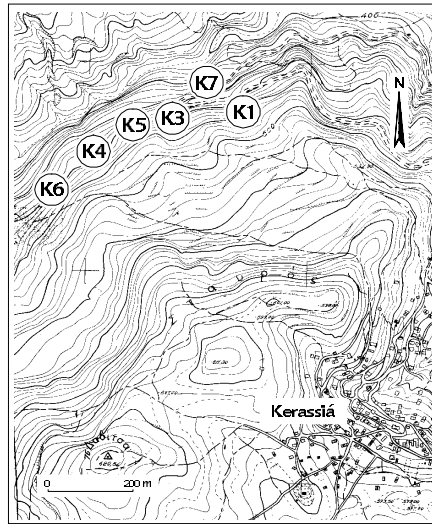


Introduction

Kerassiá is situated in the Northern part of Euboea Island. It is a relatively new locality. It was first found in 1981 by R.W. KÖHLER, during geological fieldwork in the area. However, some fossil bone outcrops were already known to local people since 1966, after a road cut north of the village. The first excavation in the area was carried out in 1982 by Hans DE BRUIJN, Albert VAN DER MEULEN (University of Utrecht) and Constantine DOUKAS (University of Athens). This was not followed by other fieldwork until 1992, when the University of Athens began new field studies and systematic excavations in the locality, under the direction of George THEODOROU. The preservation of the fossils is usually very bad, making their excavation and preparation very difficult and time consuming. The material from Kerassiá, including this of the 1982 excavation, is currently stored in the Museum of Palaeontology and Geology, of the National and Kapodistrian University of Athens.

The Fossil Sites

Until now seven fossil mammal sites —namely K1, K2, K3, K4, K5, K6 and K7— have been brought to light and have been partly excavated. All are situated N-NW of the village of Kerassiá. Three of these sites, the K1, K3 and K4, are very important, as they are very rich in



material. The currently available stratigraphical data permit the grouping of the sites into two fossiliferous layers, an upper and a lower one (THEODOROU *et al.*, in press). The upper fossiliferous layer comprises the sites K1 and K6 and the lower one the sites K2, K3 and K4. The relative position of K5 and of the newly discovered K7 is currently under study. THEODOROU *et al.* (in press) consider the locality of MN12 (Turolian) age, though an MN11 dating cannot be rejected.

	KER	K1	K2	K3	K4	K5	K6
Carnivora							
<i>Machairodus giganteus</i>							+
<i>Metailurus cf. parvulus</i>		+					
<i>Adcrocuta eximia</i>		?			+		
<i>cf. Ictitherium pannonicum</i>				+			
<i>Plioviverrops</i> sp.				+			
Proboscidea							
<i>Deinotherium</i> sp.	+						
<i>Tetralophodon cf. longirostris</i>					+		
<i>Choerolophodon</i> sp.		?					+
Artiodactyla							
<i>Microstonyx major erymanthus</i>	+	+					
<i>Palaeotragus</i> sp.		+		+	+		
<i>Helladotherium cf. duvernoyi</i>		+			+		
<i>Bohlinia</i> sp.	+						
<i>Samotherium</i> sp.		+					
<i>Tragoptax cf. amalthea</i>		+					
<i>Gazella</i> sp.	+	+			+		
<i>Dorcatherium</i> sp.	+						
Perissodactyla							
<i>Hipparion</i> sp.		+	+	+	+	+	
<i>Ceratotherium neumayri</i>				+			
<i>"Dicerorhinus" cf. pikermiensis</i>					+	+	
Rhinocerotidae sp. nov.					+		
<i>Ancylotherium</i> sp.		+			+		
Tubulidentata							
<i>Orycteropus</i> sp.		+					
Aves							
Genus and sp. indet.					+		

The Fauna

The fossil findings of Kerassiá are until now known from:

- The unpublished dissertation of KÖHLER (1983)
- A brief description of suids in VAN DER MADE & MOYÁ-SOLÁ (1989)
- Two preliminary oral presentations in the Xth and XIth RCMNS Congresses (THEODOROU *et al.* 1995, THEODOROU *et al.* 1998)
- A description of the findings until summer 2000 (THEODOROU *et al.* in press)
- A study of the carnivores (ROUSSIAKIS & THEODOROU in press)

A list of the taxa representation in each site is given above. The most frequent elements are the hipparions and the bovids. However, their presence is weaker (in percentage of individuals) than it is usual in the Greek Late Miocene localities. The bovids are represented mainly by dental material making their identification doubtful. The Giraffidae are well represented, mainly by *Helladotherium*. The Rhinocerotidae findings include some very rare and impressive specimens (complete skulls and mandibles).

