On-going geoarchaeological investigations were conducted in the summers of 2012 and 2013 to assess the potential for buried archaeological artifacts and to reconstruct the paleo-environment at four sites in the San Luis Valley of Colorado. All four sites have yielded mammoth remains, cultural artifacts, and carbonate-poor peat and wetland deposits. Subsurface stratigraphic analysis and radiocarbon dating at Mr. Peat site suggest that the site was a fossil stream deposit containing stratified sandy silt and evaporate sands. Thick peat deposits overlying these layers represent a localized rising of the water table sometime before ~11,530 yr BP. Woody plant remains, saturated conditions alternate with organic silt representing near-surface environments until sometime after ~9,120 yr BP. Mammoth bones were recorded as surface finds and included in the fossiliferous sediments underlying the peat. At the Mr. Peat site, fossiliferous peat deposits date from ~13,400 to 11,300 yr BP. A similar landscape is recorded at the Magna site where mammoth bones were found in sediments underlying stratified peat deposits. Additional organic and bone samples from the Scott Miller and Magna sites have been submitted for radiocarbon age determination and will provide further temporal control. The Bunker site is a ephemeral stream channel on the valley floor that is now dry. Peat, silt, and clay are common deposits in the wetlands and all three sites on alluvial fans from the mountains surrounding the SLV. The Mr. Peat site is located ~10 miles east, the Scott Miller site is about 28 miles west, the Villa Grove Site is ~5 miles north, and the Bunker Site is about ~50 miles north of Alamosa.

The SLV sites between the Juan de Andrade Mountains, both rising above 14,000 feet (Figure 1), there is a decreasing precipitation gradient from west to east. Both mountain ranges have an extensive history of glaciers that have provided outwash to the SLV, but the present day extent of the glaciers is limited. The Santa Fe and Sangre de Cristo Ranges (Figure 1) are the two mountain ranges that border the SLV. The basin extends in a north-south direction through the San Luis Valley of Colorado and is approximately 75 miles long and 10 miles wide. The San Luis Valley is a flat-topped basin that slopes 150 feet (~46 meters) from east to west, grading into the high mountains to the north.

The paleo-wetland is located within a semi-arid desert landscape, on the eastern edge of an alluvial fan spreading out from the volcanic San Juan Mountains within the Rio Grande Rift Valley (Figure 1-A). The wetland is no longer a permanent wetland, but the site still possess seasonal fluctuation despite the decreased water for irrigation. This project was conducted in collaboration with United States Fish and Wildlife Service. Stratigraphic data were collected at three locations (Figure 2). Below is a table representing Trench 1 (Figure 3), as it exhibited the most complete stratigraphic sequence. Samples from this trench were submitted for radiocarbon dating. The Mr. Peat site (Figure 1-B) is a paleo-wetland with peat deposits overlying fluvial sands that trend west along the valley floor. Because of the ages of the existing strata and the scattered botany of Biscutum spinnatifolium and marsh marigold, this site is of interest to archaeologists studying early people and fauna in the San Luis Valley. The Mr. Peat site was minted for peat deposits in the 1950’s and 1960’s. Our team dug seven pits (Figure 3) and did a transect of the fluvial sand layers to better understand the stratigraphy and archaeological potential of the site. The basic stratigraphy of the Mr. Peat wetland-deposits is comprised of four main units, all of which are preserved in the surface at the sites in different areas (Figure 4). All ages at Mr. Peat are from Ahearn and McPhee (2004).

Scott Miller

The Scott Miller (Figure 2) is a groundwater fed spring in the early 20th century that has since dried up. A University of Colorado field school completed preliminary work in the early 1970’s to describe the area and excavate a mammal site. Our main research was conducted in the trench that the school left behind (Magna-1). The land surrounding the trench is mostly comprised of sparse vegetation and modern, small sand dunes in the middle of a mostly undeveloped housing subdivision. Two trenches were dug at the Magna site (Figure 6) for a geoarchaeological analysis. Stratigraphic layers at the site (Magna-1) include a surface peat layer, a thin organic clay layer, and a clayey silt layer from which Mammoth remains were excavated. These cobbly clays were likely deposited in a seasonal, wetland environment. The Scott Miller site was found in the high-spired seasonal cobbly clay is unclear from the 1972 report. The second trench (Magna-2) was taken from the upland (90m-110m) site. At Magna-2, a different stratigraphy was recorded and appears to be the dominant stratigraphy in the area. Here, thick fine sands and silty clays with significantly less bone than Magna-1 were recorded and the cobbly clay layer was either missing or more deeply buried. The intent of the target layer for this study, the buried cobbled clay layer, is unknown. Below is a table describing the strata from Magna-1 including radiocarbon ages from this study.

Mr. Peat

The Mr. Peat site (Figure 1-B) is a paleo-wetland with peat deposits overlying fluvial sands that trend west along the valley floor. Because of the ages of the existing strata and the scattered botany of Biscutum spinnatifolium and marsh marigold, this site is of interest to archaeologists studying early people and fauna in the San Luis Valley. The Mr. Peat site was minted for peat deposits in the 1950’s and 1960’s. Our team dug seven pits (Figure 3) and did a transect of the fluvial sand layers to better understand the stratigraphy and archaeological potential of the site. The basic stratigraphy of the Mr. Peat wetland-deposits is comprised of four main units, all of which are preserved in the surface at the sites in different areas (Figure 4). All ages at Mr. Peat are from Ahearn and McPhee (2004).

Bunker

The Bunker Site (Figure 1-D) is an ephemeral stream bed with scattered surficial mammoth tooth and bone remains along with lithics flakes. In August of 2013, the site was investigated with the goal of finding the source layer for the mammal remains and determining the evolution of the landscape. The stream had seasonal water until the mid-20th century. Four test trenches were dug near the edges of the stream channel to investigate the depositional sequence. This yielded two periods of landscape stability and evidence of a Fleming water table, as described at the other sites. Some thin layers of peat and wetland deposits were found at the surface. The source layer for the mammal bones has not yet been found, however research is on-going. No samples have been collected for carbon dating.

Magna

The Magna Site (Figure 1-C) was a groundwater fed spring in the early 20th century that has since dried up. A University of Colorado field school completed preliminary work in the early 1970’s to describe the area and excavate a mammal site. Our main research was conducted in the trench that the school left behind (Magna-1). The land surrounding the trench is mostly comprised of sparse vegetation and modern, small sand dunes in the middle of a mostly undeveloped housing subdivision. Two trenches were dug at the Magna site (Figure 6) for a geoarchaeological analysis. Stratigraphic layers at the site (Magna-1) include a surface peat layer, a thin organic clay layer, and a clayey silt layer from which Mammoth remains were excavated. These cobbly clays were likely deposited in a seasonal, wetland environment. The Scott Miller site was found in the high-spired seasonal cobbly clay is unclear from the 1972 report. The second trench (Magna-2) was taken from the upland (90m-110m) site. At Magna-2, a different stratigraphy was recorded and appears to be the dominant stratigraphy in the area. Here, thick fine sands and silty clays with significantly less bone than Magna-1 were recorded and the cobbly clay layer was either missing or more deeply buried. The intent of the target layer for this study, the buried cobbled clay layer, is unknown. Below is a table describing the strata from Magna-1 including radiocarbon ages from this study.