

Geology, Paleontology, & Paleoecology of the Coyote Canyon Mammoth Site

Day/Time: Saturday, April 4, 2015 8:00 AM to 11:00 AM

Pick-Up Location: Columbia Basin College (CBC), North Parking lot

Cost: Free; Participants may need to carpool

Trip Leaders: Bax Barton, Paleoecologist,
George Last, Geologist,
& Gary Kleinknecht, Education Director

The Coyote Canyon mammoth was discovered in November 1999 while excavating fine-grained soil for use as topsoil. In spring 2008, test excavations confirmed the location of the mammoth site. A number of mammoth-size bones, including a humerus and scapula in near articulated position, were uncovered. Excitement grew that this site might offer a unique opportunity for students, teachers, and researchers to investigate well-preserved mammoth subfossils in the context of Ice Age flood deposits, and a non-profit organization, the Mid-Columbia Basin Old Natural Education Sciences (MCBONES) Research Center Foundation was established to oversee environmental, paleontological, and geological research and education at the site.

Formal excavation of the site began on September 25, 2010, and has continued two weekends a month from March through October. Soil/sediment is excavated in 10 cm layers using archeological techniques. All sediment is wet screened (washed) to remove the clay, silt and fine sand, making it easier to pick out micro-flora and -fauna specimens (such as rodent bones) to yield evidence on the site paleoecology over time.

Research director and paleoecologist, Bax R. Barton, geologist George Last, and education coordinator, Gary Kleinknecht, will be your guides to one of the best mammoth research and education sites in the northwest. Learn about our past findings, current hypotheses, and future research and education opportunities.

The field trip will leave from Columbia Basin College's north H parking lot (next to the Gjerde Center). We will carpool to the site, located about 20 miles away - about a 30 minute drive. Participants should wear sturdy shoes, appropriate clothing for the weather and cheatgrass, and bring water, snacks, lunches, etc. Oh, and don't forget your camera.

Details About The Site:

Over forty-five mammoth-size bones or bone fragments have been discovered, including many ribs, vertebrae, and metapodials (foot bones), as well as the left scapula and left and right humerus. Analysis of the washed sediment has produced evidence of a detailed paleoenvironmental record for the site, including evidence of contemporary late Pleistocene vertebrates (rodents, snakes, lizards, birds), invertebrates (beetles, spiders, terrestrial and aquatic mollusks), and plants (seeds).

The Coyote Canyon mammoth is located at an elevation of 293 MSL within slackwater deposits of Lake Lewis, a temporary lake that repeatedly formed when massive Missoula floodwaters were impounded behind a hydraulic constriction at Wallula Gap. This is one of the highest known mammoth finds in flood deposits in southeastern Washington, and thus is associated with one of the largest floods. Taphonomic evidence on the bones suggest that the mammoth carcass lay exposed for some time after deposition and was scavenged by a number of rodents and carnivores. Preliminary stratigraphic interpretation of the site, suggest that at least four graded-bed rhythmites associated with different Pleistocene flood events may overlie the bone bed. The presence of ice-rafted erratics and dropstones within these flood deposits, some intermingled with mammoth bone elements, suggests that both the erratics and the mammoth may have been ice-rafted to this location onto a shoreline of Lake Lewis. An overprint of pedogenic calcium carbonate (Stage I or II) atop the rhythmites hosting the mammoth, suggests a lengthy period of soil development. Erosion and bioturbation of these flood deposits is evident prior to deposition of younger flood deposits. Approximately one meter of loess (presumably L1 loess), that can be separated in to two subunits, overlies the flood deposits. This is overlain by a 0.75 m thick sequence of colluvial slopewash. Radiocarbon dating of two samples from the mammoth's right humerus yielded a mean value of ~17,450 calBP. This supports the hypothesis that the mammoth remains are located within some of the older late-Wisconsin flood deposits.