Short communication

Note on the eomyid rodents from Eitensheim (Early Miocene, Germany)

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In a study of the Eomyidae from the Upper Freshwater Molasse of Bavaria, Fahlbusch (1975: 85) concluded that a small collection of molars from Eitensheim is monospecific, and suggested that it belongs to a new, unnamed species of Keramidomys. However, Prieto (2010: tab. 1) regards Fahlbusch’s evaluation of the fossil as questionable and in need of a revision; problems with the assignment of the fossil have previously also been expressed by Bolliger (1992: 108). Especially interesting in this context is figure 9 in Fahlbusch (1975) that suggests the presence of two different genera of Eomyidae in the Eitensheim fossil assemblage. One of the molars definitely belongs to Keramidomys (Fahlbusch 1975: fig. 9d; Fig. 1 in this paper), whereas the systematic affinities of the other three teeth remain unresolved.

If this is accurate, then the conception of the lower part of the Upper Freshwater Molasse biostratigraphy needs to be reconsidered because the first occurrence of Keramidomys defines the base of the OSM B in the South German local biostratigraphy (e.g., Heissig 1997).

Details on the locality Eitensheim can be found in Fahlbusch (1964: 96). The fossil site is a brickyard carrier located at the southern end of the village of Eitensheim, on road 13 to Ingolstadt (Gradadt.-Bl. 7133; R 4450700, H9408500; Elevation: around 395m). Below ~1.5 m of gastropod-enriched loess occur ~3 m of grey-greenish, fine sand and marls of the OSM. The small mammal-bearing fossiliferous layer, located approximately 0.5 m below the boundary to the loess, is composed of ~20 cm of soft, coaly sediments. In addition to eomyid rodents, Fahlbusch (1964) describes the cricetid rodents Megacricetodon bavaricus and M. aff. minor (one questionable m3), as well as a single tooth of Eumyarion aff. medius from this site. Glirids from Eitensheim (i.e. Bransatoglis astarensis, Microdyromys praemurinus, Eomuscardinus sansaniensis, Miodyromys hamadryas hamadryas, and Paraglirulus diremptus-conjunctus) are detailed in Mayr (1979), and Klembara et al. (2010: tab. 1) list several reptilian remains, including Latonia ragei, Pelophylax sp., Eopelobates sp., Pelobates sp, Trionyx sp., and Testudo sp. Moreover, Böhme et al. (2007) report on the occurrence of silified wood (Liquidambaroxylon sp.) at Eitensheim.

The dating of the locality is based on the evolutionary level (i.e. size range) of the cricetid rodent Megacricetodon; the most frequently used biostratigraphic indicator is the first lower molar (m1). One Megacricetodon m1 has been discovered from Eitensheim that is relatively small (i.e. 1.55 mm long). This might justify placing the fossiliferous bed at Eitensheim in the OSM A. Other Megacricetodon molars however correspond in size to several specimens of the M. bavaricus type sample from Langenmoosen, which is OSM B.

Fahlbusch (1975) regards the peculiar Keramidomys molar from Eitensheim as coming from a new species based primarily on the morphological differences of one p4 and two m1,2, while the last m1,2 is more characteristic of Keramidomys. I agree with the original generic identification of Fahlbusch, with the exception that not all specimens can be ascribed to the same genus. The molar SNSB-BSPG 1958 XVIII 15 (Fahlbusch 1975: fig. 9d; Fig. 1A this paper) certainly represents a Keramidomys left m1,2. However, assignment of this specimen at species level is difficult due to the differences between K. thaleri and K. carpathicus which are well-recognizable

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only in M3/m3 (Mein 2009; Prieto 2010). However, the mesolophid is long, and thus suggest a relationship of the specimen to K. thaleri. On the other hand, the two m1,2 resemble Ligerimys and Pseudotheridomys, rather than Keramidomys. Separation of Ligerimys from Pseudotheridomys remains a matter of debate. I follow Engesser (1990: 102–104, and the references therein). Assignment of the p4 from Eitensheim remains problematic. Fahlbusch (1975) noted several distinctive differences to Keramidomys. Especially puzzling is the premolar that lacks the morphological features characteristic of Ligerimys, but yet resembles the p4 of L. oberlii figured by Engesser (1990: fig. 89c). The tooth is therefore only tentatively assigned to Ligerimys sp. Interesting in this context are also the fossils of Keramidomys thaleri, Ligerimys florancei, and Ligerimys sp. from the French fissure filling La Blanquatère 1 (Lazzari & Aguilar 2007; Aguilar et al. 2010). The unnamed Ligerimys from this fissure filling is small-sized and morphologically similar to L. antiquus from southern France. This form is quite similar to the enigmatic p4 from Eitensheim.

The preceding considerations have implications on the biostratigraphy of the German part of the North Alpine Foreland basin in which Eomyidae fossils play a significant role, especially regarding the definition of OSM A–OSM B. It is widely accepted today that Ligerimys florancei dissappeared in the NAFB (OSM A) well before the first appearance of Keramidomys (OSM B). However, Sach & Heizmann (2001) report a co-occurrence of Ligerimys and Keramidomys at Langenau 1. Unfortunately, this fauna has not been analyzed in detail to date and there appear to be problems with the identification of the fossils (JP pers. observation). The presence at Eitensheim of Keramidomys together with a small-sized Ligerimys species is therefore new for the North Alpine Forland basin. The Megacricetodon fossils from Eitensheim are inconclusive with regard to the exact age of the fossiliferous layer. According to the definition of the local biozones, Eitensheim likely correlates to the earliest OSM B based on the occurrence of Keramidomys. Nevertheless, the Eomyid association from this locality cannot at present be classified as representative, due chiefly to uncertainties with regard to the homogeneity of the sample. As long as there is no other locality yielding a comparable faunal assemblage, I cannot rule out that elements from different faunas are mixed together at Eitensheim.

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References


