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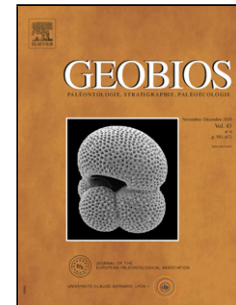
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## Morphometric-palaeoecological discrimination between *Bison* populations of the western Palaeartic <sup>✱</sup>

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### Abstract

The present study outlines a comprehensive chrono-spatial framework of the palaeoecological adaptations among several western Palaeartic *Bison* populations. Possibly arrived during the middle early Pleistocene (late Villafranchian), bison were present with various morphotypes for more than 1.5 million years in the European mammalian palaeocommunities. Based on dental wear and postcranial morphological traits, bison can be attributed to distinct size classes and shape trends, associated with distinct feeding and locomotor adaptations across regional provinces and time intervals. During the progressively cooler and more arid climate conditions towards the late Pleistocene, a body mass increase and a significant distal limb elongation are recorded. After the last glacial climatic deterioration, the restoration of a more temperate climate and the expansion of woodlands triggered the general size decrease and limb shortening towards the beginning of the Holocene, both reflected in extant Holarctic bison. The phenotypic diversity, imprinted in further limb structure alterations, was driven by climatic instability and landscape vegetational heterogeneity. The morphological variability among early Pleistocene forms can be attributed to evolutionary processes or most likely multiple *Bison* invasions at that time. The vast majority of Pleistocene European bison primarily inhabited relatively open and dry environments, suited for grazing though they were able to exploit a variety of open and fairly wooded habitats, consuming a broad vegetational spectrum. In contrast, the increasing arid

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