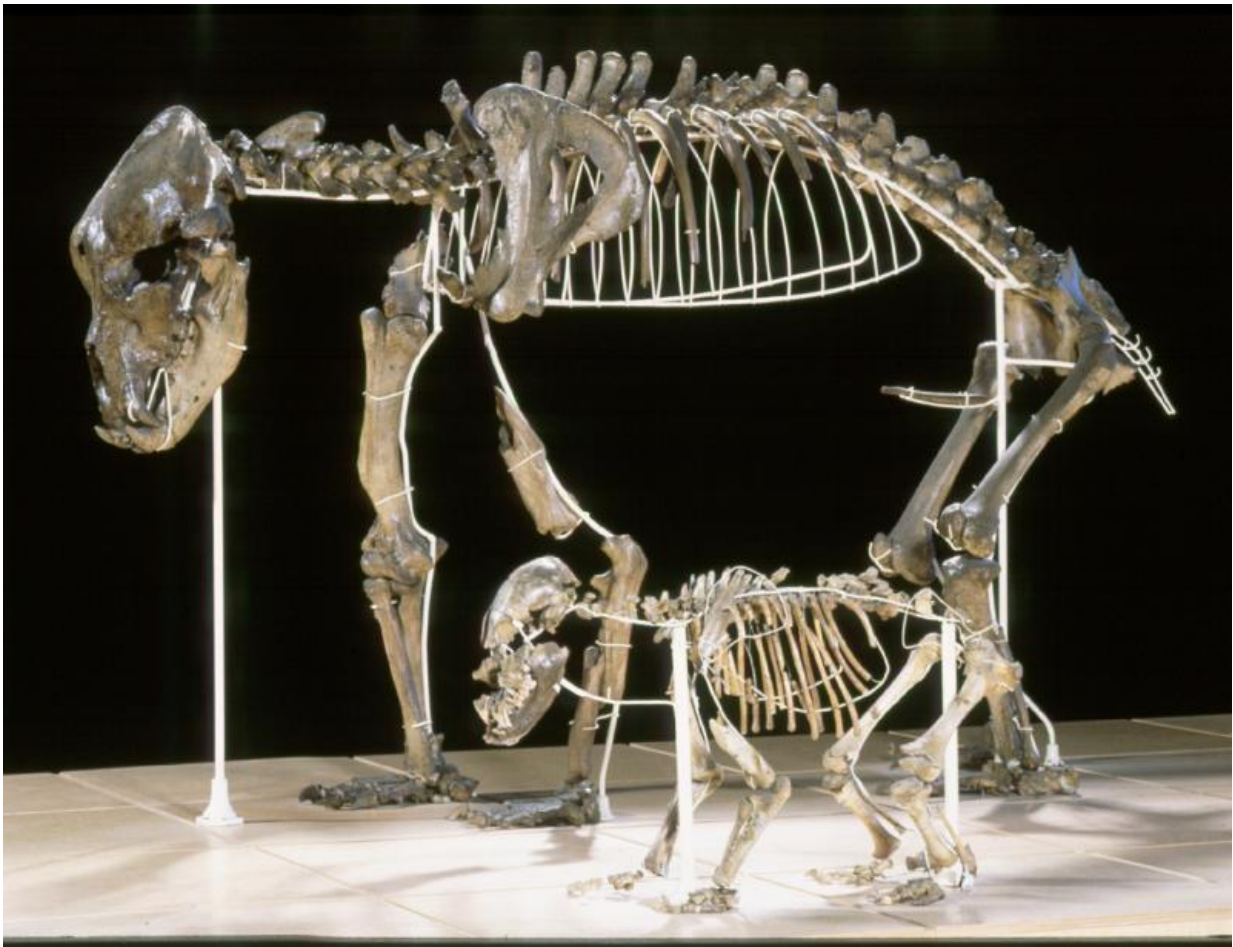


An inflexible diet led to the disappearance of the cave bear

August 23 2016



Adult cave bear with cub from Goyet Cave in Belgium. © RBINS

Senckenberg scientists have studied the feeding habits of the extinct

cave bear. Based on the isotope composition in the collagen of the bears' bones, they were able to show that the large mammals subsisted on a purely vegan diet. In the study, recently published in the scientific publication *Journal of Quaternary Science*, the international team proposes that it was this inflexible diet that led to the cave bear's extinction approximately 25,000 years ago.

Today's brown bears are omnivores. Depending on the time of year, they devour plants, mushrooms, berries and small to larger mammals, but they will also take fish and insects. "The cave bear is a very different story," says Professor Dr. Hervé Bocherens of the Senckenberg Center for Human Evolution and Palaeoenvironment (HEP) at the University of Tübingen, and he continues to explain, "According to our newest findings, these extinct relatives of the brown bear lived on a strictly vegan diet."

Cave bears (*Ursus spelaeus*) lived in Europe during the most recent glacial period, approximately 400,000 years ago, until they became extinct about 25,000 years ago. With a length of 3.5 meters and a height of 1.7 meters at the shoulder, these bears, which ranged from Northern Spain to the Urals, were noticeably larger than their modern-day relatives. Despite their name, they did not actually live in caves but only used them for hibernation. Nevertheless, the occasional death of animals in various European caves over several tens of thousands of years eventually led to enormous accumulations of bones and teeth from these large fur-bearing animals.

Several of these bones from the Goyet Cave in Belgium have now been examined by the international team around Prof. Bocherens, with a special focus on the cave bear's diet. "We were particularly interested in what exactly the cave bears ate, and whether there is a connection between their diet and their extinction," explains the biogeologist from Tübingen.

To this end, scientists from Japan, Canada, Belgium and Germany conducted isotope studies on the collagen from the bears' bones. Collagen is an essential organic component of the connective tissue in bones, teeth, cartilage, tendons, ligaments and the skin. The examination of the [isotope composition](#) of individual amino acids in the collagen shows that the bears lived on a strictly vegan diet. "Similar to today's giant panda, the [cave bears](#) were therefore extremely inflexible in regard to their food," adds Bocherens, and he continues, "We assume that this unbalanced diet, in combination with the reduced supply of plants during the last ice age, ultimately led to the cave bear's extinction."

Previously, there had been much speculation as to the cause of the large bears' disappearance. Was it due to increasing hunting pressure from humans? The changing temperatures, or the lack of food? "We believe that the reliance on a purely vegan diet was a crucial reason for the cave bear's extinction," explains Bocherens.

During the investigation, another interesting aspect came to light. Even the collagen of two cave bear cubs indicated a [vegan diet](#) – despite the fact that they were suckled by their mother. The scientists interpret this finding as a reflection of the nursing female's diet.

"We now intend to examine additional cave bear bones from various European locations with this new method, as well as conducting controlled feeding experiments with modern bears, in order to further solidify our proposition," adds Bocherens by way of a preview.

More information: Yuichi I. Naito et al. Evidence for herbivorous cave bears () in Goyet Cave, Belgium: implications for palaeodietary reconstruction of fossil bears using amino acid δN approaches, *Journal of Quaternary Science* (2016). [DOI: 10.1002/jqs.2883](https://doi.org/10.1002/jqs.2883)

Provided by Senckenberg Research Institute and Natural History
Museum

Citation: An inflexible diet led to the disappearance of the cave bear (2016, August 23) retrieved
26 April 2024 from <https://phys.org/news/2016-08-inflexible-diet-cave.html>

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.