

APPENDIX D  
MOJAVE RIVER EXHIBIT

## Floor Unit

The floor unit will be a free-standing, three dimensional representation of the Mojave River and adjacent lands. Pleistocene lakes and present day features will be labeled. See Figure 1. Four horizontal panels will be attached to the floor unit. Two large vertical panels will be adjacent to the floor unit. One will be the modified existing panel on Afton Canyon and Pleistocene Lake Manix.

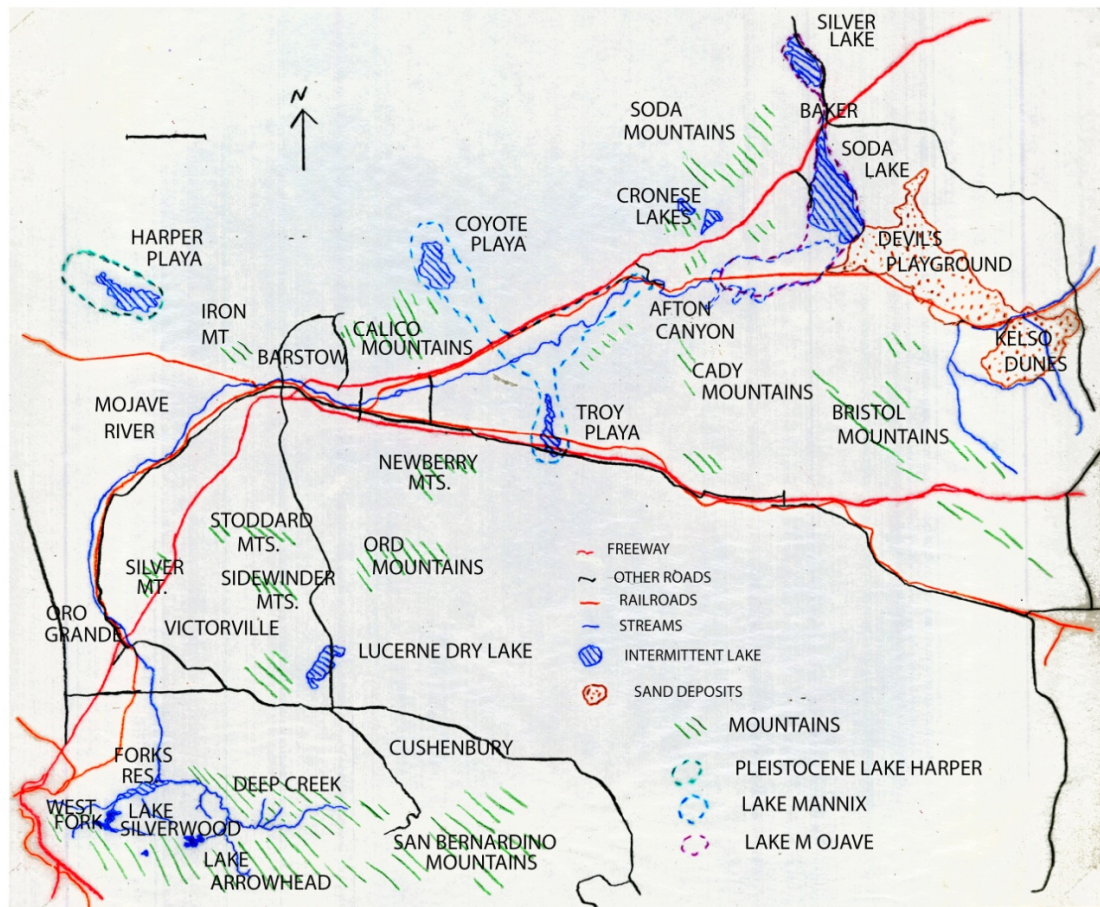


Figure 1. Map For Floor Unit (after Automobile Club of Southern California, 2002; Reheis, et al, 2015).

### Panels Adjacent to Floor Unit

The four panels mounted on the sides of the floor unit will contain additional information about subjects related to the Mojave Desert, both during the Pleistocene and Holocene. The four panels going clockwise from the top of the exhibit will discuss thermoregulation by the shasta ground sloth (*Nothrotheriops shastensis*), eolian activity, the flood plain aquifer, and gold processing. Each panel will contain text and diagrams.

### Free Standing Panels

The existing panel with information on Afton Canyon and Lake Manix is shown in figure 2. The heading will be changed to "The Mojave: the River that Grew in Your Own Backyard". Otherwise, it will be unchanged.

