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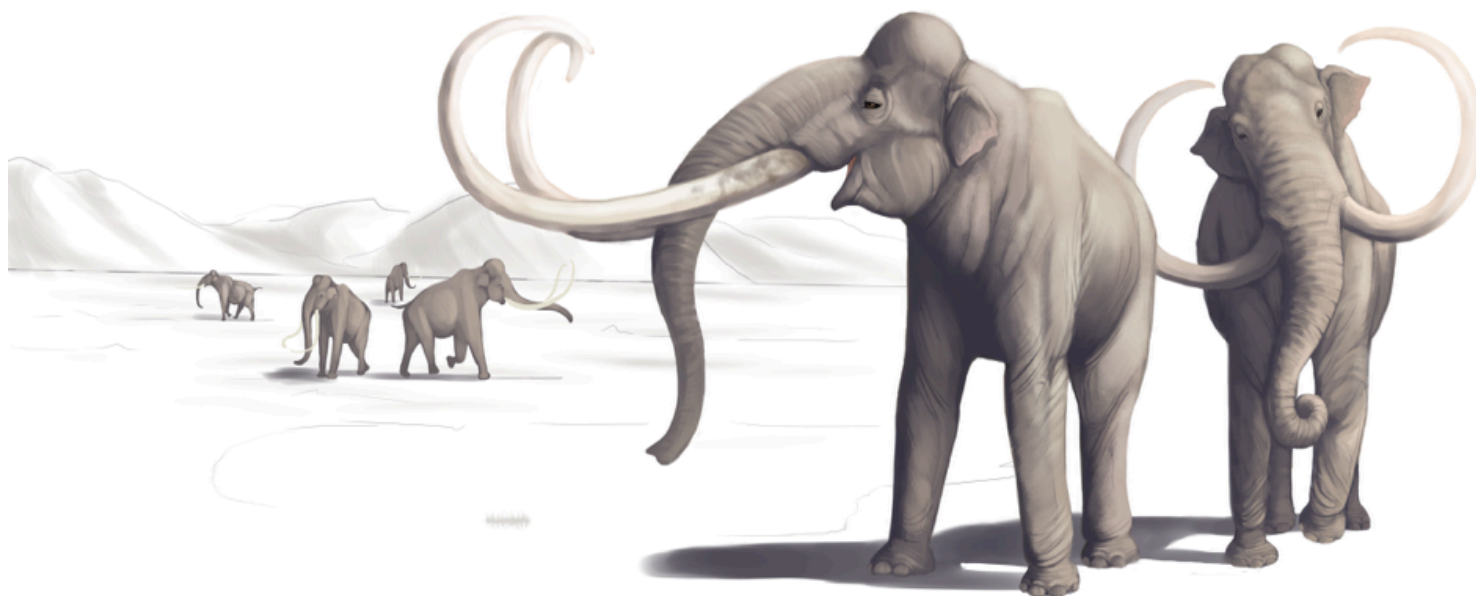
National Park Service

Series: Prehistoric Life of Tule Springs

ARTICLE

Columbian Mammoth

Tule Springs Fossil Beds National Monument



Adult Columbian mammoths: *Mammuthus columbi*. Mammoth fossils are the most identified vertebrate fossil from Tule Springs Fossil Beds National Monument.

NPS illustration by Benji Paysnoe.

Scientific Name

Mammuthus columbi

Description

The Columbian mammoth is the largest and most identified extinct large mammal found in the Las Vegas Formation at Tule Springs Fossil Bed National Monument. Fully-grown males could reach approximately 13 feet at the shoulder, weighing close to 22,000 lbs. Both male and female Columbian mammoths grew long, curved tusks.

Hugh Falconer, a Scottish naturalist, described the first Columbian mammoth fossil in 1857, which consisted of a partial molar. This fossil was collected from the excavation of the Brunswick-Altamaha Canal in Georgia, USA in 1838. Falconer originally named the species "*Elephas columbi*", after the explorer Christopher Columbus.

