

On the presence of *Allophaiomys* (Rodentia) in the Granada Basin (Spain)

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Two sections in continental deposits of the Granada Basin, that had hitherto been described as being of Pliocene age, have yielded teeth of three species of *Allophaiomys*, which means they should be dated as Early Pleistocene.

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Introduction

The Granada Basin is situated in the central sector of the Betic Cordillera (Fig. 1). Its Neogene and Quaternary sediments are of considerable thickness, and cover the contact between the internal and external zones of the Cordillera. Like in other Betic basins the marine influence ends during the Late Tortonian (Rodríguez Fernández, 1982).

Within the continental deposits Soria Mingorance & Fernández Martínez (1989) distinguish five lacustrine sedimentary units, dated from Middle Turolian to Holocene. Estévez et al. (1982) published a mandible of *Hipparion gromovae granatensis* Aguirre, 1959, found in conglomeratic deposits near the northwestern border of the Granada Basin, which permitted to date these deposits as latest Turolian. Soria Mingorance & Fernández Martínez (1989) place these conglomerates at the

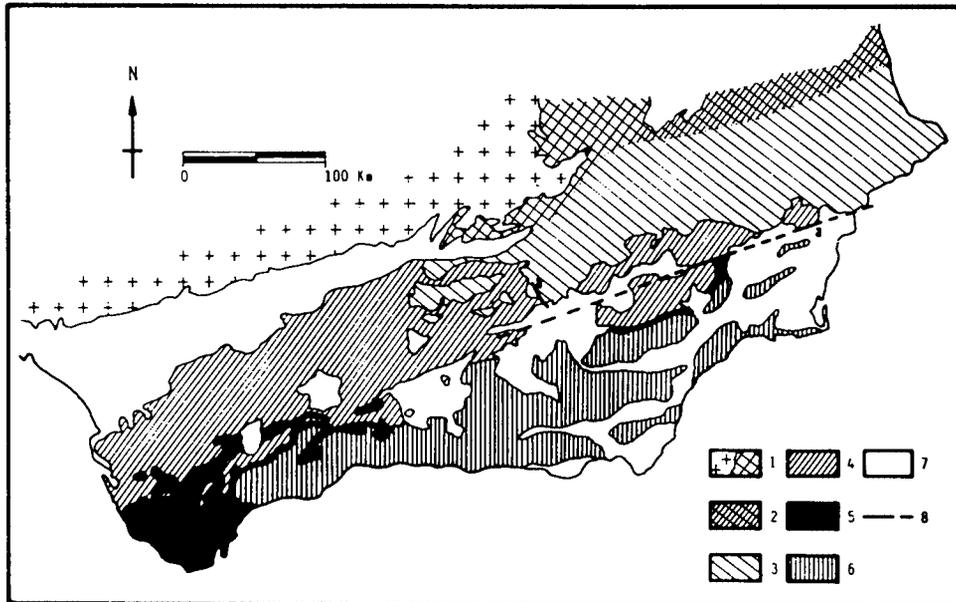


Fig. 1. Structural scheme of the Betic Cordilleras, taken from Braga Alarcón (1983, fig. 2).
 1: Iberian meseta; 2: Iberian domain; 3: Prebetic Zone; 4: Subbetic and Penibetic zones; 5: Flysch domain; 6: Internal zones; 7: Posttectonic Neogene; 8: Fault of Crevillente.

base of their unit IV. The unit V or terminal unit is separated from unit IV by a sedimentary hiatus, and is attributed to the Late Pleistocene.

In the summer of 1989 Dr J. Fernández (University of Granada) was so kind to accompany us in the field, and show us various areas near the northwestern border of the Granada Basin, that might be auspicious for a palaeomammalian exploration. Fresh road-cuts made during the construction of the Granada-Sevilla motorway presented favourable conditions that permitted us to sample a large number of localities, many of them with positive results, though most of the sites are not very rich.

The present study, realized in the framework of the CICYT project no. 0582/86, is based on the trial samples taken in two sections near the village of Huétor Tájar (Fig. 2), belonging to unit IV of Soria Mingorance & Fernández Martínez, and attributed to the Pliocene on sheet 1008 (Montefrío) of the Geological Map of Spain 1:50.000. The section of Tojaire is located at co-ordinates UTM 30 SVG 069155. The co-ordinates of the section of Huétor Tájar are UTM 30 SVG 078163 (base) and 30 SVG 089149 (top).

So far, the number of specimens found is not very large, but the stratigraphic consequences of the material are of such an importance, that we decided to dedicate this preliminary publication to them, the more so, since it is the first time that *Allophaiomys* is recognised in the Granada Basin.