The text of the existing panel is difficult to read in Figure 2; its text is given below:

**Afton Canyon:** During the later part of the Pleistocene Epoch, Lake Manix extended eastwards as far as Cave Mountain and the Cady Mountains, just west of Soda Lake. After approximately 21,000 years ago, as the last glacial pulse of the Ice Ages was waning, Lake Manix overtopped its eastern threshold and catastrophically drained to the east, forming a new lake - Pleistocene Lake Mojave. The Soda and Silver dry lake basins near Baker are present-day remnants of this ancient lake. As the Mojave River drained Lake Manix, it carved present-day Afton Canyon. Today the Mojave River still runs eastwards towards the Manix basin and the Cady Mountains. In years of heavy rainfall, the Mojave River still fills the Soda Lake and Silver Lake basins, recreating briefly a shimmering echo of the ancient Pleistocene Epoch in the Mojave.

**Ice Age Lake Manix:** East of Barstow and Yermo, west of Baker, ancient tan and green silts and clays bear silent testimony to an extensive freshwater lake that once filled the low-lying basins of the Mojave Desert during the Pleistocene Epoch. This lake, named Lake Manix, covered as much as 85 square miles and was up to 200 feet deep in some places. Fed by snowmelt runoff coursing along the Mojave River drainage, Pleistocene Lake Manix provided water and forage for mammoths, horses, camels, ground sloths, and bison near the end of the Ice Ages, between 350,000 and 18,000 years ago. The fossil remains of many of these extinct beasts are preserved in the ancient lake sediments. The richness and importance of these resources resulted in designation of the dry lake basin as an Area of Critical Environmental Concern by the Bureau of Land Management.

Another panel of the same size will include information on the original southward draining Mojave Desert area and the initial ancestral Mojave River. See Figure 3 for the general layout of the panel. The text would explain the condition just prior to the initial formation of the ancestral Mojave River and the condition of the ancestral Mojave River prior to flowing into Lake Manix.

