

Excerpted from

CALIFORNIA NATURAL HISTORY GUIDES

**INTRODUCTION TO THE
CALIFORNIA
CONDOR**

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Important Characteristics of the California Condor

The California Condor reigns today as the largest soaring bird of continental North America. Rarely flapping in flight, it is most famous for its magnificent appearance in the sky, where

it substantially exceeds our native eagles, both in its size and in the grandeur of its aerial maneuvers. Although it is a bird without true vocalizations, the air passing through its finger-like primary feathers as it flies creates a steady hissing sound, audible from surprising distances. Often the first indication one has of an approaching Condor is an eerie crescendo of these wing sounds as a bird courses nearby above mountain ridges and meadows. Under favorable wind conditions, the Condor can exceed speeds of 40 mph in extended glides and cover nearly 150 miles in daily flight activities. Except around nests, roosts, and food sources, a Condor rarely lingers for long in any one location.

With a wing span often reaching nine to 10 feet and an average weight of nearly 20 pounds, the California Condor is indeed a monster among contemporary flying birds (pl. 2). Mostly black in coloration, it has long, triangular white feather patches on the undersides of the wings, short white bars on the topsides of the wings (pl. 3), and a largely naked head covered with baggy, wrinkled skin that is mostly bright orange in adults and dark gray in juveniles. At close range, a distinctly hooked tip is visible on the upper bill, and in adults, a bristly dark saddle of very short feathers crosses the forehead in front of the eyes (pl. 4). The feet are long and gray, and the heavy toes end in modest blunt claws, quite unlike the massive sharp talons of eagles and other birds of prey. Together these primary physical attributes characterize a species that does not closely resemble any other living bird, although certain of its characteristics are shared by other large soaring species.

The scientific name of the California Condor, *Gymnogyps californianus*, literally means naked vulture of California, referring to the general absence of feathers on the bird's head and neck and to its primary recent range in California and Baja California. The bird's present common name, California Condor, did not appear in early writings on the species and became widespread only in the mid-nineteenth century. Prior

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Plate 2. In flight, adult California Condors are easily recognizable by distinctive long white feather triangles on the undersides of their wings.



Plate 3. Viewed from above, the wings of flying California Condors are marked with short white wing bars.



Plate 4. Air sacs of the head and neck region are commonly inflated in aggressive and sexual contexts.

to that time the species was most usually referred to as the California Vulture, the Royal Vulture, or simply the Vulture. “Condor” came into general use largely because of similarities of the species to the Andean Condor (*Vultur gryphus*) of South America.

Throughout its substantial former range, and continuing until the present, the California Condor’s role in natural communities has presumably always been that of a highly social scavenger, feeding mainly on the flesh of dead mammals discovered from majestic soaring flight high above the ground. No records exist of the species capturing living prey in the wild, although one early record describes a Condor whose stomach was filled with the remains of mussels that may have been taken alive. In pursuing a scavenging lifestyle, the Condor has evolved a whole suite of adaptations that maximizes its abilities to find, compete for, and ingest carrion, and much of this first chapter is devoted to an examination of these specializations.

Taxonomically, the California Condor is a member of the family Vulturidae (or Cathartidae)—the New World vultures—a group believed to be closely allied with the storks in ancestry, but quite unrelated to the superficially similar Old World vultures, which are near relatives of hawks and eagles. The California Condor’s closest living relative is the Andean Condor, which, although colored quite differently, is a near twin in size and habits (pl. 5). Other smaller members of this family include the King Vulture (*Sarcoramphus papa*) of Central and South America, and the Black and Turkey Vultures (*Coragyps atratus* and *Cathartes aura*, respectively), which occur throughout much of the Western Hemisphere.

Despite its impressive size, the California Condor falls considerably shy of being the largest known flying creature of all time. Certain flying reptiles, or pterosaurs, from the age of dinosaurs were much larger. For example, *Pteronodon longiceps*, which once coursed the inland seas of Kansas, had a wing span reaching 22 to 25 feet (pl. 6). Even more astonishing was



Plate 5. Although similar in size to California Condors, male Andean Condors are colored quite differently and possess a conspicuous head comb.

Quetzalcoatlus northropi of Texas, whose wing spread extended nearly 40 feet, roughly four times that of the California Condor. The weight of *Q. northropi* has been estimated to have reached nearly 200 pounds, roughly 10 times the bulk of a Condor. The fossilized remains of this incredible beast were first described only in 1975 by Douglas Lawson, then a student in paleontology at the University of Texas. *Quetzalcoatlus* and all other pterosaurs became extinct by the end of the Cretaceous, some 65 million years ago.

The California Condor is also considerably smaller than a number of extinct birds known as teratorns. The teratorns, close relatives of both condors and storks, were much more recent creatures than *Quetzalcoatlus*, with some member species still in existence about 10,000 years ago. The most impressive of the teratorns was *Argentavis magnificens*, a species



Plate 6. The largest of all flying creatures were flying reptiles, or pterosaurs, from the age of dinosaurs. The skeleton of *Pteranodon longiceps* had a wing spread as large as 22 to 25 feet.

with an estimated wing span of about 23 feet and weight of about 160 to 170 pounds, the largest known flying bird of all time. *Argentavis* was a native of at least Argentina, but the full range it occupied is not known.

