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# Late Quaternary cave bears and brown bears in Europe: implications for distribution, chronology, and extinction based on a multidisciplinary approach

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Cave bear remains are one of the most numerous fossils found in European caves. Despite their frequency of occurrence, many aspects of cave bear palaeontology still remain poorly understood. New methodological approaches and ongoing studies led to controversial results and discussion about its taxonomy, palaeoecology, and final extinction. Are we dealing with one single or several species of cave bears? Was cave bear exclusively vegetarian or after all more omnivorous? Did he go extinct before or after the Late Glacial Maximum? Was cave bear restricted to Europe or did he also occur in Asia?

Late Pleistocene brown bears, on the other hand, are often rare and little is known about the possible co-occurrence of cave and brown bears during the Late Pleistocene. Based on direct radiocarbon dates the distribution pattern of both, cave and brown bears is reconstructed during the Late Pleistocene in Europe. In addition, the reasons for the achieved pattern will be tested leading to the main question – why did cave bear become extinct while brown bears survived until today?

To answer this question palaeobiological data of Late Pleistocene cave and brown bears will be tested against results from isotope analyses, while aDNA data may contribute to the question of distinct local population or even species of bears. The current state of evidence will be presented and on the basis of resulting pattern implications for further multi-disciplinary studies will be discussed.