

FOSSILS OF ANZA-BORREGO DESERT STATE PARK®, CALIFORNIA: A CONTINUOUS PLIO-PLEISTOCENE VERTEBRATE RECORD

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The Anza-Borrego Desert State Park® fossil record spans approximately 10 Ma, with no recognized breaks from the late Miocene through the late Pleistocene. Marine, fresh water and terrestrial assemblages include over 550 taxa, ranging from plant pollen and colonial corals, to walrus and mammoths. Combined with long and complete sedimentary depositional sequences, these ecologically diverse fossil assemblages are an unparalleled North American paleontological resource.

The Park's unique geologic setting along the western margin of the Salton Trough rift provides a 25 Ma history of plate collisions and continental crustal rifting and faulting. These events, together with the cutting of the Grand Canyon and deposition of a delta across the Trough by the ancestral Colorado River, and uplifting of the California Peninsular Ranges, have transformed the region from a northern extension of the ancient Sea of Cortez to a habitat of estuarine and brackish waters, to a landscape with large fresh water lakes, stream banks, woodlands and savannah-like brush lands, to the present arid Colorado Desert.

The recovered 249 species of marine organisms include carbonate platform, outer and inner shelf, and near shore tropical sea invertebrates and vertebrates which predate the closing of the Isthmus of Panama. Spanning the Plio-Pleistocene boundary and the Blancan-Irvingtonian boundary in a 3.5 Ma conformable terrestrial stratigraphic sequence are the Park's richest and most significant fossil assemblages: 214 taxa of fresh water invertebrates, fish, amphibians, reptiles, birds, and mammals are represented. Of these, the early assemblages reflect geotropic origins, and later, holartic affinities. The over 6 km-thick stratigraphic section contains several tephra and is temporally calibrated by paleomagnetic transects.