Other teratorns once occurred in North America. One of these—*Teratornis merriami*—had a wing spread of approximately 12 feet and is one of the more common creatures represented in the late Pleistocene tar deposits of Rancho La Brea in Los Angeles (pl. 7). Another—*Teratornis incredibilis*—described from fossils in Nevada and California, had a wing spread of about 18 feet and thus was only somewhat smaller than *Argentavis*. Evidently, the California Condor was far from alone in the skies during the Pleistocene and probably spent much of its time glancing backward and upward over its shoulders at some pretty awesome associates.

Thus, despite its renown as an avian giant, the California Condor barely qualifies for membership in the pantheon of the most impressive flying creatures of all time, and although it now reigns as the largest soaring bird of our continent, it has

Plate 7. As depicted at the Los Angeles County Museum, the extinct Merriam's Teratorn (*Teratornis merriami*) may have had a naked head, but this is not certain. Whether this species was primarily a scavenger or a predator is debated.



achieved this status only through the extinction of some considerably larger flying vertebrates. In fact, it appears that the contemporary form of the California Condor is slightly smaller than the form of the species extant in the late Pleistocene, a reduction that might reflect the disappearance of many of its larger competitors and food species since that time.

Were *Quetzalcoatlus northropi* and the teratorns also scavengers like the California Condor? The *Q. northropi* bones discovered included only one wing of a single individual, so it is presently impossible to judge whether the rest of this species' anatomy might have been consistent with scavenging. However, Douglas Lawson (1975) also found more complete bones of a smaller *Quetzalcoatlus* that has been generally referred to as *Quetzalcoatlus* sp. and that may have been either a separate species or, conceivably, the alternate

sex of *Q. northropi*. This smaller creature had a long neck reminiscent of the neck of a modern-day griffon vulture, but much longer and not as flexible. Reasoning from this resemblance and from the fact that the *Quetzalcoatlus* bones were found far inland from the ocean and associated with the bones of huge sauropods, Lawson suggested that these pterosaurs may indeed have fed on the carcasses of other giant reptiles of their time. *Quetzalcoatlus* sp. had long bill-like jaws that apparently lacked teeth, but whether the tip of the upper bill was hooked, like that of typical scavenging birds, is unknown, as no specimen of a complete upper bill has yet been located. Some paleontologists think that the long bill of *Quetzalcoatlus* sp. was most likely straight at the tip, not hooked, and that it may have served to catch fish or to probe for living mollusks and arthropods, rather than for scavenging. *Quetzalcoatlus northropi* may have had a bill similar to that of *Quetzalcoatlus* sp., but especially if the two were different species, their bills and diets could have been quite dissimilar.

At least some of the teratorns were known to have hooked bills, but whether their bills were used primarily for taking carrion or living prey has likewise been a subject of debate. *Teratornis merriami*, for example, had a massive hooked bill and was very likely a flesh-eater, but from details of jaw structure, Kenneth Campbell and Eduardo Tonni (1981) have suggested it was more likely a predator than a scavenger. Nevertheless, many large predatory birds of today, for example, the Golden and Bald Eagles (*Aquila chrysaetos* and *Haliaeetus leucocephalus*, respectively) of North America readily take carrion as well as living prey, so even if *Teratornis* and *Argentavis* were mainly predators, it seems as likely as not that carrion formed a significant part of their diets. As pointed out by Peter Mundy and his associates (1992), the huge gape (mouth opening) of *Argentavis* and other teratorns might even have allowed these species to focus on eating a very special kind of carrion—sizable bones—today the primary diet of the ex-

traordinary Bearded Vulture (*Gypaetus barbatus*), also known as the Lammergeier, of Africa and Eurasia.

Regardless of what their diets were, the possibility that some or all of these early giants depended on carrion is generally consistent with what is known about the ecology and morphology of present-day flying scavengers. Many of our largest contemporary flying birds are scavengers, and as we describe below, there are a variety of reasons why aerial scavengers tend to evolve large size.

Scavenging as a Lifestyle

Achieving a basic understanding of scavenging is a necessary first step in gaining an appreciation of the role of the California Condor in natural communities. Accordingly, we believe it is important to have a general look at this lifestyle—examining the adaptations allowing species to become successful scavengers and the constraints faced by the creatures that adopt such a diet. Carcass-feeding is a subject that has been especially well studied by David Houston of Scotland and Peter Mundy and his associates of Africa; much of what we present on this subject derives from their perceptive research.

Vertebrate carcasses, despite their odious reputation, represent favorable food sources from a number of standpoints. When fresh, they are generally comparable to the best predator-killed prey in nutritional quality, and for species that are good competitors, they can offer jackpot quantities of food. And although carcasses that have suffered substantial decay may not always be the most savory of foods, they are at least food sources that cannot fight back or pose risks of debilitating injury. Nevertheless, carcasses do represent challenges of other sorts that need to be addressed by the creatures exploiting them.

For a number of compelling reasons, the scavenging lifestyle has probably never been especially common as an ex-