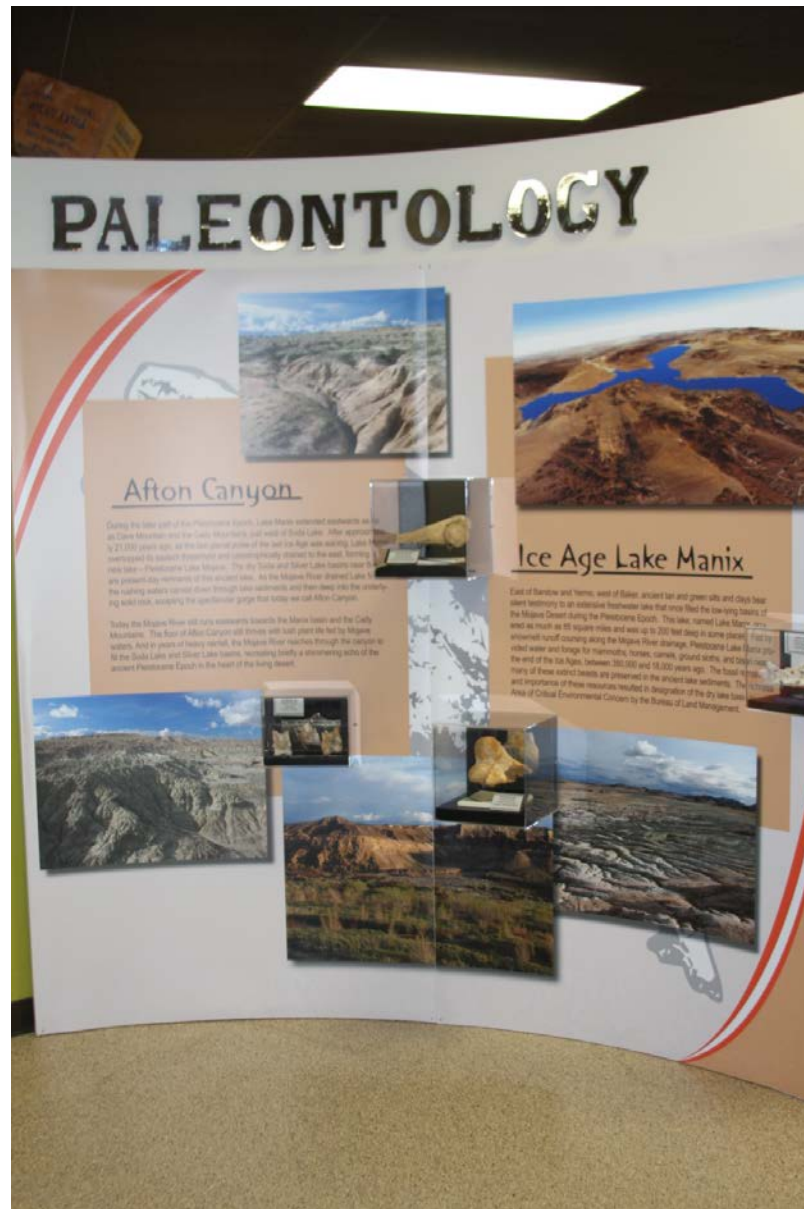


Figure 2. Existing Panel

The text for the new panel is given below:

**Before the Mojave River Grew:** Prior to the uplift of the San Bernardino Mountains and the development of the Mojave River, Mojave Desert streams flowed southward through the area now occupied by Cajon Pass and into the Los Angeles Basin. These south flowing streams drained much of southern and central Mojave Desert during the Miocene to Late Pliocene Epochs, approximately 23 to 3.5 million years ago. Sediments from these streams, the Cajon Valley Beds and Crowder Formation, are exposed in Cajon Pass by the erosion of Cajon Creek. The highly weathered, low relief surface of the Mojave Desert held a braided stream system where various streams branched, rejoined, and formed marshy areas. This system of streams provided pools of water for mammoths to play in and savanna vegetation for three-toed horses to run across. Other Ice Age animals were also supported by this environment.

**Ancestral Mojave River:** In the Late Pliocene Epoch, at approximately 3.5 million years ago, the ancestral Mojave River started to form as the Transverse Ranges slowly began to uplift. As the mountains were growing, basins formed within the Mojave Desert; the Victorville Basin developed at approximately 2.0 to 1.5 million years ago during the onset of rapid uplift of the San Bernardino Mountains. Initially the ancestral Mojave River flowed into the Victorville basin which now contains up to 4200 feet of sediment. The basin held a lake that the advancing flood plain of the ancestral Mojave River grew into. After the Victorville basin filled around 500,000 years ago, the Mojave River began to flow through a channel left empty by an old southward stream. The growing river flowed into Harper Lake, slightly northwest of Barstow. Harper Lake was filled by Mojave River water for only about 75,000 years. After that the waters began to fill Lake Manix.

The new panel would be placed to the right of the existing panel so the visitors could see the steps by walking in a counterclockwise direction. The new panel would have a savanna picture and stream/lake picture that are to be artist renditions of the appearance of the pre-Mojave River and the growing Mojave River respectively. See Figures 4 and 5. The pictures would contain existing views of the Cajon Valley Beds and the Mojave River containing water. See Figures 6 and 7.