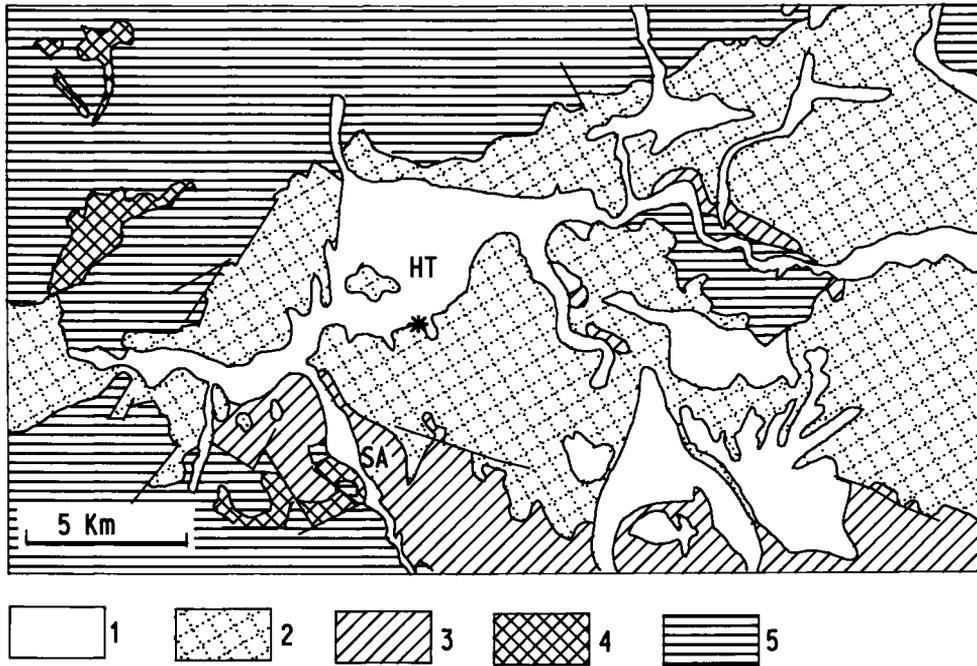


Fig. 2. Geological map of the area studied. Modified after the Geological Map of Spain 1:50.000, sheets Montefrío and Loja. 1: Quaternary; 2: Pliocene-Quaternary; 3: Turolian; 4: Tortonian; 5: Pre-Tortonian; HT = village of Huétor Tájar, SA = village of Salar; * = fossil localities of Huétor Tájar and Tojaire.

Systematic descriptions

Family ARVICOLIDAE Gray, 1821

Genus *Allophaiomys* Kormos, 1932

Allophaiomys cf. *chalconi* Alcalde, Agustí & Villalta, 1981

Fig. 3a.

Locality – Huétor Tájar 1, province of Granada (Spain).

Material – M₁ dext.

Description – The tooth consists of a posterior loop, three closed triangles, and the anteroconid complex. The reentrant folds are provided with abundant cement. The anterior cap (AC2) is very short and broad, with a small BSA4. There is a broad connection between T4 and T5, and a narrow one between T3 and T2. The enamel is not differentiated.

Discussion – The morphology of the ‘anteroconid cap’ (AC2) and the size of this specimen coincide perfectly well with *A. chalinei*; its b/W value (see Table 1) is relatively low. We attribute it therefore to *A. cf. chalinei*.

Allophaiomys sp.

Locality – Huétor Tájar 1, province of Granada (Spain).

Material – M₁ sin.

Description – The basic pattern of the tooth is identical to the one described above. The crown cement is less abundant. The anterior cap is broad and rounded. The connections between AC2 and T5, and between T4 and T5, are very broad. The enamel is thick, and differentiated like in *Mimomys*.

Discussion – *Allophaiomys* sp. from Huétor Tájar is a rootless arvicolid of medium size, with *Mimomys*-like enamel, thickened in the posterior walls of the folds. These features, and the values of a/L, b/W, and c/W (see Table 1) coincide with those of *A. deucalion* (Kretzoi, 1969) from Villány 5 (van der Meulen, 1974), a species not described from Western Europe. Therefore we refer to this specimen as *Allophaiomys* sp., until a more abundant material is available.

Allophaiomys pliocaenicus Kormos, 1932
Fig. 3b.

Locality – Tojaire 1, near Huétor Tájar, province of Granada (Spain).

Material – M₁ dext., M³ dext.

Description

M₁ – The tooth presents a posterior loop, three closed triangles, and the anteroconid complex. The reentrant folds show abundant cement. The lingual wall of the AC2 is rounded, without an LSA5 (morphotype *pliocaenicus*). The connection between AC2 and T5 is broad, and the one between T4 and T5 is very broad too. There is a narrow connection between T4 and T3, and also between T2 and T1. The enamel is differentiated like in *Microtus*.

M³ – This specimen is characterised by a broad connection between T2 and T3. LRA3 is very shallow; LRA4 is not developed.

