

Pseudotheridomys fejfari, a new species of Eomyidae (Rodentia) from the Ramblian (Lower Miocene) of northern Teruel (Spain)

M.A. Alvarez Sierra & R. Daams

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This paper, the third one in a series of monographs on the mammal faunas from the type areas of the Aragonian and Ramblian in the provinces of Zaragoza and Teruel, deals with the description of a new species of the Eomyidae, *Pseudotheridomys fejfari*.

M.A. Alvarez Sierra, Departamento de Paleontología, Facultad de Ciencias Geológicas, Universidad Complutense, Madrid, Spain; R. Daams, Museo Nacional de Ciencias Naturales, C.S.I.C., José Gutiérrez Abascal 2, 28006 Madrid, Spain.

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Introduction

In the summers of 1976-1983 extensive collections from micromammal-bearing localities have been made in the type area of the Aragonian and adjacent areas in the provinces of Zaragoza and Teruel. Preliminary reports on these faunas have been published by Daams & Freudenthal (1981), Daams & van der Meulen (1983), Cuenca et al. (1983), and Daams & van der Meulen (1984). The first detailed taxonomic study is that of the Glirinae by Daams (1985). The second study is the paper on the Ramblian Cricetidae by Sesé (this volume). The description of *Pseudotheridomys fejfari* nov. sp. is the third contribution to the taxonomic study of the various groups. All other groups of micro- and macromammals are at present under study by various Spanish and Dutch students.

For the stratigraphic position of the localities and more complete information on the faunas, the reader is referred to the above-mentioned publications.

The nomenclature of the cheek teeth is after Daams (1976). The teeth have been measured using a Leitz Orthoplan Microscope (ocular 10 ×, object-lens 4 ×) with mechanical stage and measuring clocks. All measurements are given in 1 mm units. The figures and the plate have been drawn by the second author.

The material is stored in the collections of the Rijksmuseum van Geologie en Mineralogie (National Museum of Geology and Mineralogy), Leiden, The Netherlands.

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Systematic description

Family Eomyidae Depéret & Douxami, 1902

Genus *Pseudotheridomys* Schlosser, 1926

Pseudotheridomys fejfari sp. nov.

Pl. 1, figs. 1-17.

Type locality — Moratilla (N. Teruel).

Holotype — Right mandible with P₁, M₁, M₂, M₃, RGM 304 736, Pl. 1, fig. 1.

Derivatio nominis — *fejfari* in honour of Dr O. Fejfar, Prague, Czechoslovakia.

Distribution — Bañon 11 A, Moratilla, Rubielos de Mora.

Age — Early Miocene.

Diagnosis — *Pseudotheridomys* of large size, the largest species of the genus hitherto known. Strongly lophodont and hypsodont teeth. The anteroloph of the upper molars is long. The anterolophid of M_{1,2} is short to medium in length. The degree of inclination of the sinusid in the lower cheek teeth decreases from P₄ to M₃; in P₄ the sinusid points backwards, in M₃ it is nearly transverse.

Differential diagnosis — *Pseudotheridomys fejfari* sp. nov. differs from all other species of the genus by its larger size. Morphological differences are summarized below.

P. fejfari differs from *P. pusillus* Fahlbusch, 1969 from the Upper Oligocene of Gaimersheim, W. Germany, by:

its more lophodont teeth;

its longer mesolophids and posterolophids in the lower molars;

its longer anterolophs and mesolophs in the upper cheek teeth.

P. fejfari differs from *P. schaubi* Lavocat, 1951 from the Upper Oligocene of Cournon-les-Soumeroux, France (Brunet et al., 1981) by its less complicated lower molars.

The main difference between *P. fejfari* and *P. parvulus* (Schlosser, 1884) is the larger size of the former species.

