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Continental biostratigraphy and correlations of the Korneuburg Basin (Karpatian) and the Grund Beds / Molasse Basin (Early Badenian)

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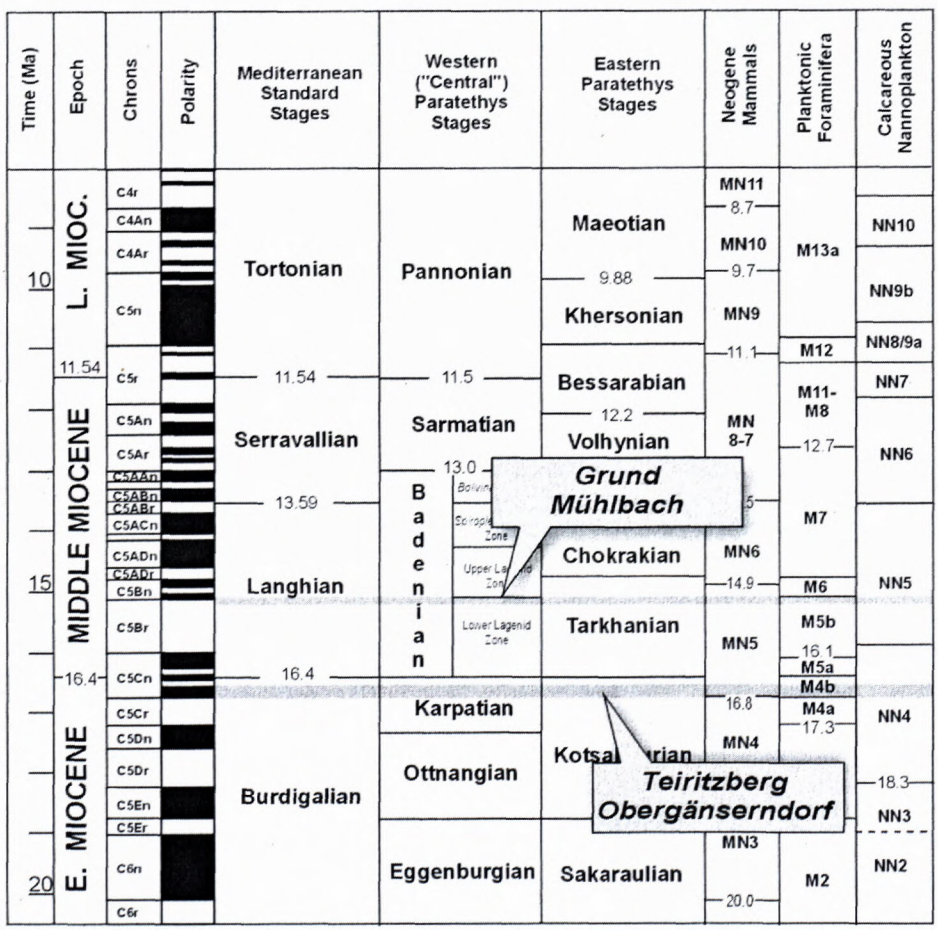
Correlation of marine and continental realms, and precise correlations between mammal localities from different basins, as well as correlations to existing chronostratigraphic and geochronologic scales is still problematically. Therefore we focus on correlation tie points: these are localities where

a) land mammals are deposited in coeval marine sequences, or terrestrial sequences are interfingering with marine deposits,

b) and/or magnetostratigraphic data, and/or radiometric data are available.

Correlation tie points from the Karpatian and the Badenian in Austria:

1. The terrestrial vertebrate faunas from Teiritzberg 1, Teiritzberg 2 and Obergänserndorf in the Korneuburg Basin were recovered from marine-brackish sediment sequences of the Karpatian. Among the vertebrates the fossil fish taxa, the amphibians and the reptiles display rather long ranges, and are of limited stratigraphical usage. Only the rodents (presence of *Keramidomys thaleri, Prodryomys satus, Microdyromys koenigswaldi* and the



Tab. 1 Correlation chart with the position of the vertebrate faunas Teiritzberg 1+2 and Obergänserndorf (early MN5), Mühlbach and Grund (late MN5). Modified after Harzhauser et al. (2003).

absence of *Ligerimys*) clearly indicate mammal zone MN5. Furthermore the evolutionary level of *Spermophilinus besanus, Palaeosciurus sutteri* and *Glirulus diremptus* point to the early MN5. The magnetostratigraphic data of the sections Teiritzberg and Obergänserndorf (SCHOLGER, 1998) allow a magnetostratigraphic correlation with the chrons C5Cn2n or C5Cn3n of the latest Karpatian. Since the chron C5Cn2n is correlated with the beginning of the Badenian (BERGGREN et al., 1995), only the earlier normal interval C5Cn3n is plausible which corresponds to an age between 16.5 and 16.7 million years (DAXNER-HÖCK, 1998).

2. The terrestrial vertebrates from Mühlbach and Grund in the Molasse Basin of Lower Austria were deposited in lower Badenian marine sediments, and are mixed with predominating marine fauna. The rodents *Cricetodon meini, Democricetodon mutilus, Democricetodon* cf. *gracilis, Megacricetodon minor, Eumyarion* sp., *Spermophilinus besanus* and *Prodryomys satus* indicate MN5. Among them *C. meini* and *M. minor* point to late MN5. The most abundant rodent, *C. meini,* is an immigrant from SW-Asia. In the Middle Miocene (MN5) it migrated from Greece to Central Europe, ultimately reaching Western Europe and becoming extinct at the end of MN5. Its first and last occurrence in the Molasse Basin of Bavaria is below the „Brock" horizon (i. e. before the Ries event dated at 14.9 million years). In the Alpine Molasse Basin from Austria it was recovered from the upper Grund beds, which were identified based on the marine fauna to represent the late Lower Lagenidae Zone (RÖGL et al., 2001). According to Rögl et al. (2003) the estimated age is 15.1 million years.

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