

## Mid-Oligocene Rhinocerotidae from Bumbach (Switzerland)

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The first observations on the mid-Oligocene mammal remains of Bumbachgraben (Canton Bern, Switzerland) were published in Rütimeyer (1855). Since then, the Bumbach locality has become a well-known mammal site of the Swiss Molasse Basin, in particular thanks to the numerous works on the Anthracotheriidae (e.g. Rütimeyer 1855). During the first decades of the 20th century, Hans Georg Stehlin has regularly cited this locality, giving a first nearly complete faunal list in an overview on the mammal localities of the Swiss Molasse Basin in 1914. However it is only in the 80s, when small mammals were taken into account in the biostratigraphy that Bumbach was renamed as Bumbach 1 and became the Swiss reference level for MP25. More recent studies have focused on the large mammals, permitting the reassessment of the faunal list (see electronic supplementary material in Scherler et al. 2013). Despite this relatively high scientific productivity, the systematics of some recorded taxa is still questionable, especially those referred to Rhinocerotidae. Generally, two species, a large-sized form, often assigned to *Ronzotherium filholi*, and a small sized form, were considered by previous studies.

Recent studies on rhinocerotids of the European Oligocene (Ménouret & Guérin 2009, Becker et al. 2013) led to the description of two new taxa, the enigmatic "*Diaceratherium*" *massiliae* of teleoceratine affinities from Marseille (France) and *Molassitherium delemontense* from Poillat (Jura Canton, Switzerland), sister taxon of *Molassitherium albigense* (junior synonym of *Protaceratherium albigense*), which shows strong affinities with some specimens from Bumbach. Besides, new preparations of the rhinocerotid material of Bumbach stored at the Natural History Museum in Bern, offer a significantly better preservation quality for systematic descriptions. In the present work, we revise the complete collection of rhinocerotid specimens from Bumbach, and we identify for the first time three species: *Ronzotherium romani*, *Molassitherium delemontense* and "*Diaceratherium*" *massiliae*. The latter assemblage encompasses a mixture of Western European rhinocerotids of Palaeogene affinities and possibly of taxa previously only known in the Miocene. We present detailed results of systematics and general characteristics (morphology, ecology, stratigraphical and geographical ranges), which provide insights into (1) the phylogeny of Oligocene Western European rhinocerotids, (2) the taxonomic and ecological palaeodiversity of rhinocerotids (3) the mid-Oligocene palaeoclimate and

ecosystem in Western Europe, based on the complete mammal assemblage of Bumbach.

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