

MUSCARDINUS MERIDIONALIS SP. NOV., A NEW SPECIES OF GLIRIDAE (RODENTIA, MAMMALIA) AND ITS IMPLICATIONS FOR THE PHYLOGENY OF *MUSCARDINUS*.

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The Granada Basin is situated in the central sector of the Betic Cordillera (southern Spain). Its Neogene and Quaternary sediments cover the contact between the internal and external zones of the Cordillera, and the continental deposits extend from the latest Tortonian (middle Turolian) to the Quaternary (García-Alix, 2006).

A new *Muscardinus* from the Mio–Pliocene transition is described from the localities Purcal-4 (PUR-4; UTM 30 SVG 456218) and Purcal-24A (PUR-24A; UTM 30SVG462219), situated about 5 km north of the city of Granada (Fig. 1). According to García-Alix (2006), PUR-24A is late Turolian (upper Miocene), and PUR-4 is earliest Ruscinian (lower Pliocene). This new species of *Muscardinus* allows us to reinterpret the phylogeny of this genus proposed by Aguilar (1982).

Methodology

Measurements were taken with a Wild M7S binocular microscope, equipped with a Sony Magnescale LM12 digital measuring device. The measurement data were processed by a computer program provided by the last author. Measurements are given in mm. Photographs were made with the FEI ESEM QUANTA 400 of the ‘Centro Andaluz de Medio Ambiente’ (CEAMA).

The basic glirid pattern is simplified into a series of parallel ridges in *Muscardinus*, and the method of counting them from front to back is used (van den Hoek Ostende, 2003). A common feature for the species of the genus *Muscardinus*, that helps to distinguish upper and lower teeth is the profile of the crests: in the lower teeth the hind wall of the ridges slopes gently down and has transverse grooves, while the front slope is steep and smooth. In the upper teeth the opposite is the case. The orientation of the specimens is as defined by Freudenthal (2004), with some modifications, because the teeth of *Muscardinus* differ from those of other Gliridae (Fig. 2).

p4—The reference line according to Freudenthal (2004:104): “length along a line through the middle of the posterior wall, parallel to the bisectrix of labial and lingual wall”, coincides with a line perpendicular to the posterior border of the teeth; therefore, we take the posterior border as reference line because it is easier to use.

m1 and m2—The reference line according to Freudenthal (2004:104) is: “length along a line through the middle of the anterior and posterior wall”. Since this is perpendicular to the posterior wall, we take the posterior border as reference line, because it is easier to use. When this border is slightly curved in the m2, we take the labial part.

m3 and M3—The reference line is as in Freudenthal (2004), parallel to the anterior border.

P4—The reference line according to Freudenthal (2004) is a line over the anterior slope of the metacone and the posterior border of the protocone. We do use this, or we use the parallel central valley as reference line.

M1 and M2—Among the two alternatives that Freudenthal (2004) proposed, we use the parallel to the posterior border. When this border is not completely straight in the M2, we take the labial part.

SYSTEMATIC PALEONTOLOGY

Order RODENTIA Bowdich, 1821
Family GLIRIDAE Thomas, 1897
MUSCARDINUS MERIDIONALIS, sp. nov.
(Fig. 3)

Holotype—Left M1, PUR-4 926 (Fig. 3F).

Etymology—Meridionalis because it has been found in the south of Spain.

Repository—Departamento de Estratigrafía y Paleontología of Granada University (Spain).

Horizon and Locality—Lower Ruscinian (lower Pliocene), Alhambra Formation of the Granada Basin. Locality Purcal-4 (PUR-4); UTM coordinates 30SVG456218, Granada (Spain).

Other Localities—PUR-24A (upper Turolian; upper Miocene)

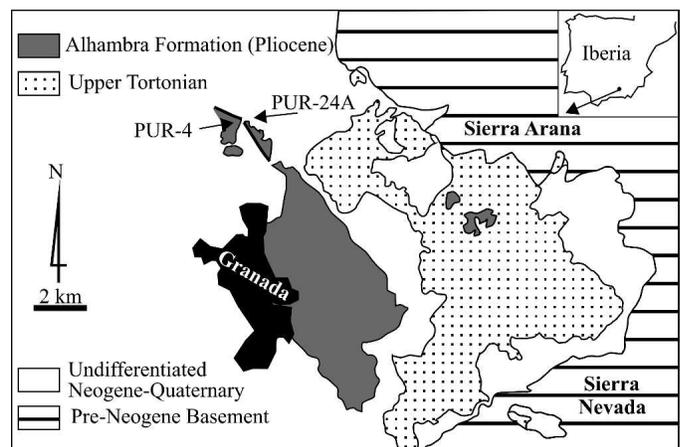


FIGURE 1. Situation of the studied localities. Modified after Martín (2000).

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