

Hunters present in North America 800 years earlier than previously thought: DNA analysis

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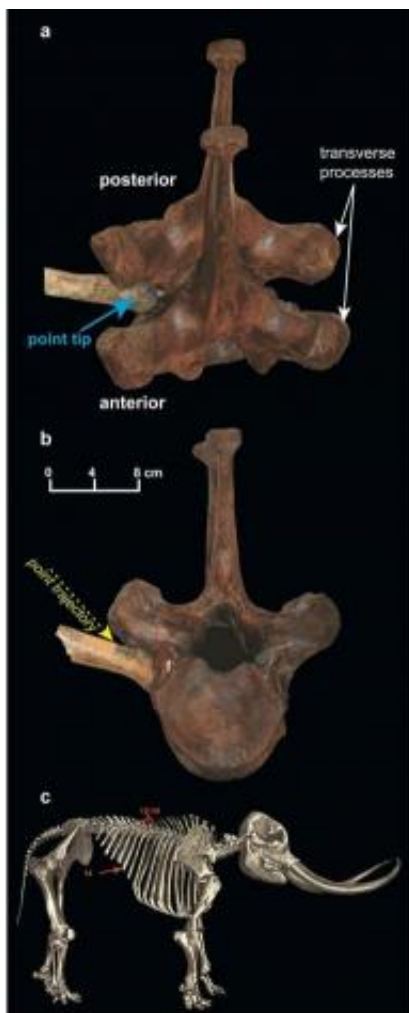


Figure 3.

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This figure shows a mastodon rib with the embedded bone projectile point. (A) Closeup view. (B) Reconstruction showing the bone point with the broken tip.

The thin layer represents the exterior of the rib. (C) CT X-ray showing the long shaft of the point from the exterior to the interior of the rib. (D) The entire rib fragment with the embedded bone projectile point. Credit: University of Copenhagen

The tip of a bone point fragment found embedded in a mastodon rib from an archaeological site in Washington state shows that hunters were present in North America at least 800 years before Clovis, confirming that the first inhabitants arrived earlier to North America than previously thought, says a team of researchers led by a Texas A&M University archaeologist.

Michael Waters, director of the Center for the Study of the First Americans in the Department of Anthropology at Texas A&M, and colleagues from Colorado, Washington and Denmark believe the find at the Manis site in Washington demonstrates that humans were in the area around 13,800 years ago, or 800 years earlier than was believed. Their work is published in the current issue of *Science* magazine.

In the late 1970s, an adult male mastodon was excavated from a pond at the Manis site. The distribution of the bones and the discovery that some of the bones were broken suggested that the elephant had been killed and butchered by human hunters, Waters explains. However, no stone tools or weapons were found at the site. The key artifact from the site was what appeared to be a bone point sticking out of one of the ribs, but the artifact and the age of the site were disputed.

Waters contacted team member and original excavator, Carl Gustafson, about performing new tests on the rib with the bone point. New radiocarbon dates confirmed that the site was 13,800 years old. High resolution CT scanning and three-dimensional modeling confirmed that

the embedded bone was a spear point, and DNA and bone protein analysis showed that the bone point was made of mastodon bone.

"The Manis site is an early kill site" Waters says.

"The evidence from the Manis site shows that people were hunting mastodons with bone weapons before the Clovis stone spear point."

The new evidence from Manis supports extinction theories of large mammals at the end of the last Ice Age, Waters says. During the last cold period, herds of mammoth, mastodon, camels, horses and other animals roamed Texas and [North America](#). At the end of the Ice Age, these animals became extinct.

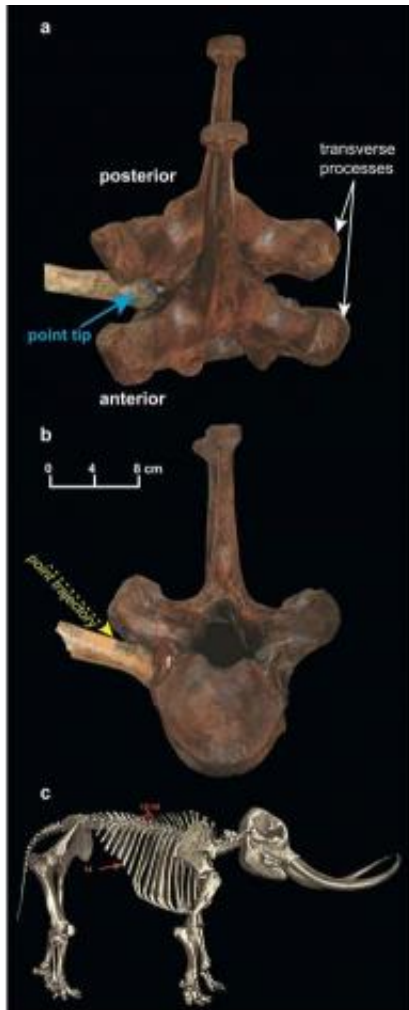


Figure 3.

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This figure shows the anatomical position of the Manis rib. (A) Two vertebrae with the Manis rib inserted into its correct anatomical position. The blue arrow points to the embedded point fragment. (B) Side view of mastodon vertebrae with the Manis rib inserted into its correct anatomical position, with the trajectory of the point indicated. (C) Mastodon skeleton showing the location of ribs 12 to 14. Credit: University of Copenhagen

"While these animals were stressed by the changing climate and vegetation patterns at the end of the [Ice Age](#), it is now clear from sites like Manis that humans were also hunting these animals and may have

been a factor in their demise," Waters adds. He also notes that "there are at least two other pre-Clovis kill sites in Wisconsin where [hunters](#) killed mammoths."

'Clovis' is the name given to the distinctive tools made by people starting around 13,000 years ago. The Clovis people invented the 'Clovis point', a spear-shaped weapon made of stone that is found in Texas and the rest of the United States and northern Mexico. These weapons were used to hunt animals, including mammoths and mastodons, from 13,000 to 12,700 years ago.

Waters says that "the evidence from the Manis site is helping to reshape our understanding of the earliest inhabitants of the Americas, the last continent to be occupied by modern humans."

Provided by Texas A&M University

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