

PALEOECOLOGICAL RESTRICTIONS AND APPLICATIONS IN MICROPALAEONTOLOGY

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EXTENDED ABSTRACT

From the orders that a small-mammal fossil fauna usually consists off, it has been observed that rodents and insectivores are a very useful tool for paleoecological and paleoclimate reconstruction.

Erinaceidae are rather rare and not so indicative for paleoecology due to their opportunistic life style. Talpidae are useful indicators since we know that certain environmental moisture is required for the needs of the fossorial life (subfamily Talpinae) and water bodies are required for the aquatic desmanines (subfamily Desmaninae). This is a condition that can be extrapolated from the extant relatives of the same animals.

Mammalian teeth show great differentiation in morphology which is a result of diet specialization and thus mammals can be divided in different groups such as insectivores, carnivores, frugivores and omnivores, depending on these certain characters of their teeth that allow an assumption about their dietary preferences.

One thing to take into consideration is the presence of convergences or “imitations” especially among rodents. The term “imitation” refers to the occurrence of same morphological characters between members of different families. An interesting example which can not be attributed to “imitation” is the dimylid dentition of the Dimylidae and Amblycoptini (Soricidae).

A significant change in faunal composition may suggest an important environmental change in terms of temperature and humidity. In order to support this conclusion we depend on correlation with other paleoclimatic records such as palynological data, marine microfossils oxygen isotopes.

We discuss two examples of imitation in rodents. First the spalacine type of dentition (round molars) which is also observed in Anomalomyinae, Tachyorictoidinae and Prokanisomyinae. Second the prismatic type of dentition which is associated with Plio-Pleistocene family Arvicolidae. However several Crisetidae genera seem to imitate this type of dentition.

“Imitation” is a useful tool in inferring ecological characters of taxa that are extinct like Anomalomyinae, Tachyorictoidinae Prokanisomyinae and *Microscoptes*, *Baranomys*, *Bjornkurtenia* and *Celadensia*. As a conclusion we argue that similar dental patterns show a similar type of life. It should be noted that these imitations take place in different geological periods.

Key words: Paleoecology, micromammals, paleoclimatic reconstruction