The mammoths' swan song revised

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This is shown by samples of ancient DNA, analysed by an international team of research scientists under the leadership of Professor Eske Willerslev from Copenhagen University. Analyses of ancient DNA thereby once again revoke results of more common methods of dating, such as carbon 14 analysis of bone and tooth remains from extinct animals. These methods which had previously dated the extinction of mammoths and prehistoric horses in Central Asia to within 13-15,000 years ago. But with the DNA-test methods of Eske Willerslev and his colleagues, this boundary has now moved between 2,600 and 5,600 years closer to our time and has thus revised our previous opinion of when the last mammoths and prehistoric horses grazed on the North American Plains.

The ancient DNA that formed the basis for this sensational result, was

discovered by scientists in samples of soil from the permafrost tundra surrounding the windswept town of Stevens Village on the bank of the Yukon River in Central Alaska.

Professor Eske Willerslev says about his discovery:

"In principle, one can take a pinch of soil and uncover which living creatures, animals and plants lived in the area half a million years back in time. With ancient DNA analysis, we are completely independent of skeletons, bones, teeth and other macro-fossil evidence from extinct animals. This greatly increases the possibility of finding evidence of the existence of a species through time. Whilst an animal leaves only a single corpse when it dies, it leaves quantities of DNA traces through urine and faeces whilst it is still alive. It is these DNA traces which we find in the soil."

When the remains of the last member of an extinct species were hard to find, Willerslev and a team of international research scientists decided to carry out an expedition to Central Alaska to solve the riddle of "The last surviving mammoths" using ancient-DNA tests from permafrost soil.

Surprisingly, the scientists found that the later samples with mammoth DNA could be dated back to between 10,500 and 7,500 years ago, and are therefore between 2,600 and 5,600 years after
the supposed extinction of the mammoths from mainland Alaska. Thus, the scientists found proof that mammoths had walked the earth several thousand years longer than previously believed; presumably by lesser herds of these animals threatened with extinction, surviving in small, isolated enclaves, where living conditions were intact.

The findings breathe new life into the debate about why prehistoric animals, such as sabre-toothed tigers, giant sloths, woolly rhinos, and mammoths apparently suddenly disappeared from the face of the earth.

"Our findings show that the mammoth and the horse existed side by side with the first human immigrants in America for certainly 3,500 years and were therefore not wiped out by human beings or natural disasters within a few hundred years, as common theories otherwise argue. The technique behind ancient-DNA analysis has the potential to greatly contribute to the debate about the extermination of prehistoric species, but can also be used to gather knowledge of contemporary animal species which are so shy that they are hard to detect. Not to mention the forensic possibilities opened up by the technique," Eske Willerslev points out.

The article on the last mammoths will be published on Monday, December 14th in the internationally recognised publication "*Proceedings of the National Academy of Sciences* USA (*PNAS*).

Source: University of Copenhagen