Material and measurements

	Length			N	Width		
	min.	mean	max.		min.	mean	max.
<i>Moratilla</i>							
P ⁴	1.23	1.25	1.28	2	1.32	1.34	1.36
M ¹	1.10	1.17	1.21	6	1.33	1.37	1.41
M ²	—	1.09	—	1	—	1.41	—
M ³	—	0.99	—	1	—	1.21	—
P ₄	1.22	1.29	1.35	4	1.15	1.23	1.29
M _{1,2}	1.19	1.28	1.39	6	1.25	1.28	1.33
M ₃	1.09	1.11	1.14	2	1.09	1.14	1.19
<i>Bañon 11 A</i>							
P ⁴	—	1.21	—	1/0	—	—	—
M ¹	—	1.19	—	1	—	1.39	—
M ²	1.08	1.09	1.11	2	1.36	1.41	1.47
M ³	—	1.11	—	1	—	1.41	—
P ₄	—	—	—	0/1	—	1.15	—

Description of the material from the type locality Moratilla

P⁴ — The four main ridges and the mesoloph are present. The anteroloph is separated from the paracone by a shallow and narrow furrow. The mesoloph is always long; in one specimen it is labially isolated from the paracone, in the other one it is connected to this cusp. The posteroloph reaches the base of the metacone, thus enclosing the posterosinus. The longitudinal ridge is oblique, wide and high. The sinus points obliquely forward.

M^{1,2} — The M¹ can be distinguished from the M² by its more quadratic shape, whereas the M² has a more rectangular shape.

M¹ — The anteroloph is separated from the paracone by a shallow and narrow furrow. In slightly worn specimens this furrow has disappeared already. The mesoloph is narrower and lower than the main ridges, and it is separated from the paracone. The mesoloph always reaches the labial border of the molar. In three out of the six specimens the mesoloph does not reach the longitudinal ridge in the centre of the tooth (Pl. 1, figs. 9, 10). The posterior slope of the lingual part of the metaloph is relatively convex. Labially the metaloph meets the posteroloph. The sinus points strongly forward. The first and the last labial valley are deeper than the two central ones.

M² — The only specimen available agrees basically with the M¹. Some slight differences are present however. The anteroloph and protoloph meet labially at the paracone. The mesoloph is of the same height and width as the main ridges, and it is labially connected to the metacone. The labial valleys are narrower than in the M¹.

M³ — The four main ridges and the mesoloph are present. The labial valleys are narrow and the five transverse ridges are of the same height and width. Lingually the anteroloph bends backward to meet the protocone, thus enclosing the sinus.

P_4 — The posterolophid is the widest ridge, the other four ridges are of the same height and width. The anterolophid is lingually and labially connected to the metalophid. The metalophid is lingually connected to the mesolophid in one specimen, in the other specimen it is separated from this ridge by a shallow and narrow furrow. The posterolophid is lingually connected to the entoconid. The sinusid points backwards. The third lingual valley is V-shaped, and the posterior valley is the widest and deepest of the lingual valleys.

$M_{1,2}$ — The distinction between these two elements is hazardous in isolated specimens. The M_1 tends to have a slightly smaller anterior width, and the M_2 has a more rounded posterior part. They are described together as the dental patterns are more or less similar.

All ridges are of the same height and width. The anterolophid is always present and it is longer in the M_1 than it is in the M_2 . Both lingually and labially the anterolophid is connected to the metalophid. The metalophid is slightly oblique in M_1 , and it is more transverse in M_2 . The hypolophid runs more or less parallel to the mesolophid. These two ridges are connected by the longitudinal ridge at mid-width. In two specimens the longitudinal ridge has a more labial position. Lingually the hypolophid is separated from the posterolophid by a shallow and narrow furrow which disappears at the slightest degree of wear. The sinusid points more strongly backwards in the M_1 than in the M_2 .

M_3 — The anterolophid is short and it has a lingual position. The metalophid, mesolophid and hypolophid are transverse, parallel ridges. In one specimen the metalophid is lingually connected to the mesolophid. The longitudinal ridge has a central position. The sinusid is transverse.

Plate 1

Enlargement approx. 26 ×.

