ABSTRACT VOLUME

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DENTAL WEAR AND DIETARY EVOLUTION OF EQUIDAE AND RHINOCEROTIDAE DURING THE QUATERNARY IN WESTERN EUROPE

Florent Rivals[1,2] and Adrian M. Lister[3]

1. ICREA, Barcelona, Spain.
florent.rivals@icrea.cat

2. Institut Català de Paleoecologia Humana i Evolució Social (IPHES), C. Marcel.lí Domingo s/n, Campus Sescelades URV (Edifici W3), 43007 Tarragona, Spain.

3. Earth Sciences Department, Natural History Museum, Cromwell Road, London SW7 5BD, UK.

In the last few decades, dietary ecological reconstructions have been used as powerful tools for gaining insight into local and global environmental trends. Ungulate tooth mesowear and microwear studies in particular serve as useful proxies for demonstrating the existence of geographical and/or temporal variability in diet and vegetation structure. Improvements in these techniques reveal patterns involving Quaternary vegetation and climatic structure as well as aspects of niche utilization. Pleistocene Equidae and Rhinocerotidae from about 20 Pleistocene localities in Britain spanning the last 2.6 Myr were sampled. The evolution of Equidae is characterized by an increase in hypsodonty through time. Tooth mesowear confirms the largely grazing habit of horses through the European Pleistocene. Tooth microwear also shows the same trend with some exceptions that suggest flexibility in the horse diet which might be related to seasonal shifts. Among the Rhinocerotidae, the low-crowned *Stephanorhinus etruscus* from two early Pleistocene localities showed dominant browsing feeding habits. In the late early and Middle Pleistocene, *Stephanorhinus hundsheimensis*, like its possible parent species *S. etruscus*, shows a browsing and mixed diet. The Merck's rhinoceros, *Stephanorhinus kirchbergensis* and the narrow-nosed rhinoceros, *S. hemitoechus*, co-occurring during the Middle Pleistocene, show different diets which indicate niche partitioning between the two species. According to mesowear and microwear patterns, *S. kirchbergensis* was browser or mixed feeder, which is supported by its longer limbs and brachydont teeth indicating more browsing habits. In contrast, *S. hemitoechus* samples indicate grazing and mixed feeding, a result supported by short and broad limb bones that suggest graviportal locomotion and higher hypsodonty, both indicating an adaptation to more open habitats than *S. etruscus* or *S. hundsheimensis*. These two species also show a high dietary flexibility. Finally, the Late Pleistocene wooly rhinoceros, *Coelodonta antiquitatis*, appears here as a pure grazer. Results indicate a greater plasticity in dietary behavior among forms with similar tooth crown heights and morphology than previously supposed. These results suggest that increased crown height is most likely an adaptation allowing species to expand their dietary breadth. That is, crown height augmentation may serve as a mechanism to allow a species to exploit new habitats and to expand its niche but not necessarily to shift exclusively to a new dietary regime.