Relationships

Columbian mammoths belonged to the same family as living African (*Loxodonta africana*), forest (*L. cyclotis*), and Asian (*Elephas maximus*) elephants, known as the Elephantidae. This family belongs to a larger order of tusked and trunked herbivorous mammals called Proboscidea. Based on genetic information, mammoths are more closely related to Asian elephants, than the African and forest elephants. The evolutionary relationships between extinct mammoths are very complicated and still under scientific investigation. It is clear Columbian mammoths descended from an ancestral mammoth species that emigrated from Eurasia, crossing Beringia by approximately 1.5 million years ago.

Distribution and Habitat

Columbian mammoth fossils have been found in the southern half of North America, from the Northern United States and down through much of Mexico and possibly as far south as Costa Rica. They were adapted to a variety of habitats such as grasslands, savannas, and aspen parklands which have consistent occurrences of grasses, herbaceous plants, trees, and shrubs. The spring-fed wetlands, streams, and wet meadows that occurred at Tule Springs Fossil Bed National Monument during the Pleistocene would have been ideal habitat for Columbian mammoths and may explain their high percentage of occurrence (about 22% of fossils identified) at the monument.

Diet

Columbian mammoths were herbivores adapted to a varied diet with a large portion of grasses. Mammoth tusks were the equivalent to our upper incisor teeth, which grew continuously throughout their lives and were not used for chewing. The irregular, ridged surface of mammoth molar teeth helped to break up plant leaves and grasses like a food processor. The diet of Columbian mammoths reflected regional plant communities, but they were capable of eating leaves, grasses, twigs, and flowers. Bechan Cave (*bechan* meaning "large feces" in Navajo [Diné bizaad]) in Utah preserved large quantities of dried mammoth dung: the digested remains of 95% of grasses and minuscule traces of saltbush, sagebrush, water birch, and blue spruce.

Behavior

It has been estimated that Columbian mammoths could have lived up to 70 years. Approximate ages of Columbian mammoths are chiefly determined by examining the wear and eruption of their molar teeth relative to living elephants. Like modern elephants, Columbian mammoths most likely lived in multigenerational, matriarchal (female led) herds, with a dominant mature female leading the family group. Evidence of this matriarchal family grouping can be seen at Waco Mammoth National Monument, where a group of adult female and juvenile mammoths were caught in a flash flood approximately 68,000 years ago. Male Columbian mammoths, like modern elephants, left their herd around age twelve and lived solitary lives after reaching maturity. There is also direct evidence in the fossil

record of male mammoths competing for females in a violent clash.

Polished, flattened surfaces of their tusks suggest Columbian mammoths were capable to dig up plant roots or strip bark off trees. They also most likely used their limb-like trunk to grab, pluck, and manipulate plants, or to communicate with their family members.

Tule Springs Mammoths

The first mammoth fossil identified from Tule Springs was reported in a geological report by Josiah E. Spurr and R.B Rowe in 1903, who noted the presence of “mastodon bones and teeth” from the area that is now Tule Springs Fossil Bed National Monument. Subsequent field work since the 1930’s and the relative scarcity of American mastodon (*Mammot americanum*) fossils in the Mojave Desert region strongly suggest that Spurr’s fossils were incorrectly identified mammoth fossils.

Fossils of Columbian mammoths are commonly identified throughout the Tule Springs fossil beds, making up about 22% of the documented assemblage so far. The large proportion of fossils identified as mammoth could be a result of how distinct ivory and mammoth tooth enamel are from other mammal bone or tooth fragments. Regardless, the large number of mammoth fossils identified within the monument have suggested that Tule Springs supported adequate vegetation and water to feed large herds of mammoths and other large herbivores such as bison, camels, and horses. Commonly identified fossils of Columbian mammoths from Tule Springs Fossil Beds include ivory/tusks, molar teeth, and vertebrae.

Related Links

- [Tule Springs Fossil Beds National Monument – a Pleistocene treasure trove](#)
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