
The evolutionary history and population dynamics of bison in Europe was influenced by climatic fluctuations

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R esum e

The largest European mammal that survived into the present is the bison or wisent, *B. bonasus*. It appears in the fossil record with the onset of the Holocene, but its origin was not known. The fossil finds in Upper Pleistocene Eurasia have been mainly attributed to the steppe bison, *B. priscus*. Other species preceding the steppe bison have been described on morphological grounds, such as *B. schoetensacki*.

We performed a paleogenomic study of bison in Europe and Asia covering roughly 150,000 years that uncovered the succession of different bison species in an environment-dependent manner influenced by climatic fluctuations. We identified an ancient form of the European bison that lived in the territory of France around 150,000 ago, corresponding to MIS5, and (again?) between more than 50,000 to 34,000 years ago, during the first half of MIS3, but also in the northern Caucasus. With decreasing temperatures in the second half of MIS3, we see the steppe bison arriving in France. The two species overlapped for some thousands of years during about 38 – 34,000 years ago as testified in a painting on a pillar in the Chauvet cave. While the population of the ancient wisent declined and then disappeared during the second half of MIS3, the population of the steppe bison thrived and populated the area until the end of the last glacial period, MIS2, around 14,000 years ago. With the dramatic warming at the beginning of MIS1, the ancestors of the present-day wisent that had survived the LGM in the southern Caucasus, arrived in and spread over Western Europe. In France they survived up to the Middle Ages and in Poland up to now.

We will discuss our results in the light of our newly compiled osteological data, new paleogenomic data and analyses as well as recently published data from other groups and in particular of genomic data from the present-day and 100-year-old wisent.

Mots-Cl es: ancient DNA, paleogenomics, population dynamics, climate change, bison

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