

FOSSIL BIRDS FROM ANZA-BORREGO DESERT STATE PARK

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Over 300 fossil bird specimens have been recovered from the fluvio-lacustrine siltstones and claystones of the Hueso Formation and Ocotillo Conglomerate in Anza-Borrego Desert State Park. These represent at least 40 taxa, and range in age from about 3.5 to 0.5 Ma. Water birds comprise 57 % of the identified fossils. Of these, the ducks, geese and swans are most common and include a wide variety of forms: the pintail duck (*Anas acuta*), northern shoveller duck (*Anas clypeata*), extinct Downs' gadwall duck (*Brantadorna downsi*), fossil goldeneye (*Bucephala fossilis*), extinct Bessom's stiff-tail duck (*Oxyura bessomi*), Canada goose (*Branta canadensis*), Ross' goose (*Chen rossii*), an extinct large goose (*Anser* sp.), and the extinct Oregon swan (*Cygnus paloregonus*). Other water birds in the fossil avifauna are the western grebe (*Aechmophorus occidentalis*), an eared grebe (*Podiceps nigricollis*) and an extinct *Podiceps* sp., a loon (*Gavia* sp.), coots and rails (*Fulica americana*, extinct *Fulica hesterna*, *Rallus* sp., and *Rallus limicola*), the sandhill crane (*Grus canadensis*), the surf scoter (*Melanitta persipicillata*), killdeer (*Charadrius vociferus*), a pelican (*Pelecanus* sp.), and an extinct flamingo (*Phoenicopterus* sp.).

There are 11 extinct species of birds and seven of these are described from remains found only in the Park. Several of the extinct forms are ancestral to living forms or to other extinct species that appear in later Pleistocene, Rancholabrean age sites in the western U.S. The extinct coot (*Fulica hesterna*) is the probable ancestor of the modern species *F. americana*. The Vallecito neophron (*Neophrontops vallecitoensis*), which is related to the Old World vultures, is the direct ancestor of the extinct *N. americanus* from Rancho La Brea, Los Angeles. However, the Vallecito neophron is about 15% larger than its later Pleistocene descendant. Unlike *Neophrontops*, the extinct Anza turkey (*Meleagris anza*) is more closely related to the living ocellated turkey (*M. ocellata*) of Central America than to the extinct California turkey (*M. californicus*) which is also well known from Rancho La Brea. The remains of quail and the Anza turkey are relatively common, and comprise about 10 % of the Anza-Borrego fossil avifauna. Both the California quail and Gambel's quail (*Callipepla californica* and *C. gambelii*) have been reported.

The raptors include eagles and hawks (*Aquila chrysaetos*, *Buteo lineatus*), a falcon (*Falco* sp.), a condor (*Gymnogyps* sp.), and an extinct eared owl (*Asio* sp.), and the extinct aiolorn (*Aiolornis incredibilis*). *Aiolornis incredibilis* is represented by only six specimens, three of which were found in the Park. Based on skeletal characteristics and measurements, they are considered more closely related to the Old World storks, had a wingspan of between 4 and 5 m, and were predators not scavengers.