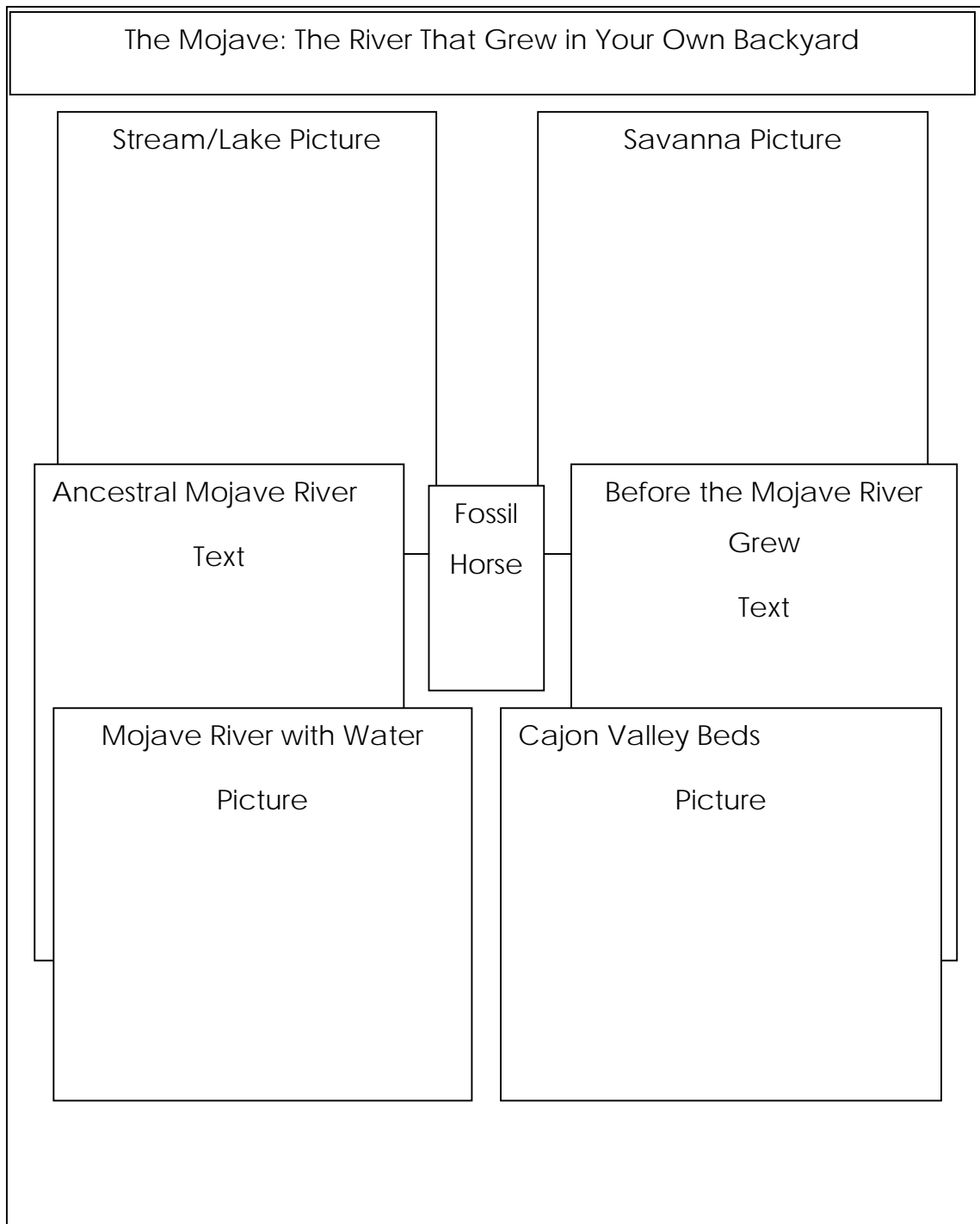


Figure 3. Layout of Proposed Panel



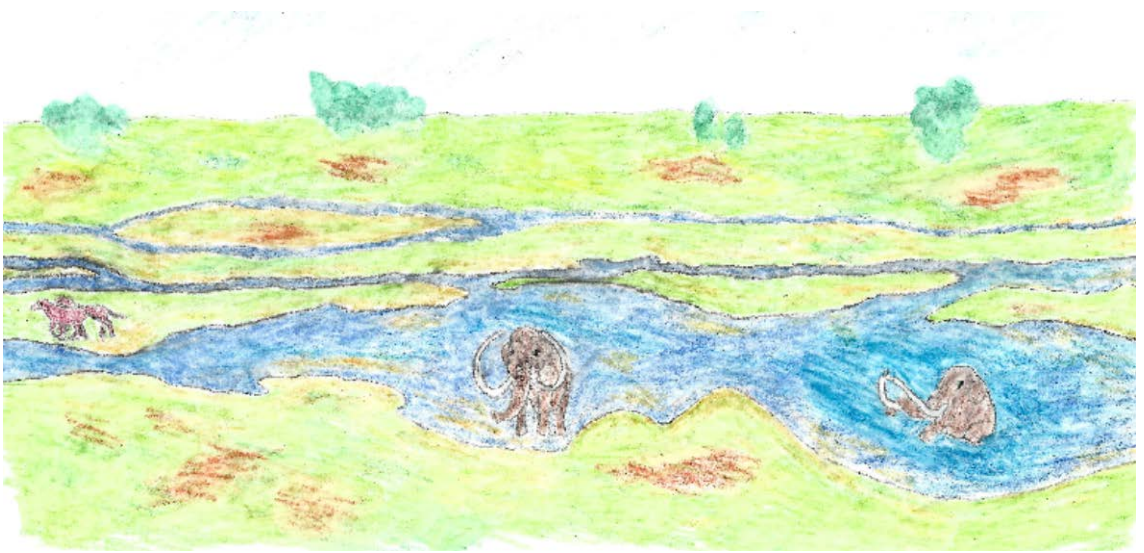


Figure 4. Savanna Environment Prior to the Mojave River



Figure 5. Ancestral Mojave River



Figure 6. Cajon Valley Beds





Figure 7. Mojave River with Water