ICE AGE FOSSILS FROM THE LAS VEGAS VALLEY DISPOSAL BOUNDARY

The Las Vegas Valley Disposal Boundary (LVVDB) encompasses the Upper Las Vegas Wash, an area that is literally world-famous for its abundant and well-preserved fossils. Bones and teeth of extinct animals dating to the latter part of Pleistocene[1] Epoch – the "Ice Ages" – are abundant from this region, as documented by numerous paleontologic studies. These fossils range from older than 40,000 years to around 11,000 years in age, and include remains of extinct mammoths, ground sloths, giant lions, camels and

Fossil bones of an extinct Columbian mammoth, *Mammuthus columbi*, exposed and weathering at the surface inside the LVVDB. More than 400 localities such as this remain exposed to the elements throughout the Las Vegas Wash.

[1] Pronounced "PLY stow seen".

llamas, giant bison, and large and small horses, as well as abundant small mammals, birds, reptiles, amphibians and fish. This uniquely important and informative late Pleistocene fossil assemblage is recognized as the most abundant, diverse, and significant assemblage from this time period in the Mojave Desert, as well as one of the most significant late Pleistocene assemblages from anywhere in the Great Basin.

Fossil bones of an extinct giant llama-like camel, *Camelops hesternus*, eroding out of a low arroyo inside the LVVDB. Broken fossils like these will continue to deteriorate in the harsh desert conditions of North Las Vegas, unless they can be recovered and preserved.

As part of the preparation of the Environmental Impact Statement (EIS) for the LVVDB, paleontologists from the San Bernardino County Museum (SBCM) in Redlands, California initiated field investigations throughout the Las Vegas Valley. The SBCM is an established repository for fossils collected from Federal lands and is accredited by the American Association of Museums. Paleontologists from the SBCM have many years of experience conducting paleontologic studies throughout southern Nevada and California, including the Mojave Desert. Findings of the investigations included:

- More than 400 previously-unrecorded fossil localities from the Las Vegas Wash

Fossil jaws and teeth bones of an extinct horse, *Equus*, eroding out of a hillside within the LVVDB. These delicate fossils could easily be scattered and destroyed by off-road activity or by a strong rainstorm unless they can be recovered and preserved.

- Hundreds of exposed fossils of extinct mammoths, giant camels, horses, and bison, with potential for numerous microfossil localities

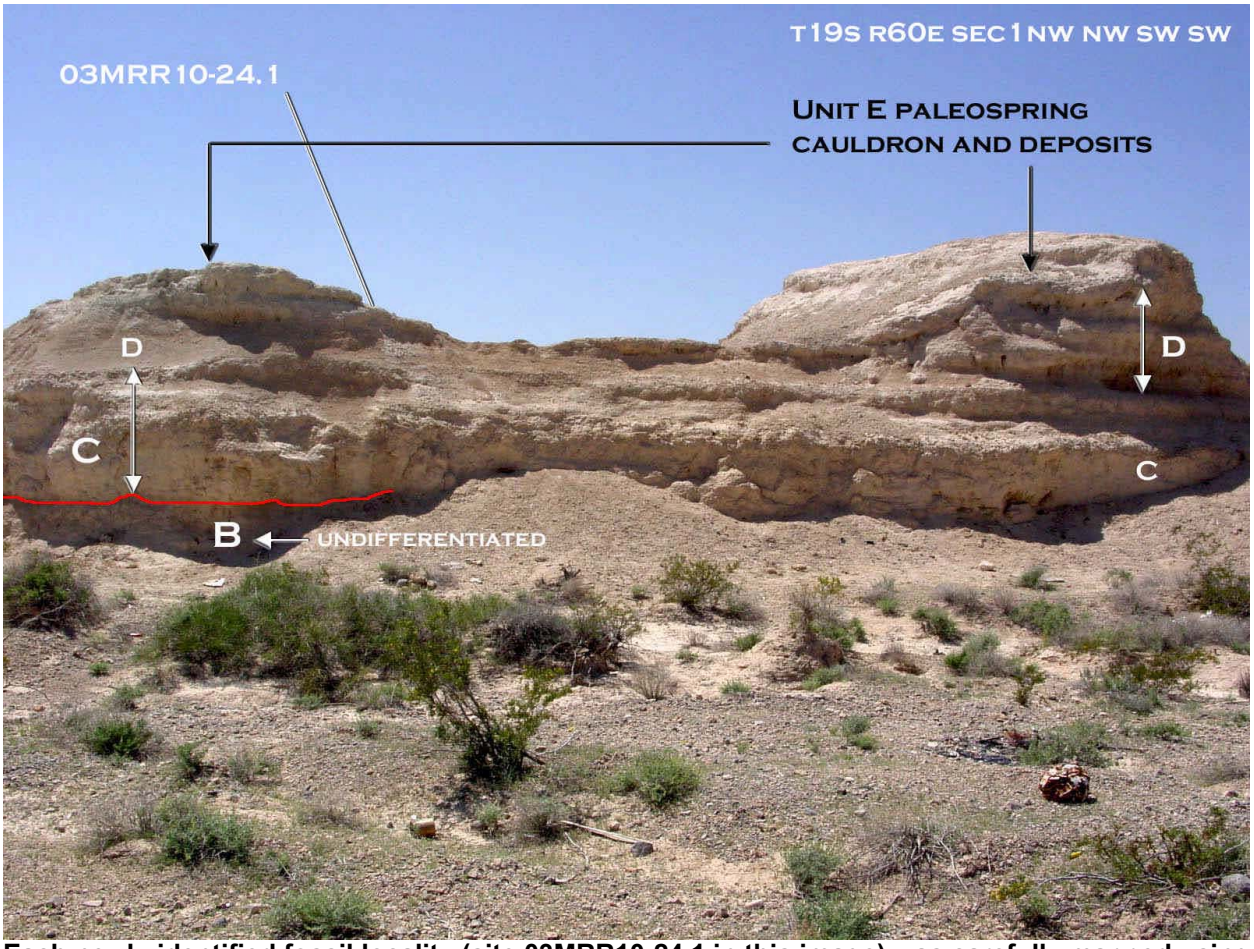
- Detailed contextual locality data for each site identified, including careful descriptions of lithology as well as precise GPS coordinates

- Approximately 3,700 acres (~ 5.8 square miles) of fossil-bearing sedimentary exposures

Data gleaned from these fossils will enable numerous investigations to be completed, answering important research questions about life during the Ice Ages in the Mojave Desert. Can older fossils from the region be dated precisely? How abundant were large carnivores in the assemblage? Was a rare species of small “stilt-legged” horse present? Do bison become more numerous through time? Were humans present at the same time as the extinct animals? Fossils from the LVVDB study area can provide a unique source of data in addressing and answering each of these questions.

The Bureau of Land Management, working with its cooperators, will decide the best avenue to answer these important research questions. Options being considered include the recovery, analysis or, curation of the exposed fossils, along with the establishment of a regional park for the preservation of subsurface resources.

The development of alternatives for the disposition and management of these important resources is a key step in the on-going analysis for the EIS being prepared as a result of the Clark County Conservation of Public Land and Natural Resources Act of 2002.



Each newly-identified fossil locality (site 03MRR10-24.1 in this image) was carefully mapped using GPS receivers, and the surrounding sediments were analyzed and described in detail. This image depicts some of the different units of the fossil-bearing Las Vegas Formation exposed within the LVVDB area. Detailed mapping of this precision will be crucial to advancing interpretations on the evolution and extinction of Ice Age mammals in the Mojave Desert. No other locality in the Mojave Desert provides such rich data for enabling such studies.