Discussion – By its morphology, and the values of a/L, b/W, and c/W (see Table 1), this specimen agrees with the samples of *A. pliocaenicus* from various Lower Pleistocene localities in the Guadix-Baza Basin (Venta Micena 1, Cañada de Murcia 1, etc.). Its size is at about the upper limit of the variability of these populations.

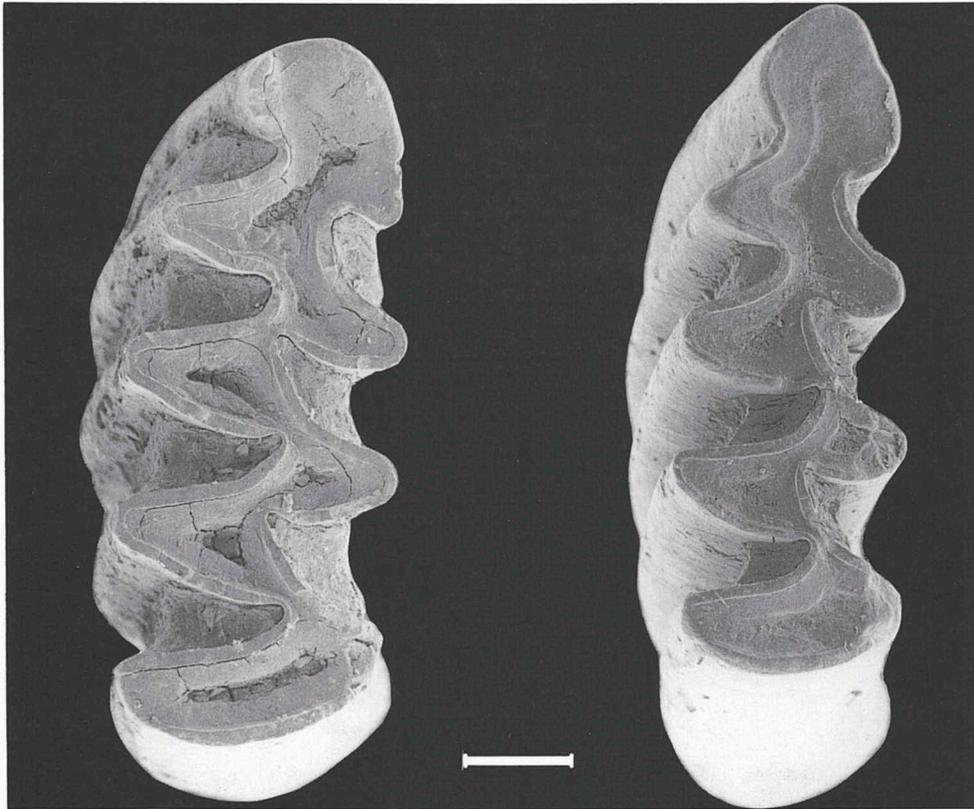


Fig. 3. a: M_1 dext. of *Allophaiomys* cf. *chalinei* Alcalde, Agustí & Villalta, 1981, from Huétor Tájar 1; b: M_1 dext. of *Allophaiomys pliocaenicus* Kormos, 1932, from Tojaire 1. Photos made on the Zeiss 950 digital scan microscope of the University of Granada. The scale represents 0.5 mm.

Table 1. Measurements of the *Allophaiomys* specimens from Huétor Tájar and Tojaire. Definition of parameters according to van der Meulen (1974).

	L	a/L	W	b/W	c/W
<i>A. chalinei</i>	3.25	0.42	1.14	0.23	0.19
<i>A. sp.</i>	3.01	0.35	0.87	0.33	0.25
<i>A. pliocaenicus</i>	2.97	0.44	0.87	0.31	0.24

Conclusions

According to the Geological Map of Spain 1:50.000, sheet 1008 (Montefrío) the sediments in which the localities of Huétor Tájar and Tojaire are situated, belong to the latest Turolian and the Pliocene (unit 48: 'limos blancos, arenas con niveles conglomeráticos'). An argument for this interpretation is formed by the mandible of

Hipparion described by Estévez et al. (1982) from Cerro Limones. We took various samples in the immediate surroundings of the site where this mandible was found, and obtained a small collection of rather poorly preserved rodent teeth that basically confirm the Pliocene age of the deposit. Among the genera recognised are *Stephanomys*, *Ruscinomys*, *Mimomys*, etc.

On the other hand the localities of Huétor Tájar and Tojare, situated about one or two kilometres to the east of the localities mentioned above have yielded a fauna characterised by the presence of *Allophaiomys*, which places them undoubtedly in the Pleistocene.

A. chalinei is a large form, described originally from the Biharian locality of Cueva Victoria (Alcalde et al., 1981). *A. pliocaenicus* is known exclusively from the Lower Biharian. If our *Allophaiomys* sp. really belongs to *A. deucalion*, the range of that Villanyan species could be extended into the Biharian. Our localities may be attributed to the Lower Biharian.

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