Feeding ecology of European Early Pleistocene Deer: what does it tell us about their paleoenvironmental context?

Emilie Berlioz [*1,2], Dimitri Kostopoulos [3], Cécile Blondel [2], Gildas Merceron [2]

[1] TRACES – CNRS & University : UMR5608 - France
[2] PALEVOPRIM – CNRS & University : UMR7262 - France
[3] Department of Geology – School of Geology – Faculty of Science of Thessaloniki – Greece

Cervids represent a major component of the European Early Pleistocene fauna. In paleoenvironmental reconstructions, deer are typically considered as tree-cover indicators. However, insights into the ecology of extant deer uncover a wide variety of feeding behaviors and occupied habitats. *C. elaphus* is indeed present from the arid Spanish dehesas, consuming up to 95% of herbaceous monocotyledons, to the polish primeval forests, behaving as a strict browser. The trophic plasticity of *C. elaphus* reflects the principal resources available in the habitat. Exploring the feeding behavior of extinct eurytopic cervids hence constitutes a key to better apprehend paleoenvironments and their variations through time.

By reflecting what has eaten an animal during the last few days or weeks of its life, dental microwear textures of herbivores constitute a bridge between a population and its environment. 211 *E. ctenoides* and 176 *M. rhenanus* from 11 Early Pleistocene European localities were analyzed via a Dental Microwear Texture Analysis coupled with a Scale Sensitive Fractal Analysis (DMTA-SSFA).

Results illustrate the diversity of the food categories the 2 taxa are able to consume: either dicot foliage, seeds or tough and abrasive monocots. The 2 deer are therefore eurytopic and constitute appropriate proxies to track vegetal resource availability in paleoenvironments. For some localities, our results corroborate previous paleoenvironmental interpretations. For others, it brings new perspectives. Similar oscillations through time were identified for the 2 deer between a browsing and a grazing diet. We propose that these results witness vegetation changes from steppic habitats to decidual forests induced by the Early Pleistocene glacial-interglacial oscillations.

This large scale work challenges the paradigm considering deer as a paleoenvironmental indicator of an important tree cover and modifies our vision of the paleoenvironments of several European Early Pleistocene localities.

Mots-Clés : Dental Microwear Texture Analysis (DMTA), cervid, feeding ecology, trophic plasticity, paleoenvironmental reconstructions, Europe

Merci de ne rien inscrire dans cette zone et ne pas modifier les marges des pieds de page et entêtes.