Pseudotheridomys fejfari sp. nov.

Locality Moratilla, Teruel, Spain.

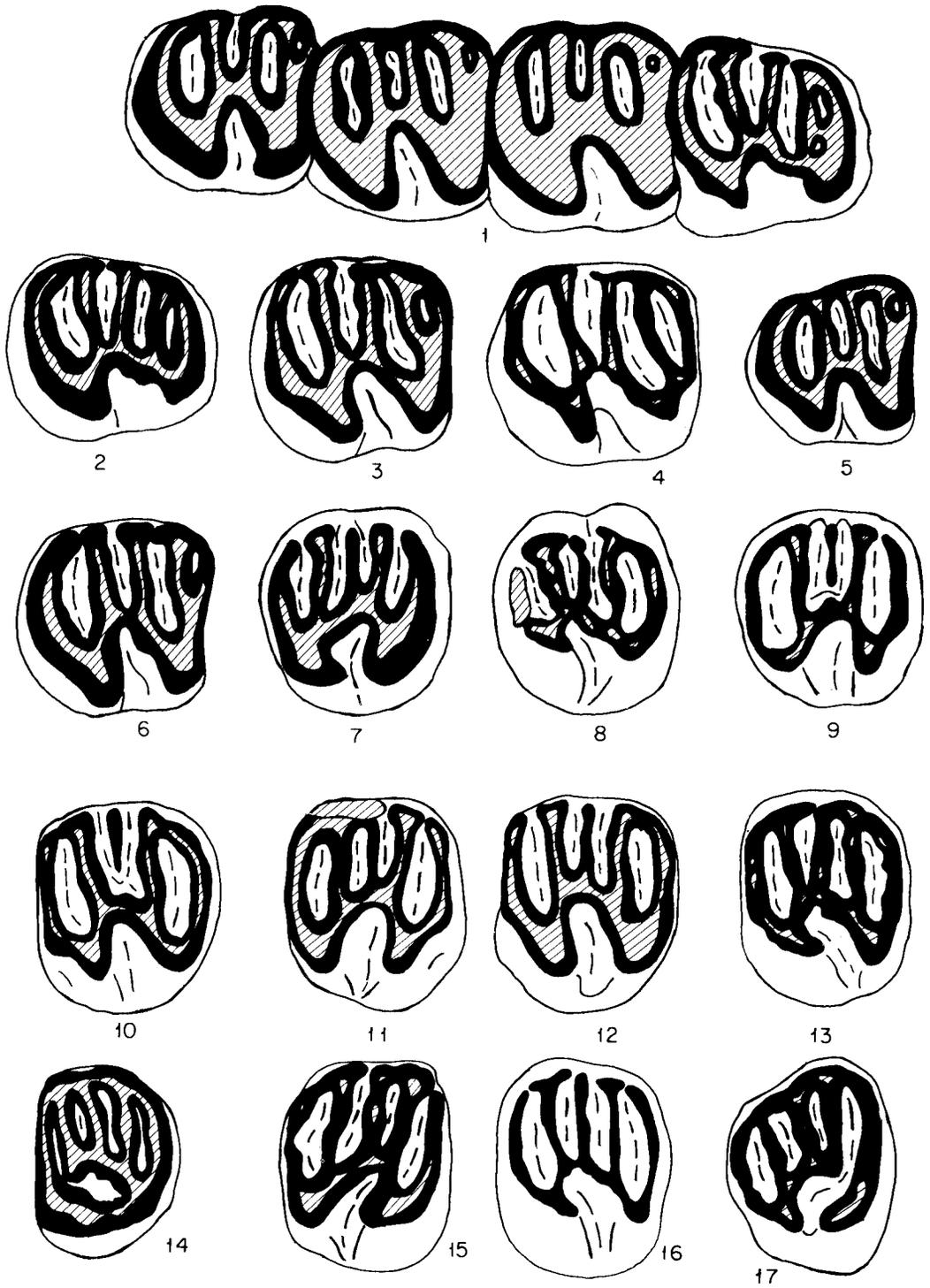
- Fig. 1. Holotype, right mandible, RGM 304 736.
- Fig. 2. P_1 dext., RGM 333 835.
- Fig. 3. $M_{1,2}$ (M_1) dext., RGM 304 833.
- Fig. 4. $M_{1,2}$ (M_1) dext., RGM 304 832.
- Fig. 5. M_3 dext., RGM 333 885.
- Fig. 6. $M_{1,2}$ (M_2) dext., RGM 304 782.
- Fig. 7. P^4 dext., RGM 333 631.
- Fig. 8. P^4 sin., RGM 333 651.
- Fig. 9. M^1 dext., RGM 333 044.
- Fig. 10. M^1 sin., RGM 304 965.
- Fig. 11. M^1 dext., RGM 333 046.
- Fig. 12. M^1 sin., RGM 304 957.
- Fig. 13. M^2 sin., RGM 304 880.
- Fig. 14. M^3 sin., RGM 333 729.