The numerous specimens found during the 1982 excavation are grouped in the faunal list under the site designation KER. The exact location of the excavation is not known; however, there are some indications that KER is very close or even coincides with K1.

The fauna suggests a fairly open environment (possibly open woodland), as the forest elements (suids, cervids, etc.) are rare or absent.

The partly preserved scapula K4/Δ20.1 is of very large dimensions. It is characterised by very robust spine and acromion. Its preserved length is 88 cm and the maximal diameter of the articular facet is 23 cm. Some resemblance with *Deinotherium* specimens is observed; however, no direct comparison is possible for the moment. Therefore K4/Δ20.1 is referred to Proboscidea indet.

Conclusions

The studied material adds the following taxa to the faunal list of Kerassiá:

- *Tetralophodon cf. longirostris* at K4
- *Choerolophodon* sp. at K6 and possibly at K1
- Proboscidea indet. at K4

Tetralophodon longirostris is considered of MN8-MN11 age (GÖHLICH, 1999), though MEIN (1990) accepts the species' presence in MN12 too. *Choerolophodon* has a wide biochronological range that covers the entire Miocene (SHOSHANI & TASSY, 1996: 338). These datings are in accordance with the currently available biochronological data, derived from the study of the rest of the fauna (plausibly MN12, but an MN11 dating cannot be rejected – THEODOROU *et al.*, in press).

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Proboscidean Remains

The proboscidean findings are scanty in relation to the generally good representation of the other taxa, especially the large sized ones. The currently available specimens include:

- A large sized tusk from K6 (specimen K6/Δ1)
- A small sized tusk from K1 (specimen K1/Δ10)
- A molar from K4 (specimen K4/Δ384.4)
- A scapula from K4 (specimen K4/Δ20.1)



The tusk K6/Δ1 is stout and of fairly big dimension. It shows moderate bend and weak torsion. The retained length, following the tooth bend, is 189 cm. As the tip and a small distal part are missing, we estimate a life length of a little more than 200 cm. Its maximal perimeter is 52 cm. The cross section is more or less circular. There is no enamel band in the retained part.

The tusk K1/Δ10 is of small diameter; its perimeter does not exceed 28 cm. The cross section is almost circular. It shows moderate bend, but no torsion. The total retained length (following the bend) is 132 cm. The specimen is preserved in very bad condition.

The absence of enamel band gives an "advanced" character to the large tusk. The genera *Choerolophodon*, *Mammuth* and *Tetralophodon* do not retain this band in the upper incisors (GÖHLICH, 1999). However, *Mammuth* and *Tetralophodon* have generally more straight tusks. Thus the large tusk can be referred to *Choerolophodon* sp. The bad conservation of the smaller tusk does not permit any safe generic attribution. Because of its moderate bend, it could be attributed with reservation to *Choerolophodon* sp.

The lower molar of specimen K4/Δ384.4 is an intermediate one; plausibly a fourth deciduous molar (D₄). It is bunodont, with four lophids and a fairly small talonid. The lophids are worn and the dentine is exposed, except for the fourth one, where the enamel is slightly worn. The interlophid valleys are blocked by conules that are mainly situated in the median part of the occlusal surface, between each pretrite pair. They are very small between the third and the fourth lophid. The enamel is relatively thick with smooth surface. There is no trace of cement in the tooth valleys. The talonid comprises of at least four conules, which are larger buccally (pretrite side). The maximal tooth dimensions are 87 mm (DAP) and 49 mm (DT). A small part of the mandibular bone is also retained; it is low, having a maximal height of 75 mm.

The presence of four lophids, as well as the absence of cementodontology, choerodonty (conid multiplication) and ptychodontology (furling of the enamel surface) point to the tetralophodont group of the Gomphotheres (OSBORN, 1936; TOBIEN, 1978; GÖHLICH, 1999). Additionally, the absence of anacooidy (alternation of the mammillae) permits the attribution of the finding to the genus *Tetralophodon*, excluding any relationship with the genus *Anancus*.

The most common species of *Tetralophodon* is *T. longirostris* KAUP, 1832, which has been already reported from Greece (Pikémi, VACEK, 1877, but this determination is doubted by TOBIEN, 1978; Agía Triáda, Miliá, KOUFOS, 1977). Another species, *T. atticus* (WAGNER, 1857), is reported from Pikémi. However, as the validity of the latter species is uncertain (GÖHLICH, 1999), it is preferable to refer the specimen K4/Δ384.4 to *Tetralophodon cf. longirostris*.

