THE EUROPEAN CENOZOIC LAND SNAIL FAUNAS – EXTINCTIONS AND TURNOVERS

Harzhauser, M.[1] & Neubauer, T.A.[2,3]

[1]Natural History Museum Vienna, Geological-Palaeontological Department, Vienna, Austria, mathias.harzhauser@nhm-wien.ac.at
[2]Justus Liebig University, Department of Animal Ecology and Systematics, Giessen, Germany
[3]Naturalis Biodiversity Center, Leiden, Netherlands

The evolution of the European Cenozoic terrestrial gastropod faunas is characterized by a complex pattern of diversification, turnover, extinction and immigration events. Based on a critical review of a literature-based dataset comprising 1640 species from 609 sites, we calculated net diversity through time (expressed as species, genus and family richness) and β-diversity (as species, genus and family turnover). Within these data, we recognize major disruptive phases, with turnover events at the Ypresian–Lutetian and the Eocene–Oligocene boundaries, as well as extinction events at the Oligocene–Miocene, Burdigalian–Langhian Pliocene–Pleistocene boundaries. Phases of diversification during the Lutetian, Burdigalian and Pliocene, in contrast, seem to be linked to phases of relative climate stability. At least five immigration events are reflected by the appearance of exotic elements in European faunas. Many of them correlate with the formation of terrestrial pathways and major migration events in mammals. The correlation of the observed patterns with global climatic events will be discussed.