Pseudotheridomys fejfari sp. nov.

Locality Bañon 11 A.

- Fig. 15. M^2 dext., RGM 304 273.
- Fig. 16. M^2 sin., RGM 304 243.
- Fig. 17. M^3 dext., RGM 304 282.

Plate 1



The material from Bañon 11 A

A detailed description of the few teeth from this locality did not appear to be necessary, as the dental pattern falls within the range of variation of the material from the type locality.

Discussion

P. fejfari is the largest *Pseudotheridomys* species described so far (Fig. 1). The strong lophodonty of the cheek teeth is generally considered to be an evolved feature (Engesser, 1979).

De Bruijn & Moltzer (1974) described a population from Rubielos de Mora, supposed to be transitional between *Pseudotheridomys* and *Ligerimys*, associated with a few teeth assigned to *Ligerimys* sp. These authors mentioned that the teeth of the *Pseudotheridomys/Ligerimys* transitional assemblage are of larger size than those of the supposedly contemporaneous assemblages from the Bavarian fresh-water molasse (Fahlbusch, 1970). They considered the Rubielos de Mora assemblage to be transitional as two upper cheek teeth (a D⁴ and a M¹) have the *Ligerimys* morphology, whereas the other teeth have the *Pseudotheridomys* dental pattern. It appears, however, that the two specimens with *Ligerimys* morphology are smaller than the teeth with *Pseudotheridomys* morphology, and that they should be assigned to the *Ligerimys* sp., represented by two lower molars. Consequently, the remaining assemblage would be homogeneous and agree with *P. fejfari*. Daams (1976) mentioned that *Ligerimys* sp. from Rubielos de Mora might represent *L. ellipticus* Daams, 1976. However, the size and dental pattern of *Ligerimys* sp. do not completely agree with that species. We prefer not to assign this scarce material to any species described as yet, since the first author (M.A.S.) is at present involved in a study of the rich assemblages of *Pseudotheridomys* and *Ligerimys* from the Upper Oligocene and the Miocene of Spain.

In the type locality of *P. fejfari*, Moratilla, two *Ligerimys* species are present as well. These two species are not only morphologically different from *P. fejfari*, they are also considerably smaller. In Bañon 11 A our new *Pseudotheridomys* species is associated with one *Ligerimys* species of very small size.

Hitherto only one evolutionary lineage of *Pseudotheridomys* has been recognized in the Old World (Fahlbusch, 1970, 1973, 1979, 1983). The successive steps of this lineage are *P. pusillus* – *P. parvulus* – *Pseudotheridomys/Ligerimys* transitional assemblages – *L. antiquus* – *L. florancei*. It is amongst others characterized by the loss of the mesoloph in the upper cheek teeth, and by the loss of the anterolophid in the lower molars. Our new finds point at the presence of a second, contemporaneous, lineage.

