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The Middle Miocene musteloid *Trochotherium cyamoides* and the evolution of bunodont dentition in stem mephitids

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The enigmatic musteloid species *Trochotherium cyamoides* is a poorly understood carnivoran that has been found at several fossil sites in Europe dating exclusively to the latest Middle Miocene (MN 7/8). Newly described material of *T. cyamoides* from La Grive-Saint-Alban (France) and Kleineisenbach (Germany) lead to a comprehensive re-evaluation of the species and the designation of a lectotype and paralectotype from the Steinheim am Albuch type locality.
The highly derived dentition of *Trochotherium* obscures its systematic position. Nevertheless, the morphology of the upper fourth premolar (P4) and the presence of accessory rootlets in the lower carnassial (m1) indicate an affinity with the family Mephitidae. In contrast, the bunodont morphology of the upper first molar (M1) and the m1 suggests that *T. cyamoides* represents a stem mephitid, closely related to the Early Miocene *Miomephitis* from Wintershof-West (Germany) and especially to the Late Miocene *Neoyunnanotherium* from Lufeng and Yuanmou (China). While previously interpreted as a semi-aquatic molluscivorous mammal, we find that its unique dental morphology among Carnivora is more similar to that of certain snail-eating marsupials and lizards, leading us to suggest that it fed primarily on terrestrial gastropods.

Key words: Mammalia, Mephitidae, *Miomephitis, Neoyunnanotherium*, durophagy, Miocene, Germany, France.

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