

strategies and functional optimization are considered. Dental adaptations directly reflect demands of forage and environment. The dwarf bovid genus *Myotragus* forms a plio-holocene chronospecies which is endemic to Majorca island (Mediterranean Sea). *Myotragus* is comprised of six successively dwarfing species (*M. palomboi*, *M. pepgonellae*, *M. antiquus*, *M. kopperi*, *M. batei* and *M. balearicus*) with unknown continental ancestor. We apply 3D dental occlusal topography and microtexture analysis (Scale-Sensitive Fractal Analysis (SSFA) and Dental Areal Surface Texture Analysis (DASTA)) on the upper second molar to reconstruct the diet and quantify small scale morphological adaptations. Furthermore we test for geographical dietary segregation in separated populations of the youngest species, *M. balearicus*. Occlusal surface models and high resolution surface texture models of dental facets are generated and analysed. The older *Myotragus* species, *M. pepgonellae*, *M. kopperi* and *M. batei* have significantly higher enamel/dentin ratios than the younger *M. balearicus*. This suggests a gradual evolutionary decrease of the dentin/enamel ratio. The length and surface of inner enamel ridges decreases within the *Myotragus* lineage. SSFA revealed decreasing surface complexity from *M. pepgonellae* over *M. kopperi* and *M. batei* to the younger *M. balearicus*. This is interpreted as to reflect the dietary shift from graze-dominated to browse-dominated diets. The maximum height of surface textures as well as the material volume (DASTA) decreases within the succession. This signature is indicating a dominance of soft and tough food items like browse in *M. balearicus*, while brittle and hard forage maintains a more elevated profile in the three older species. Within the two local populations of *M. balearicus*, no difference in occlusal topography or microtexture was found. Our results reflect an adaptation to energetic restrictions of an insular environment and reveal that either a dietary shift took place in the lineage or *Myotragus* successively adapted to increased intraspecific competition and expanded its dietary range.

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## Freies Thema

# The murines of Kohfidisch (Burgenland, Austria) at a second glance – a comparative morphological study

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The Upper Miocene fossil locality of Kohfidisch, situated in the south of Burgenland, Austria was discovered in the mid 1950's. From this time onwards the cave and fissure system has been grubbed out in annual excavations for almost 30 years until the mid 1980's by two of the great palaeontologists of that time, Friedrich Bachmayer and Helmuth Zapfe. The fossil site yielded a multitude of different vertebrate and invertebrate taxa, for some of which it is the documented type locality. Among the most abundant forms were the murines, whose fossils amount to an estimated 1800 mandible and maxilla fragments and about 5500 isolated teeth. With the revision of these murine remains the occurrence of a third species *Progonomys* aff. *cathaloi*? could be revealed in addition to the two already established ones, *Progonomys woelferi* and *Apodemus lugdunensis* c. *Progonomys* aff. *cathaloi*? has not been documented for the site of Kohfidisch prior to this study and it is so far the only locality in Austria yielding this species. A morphological character analysis in combination with multivariate statistical methods was used to test for age differences in the different finding points within the cave and fissure system. Furthermore the stratigraphic position of Kohfidisch, compared to other Austrian Miocene vertebrate localities is discussed, using the concept of "stage-in-evolution" after de Bruijn et al. 1992 of the occurring murine species. Ultimately the provenance and evolution of the genera *Progonomys* and *Apodemus* in Austria is reviewed.

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