The stratigraphic distribution of *P. fejfari* is restricted to Zone A of the Upper Ramblian (Moratilla and Bañon 11 A) and zone B of the Lower Aragonian (Rubielos de Mora) as defined by Daams, Freudenthal & Alvarez (1987).

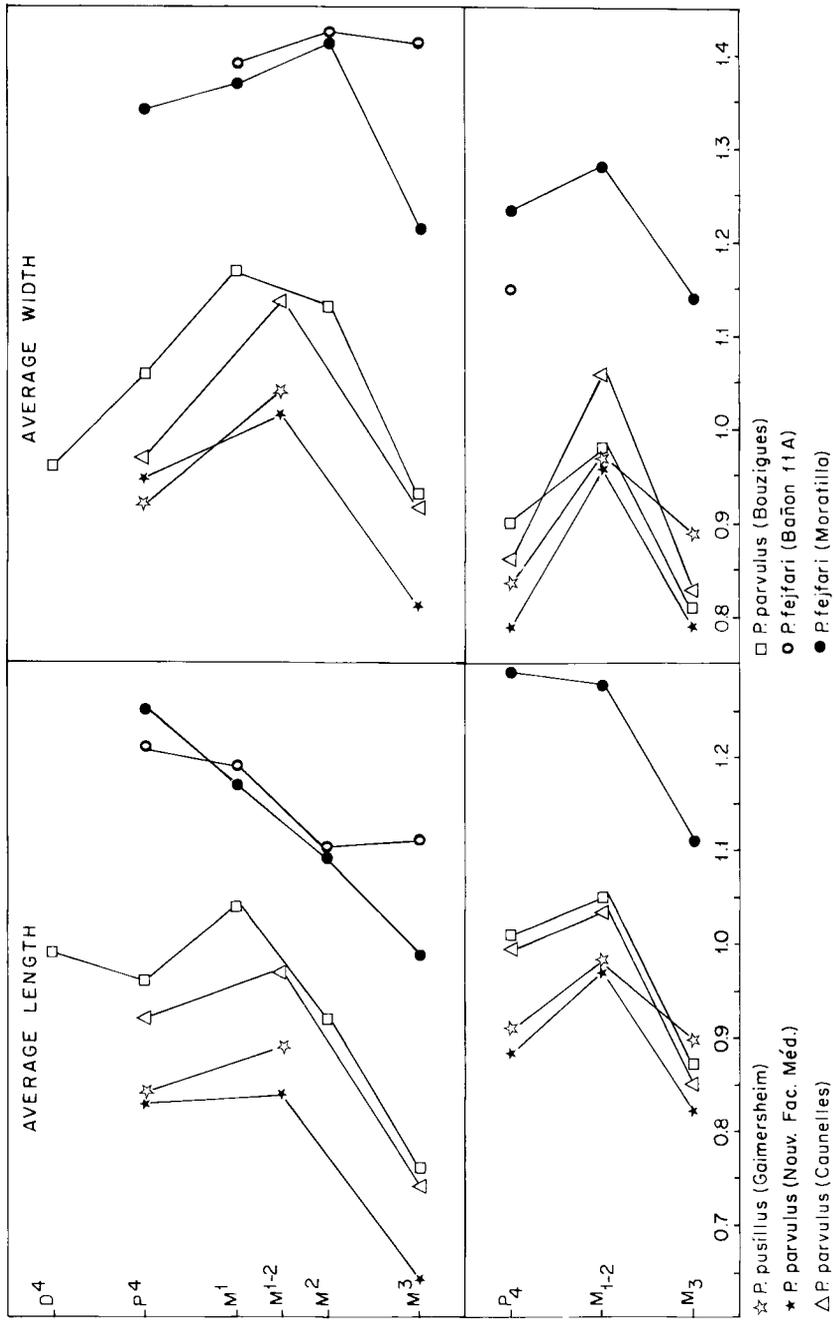


Fig. 1. Average lengths and widths of the cheek teeth of some *Pseudotheridomys* assemblages from Germany, France and Spain.

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