

LOW-MAGNIFICATION MICROWEAR ANALYSES OF SOUTH AMERICAN ENDEMIC HERBIVORES

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A key challenge for reconstructing diets of Tertiary South American mammals is the large proportion of taxa with few or no living descendants. Owing to this absence of close relatives, it is difficult to assess whether gross morphological characters useful for inferring diet in artiodactyls and perissodactyls (e.g., muzzle width) are equally effective for extinct South American endemics. Various 'taxon-free' methods (e.g., microwear, mesowear), may provide more reliable dietary reconstructions, as they rely on presumably universal properties of mammalian teeth rather than craniodental morphology (which has a strong phylogenetic signal). We here report preliminary results from a pilot study of enamel microwear in early Miocene notoungulates, astrapotheres, and xenarthrans, the first reported for Tertiary South American mammals. Microwear data from two to nine specimens from each of seven taxa from the Santa Cruz fauna of Argentina were recorded using a stereomicroscope. The diets of these taxa were estimated using a discriminant model derived from a published low-magnification microwear dataset of modern ungulates. The toxodontid notoungulates (*Nesodon* and *Adinotherium*), generally considered grazers due to their extreme hypsodonty, displayed microwear more typical of modern browsers. The same pattern was exhibited by the interatheriid *Protypotherium*, which is equally hypsodont. *Astrapotherium*, traditionally considered a browser, displayed the expected browser microwear. The tardigrade xenarthrans *Hapalops* was interpreted as a browser but *Peleciodon* was reconstructed as a grazer. The lack of concordance between microwear-based and traditional dietary interpretations for these taxa may result from relatively small sample sizes for extinct taxa and/or the lack of a sufficiently broad extant comparative dataset. Alternatively, it may indicate that traditional methods of dietary interpretation are relatively inaccurate when applied to South American endemic herbivores.