

= King vulture =

The king vulture (*Sarcoramphus papa*) is a large bird found in Central and South America . It is a member of the New World vulture family Cathartidae . This vulture lives predominantly in tropical lowland forests stretching from southern Mexico to northern Argentina . It is the only surviving member of the genus *Sarcoramphus* , although fossil members are known .

Large and predominantly white , the king vulture has gray to black ruff , flight , and tail feathers . The head and neck are bald , with the skin color varying , including yellow , orange , blue , purple , and red . The king vulture has a very noticeable yellow fleshy caruncle on its beak . This vulture is a scavenger and it often makes the initial cut into a fresh carcass . It also displaces smaller New World vulture species from a carcass . King vultures have been known to live for up to 30 years in captivity .

King vultures were popular figures in the Mayan codices as well as in local folklore and medicine . Although currently listed as least concern by the IUCN , they are decreasing in number , due primarily to habitat loss .

= = Taxonomy and systematics = =

The king vulture was originally described by Carl Linnaeus in 1758 in the tenth edition of his *Systema Naturae* as *Vultur papa* , the type specimen originally collected in Suriname . It was reassigned to the genus *Sarcoramphus* in 1805 by French zoologist André Marie Constant Duméril . The generic name is a New Latin compound formed from the Greek words *σαρξ* (*sarx* , " flesh " , the combining form of which is *σαρξ-*) and *ῥαμφος* (*ramphos* , " crooked beak of bird of prey ") . The genus name is often misspelled as *Sarcorhamphus* , improperly retaining the Greek rough breathing despite agglutination with the previous word *@-@* element . The bird was also assigned to the genus *Gyparchus* by Constantin Wilhelm Lambert Gloger in 1841 , but this classification is not used in modern literature since *Sarcoramphus* has priority as the earlier name . The species name is derived from Latin word *papa* " bishop " , alluding the bird 's plumage resembling the clothing of one . The king vulture 's closest living relative is the Andean condor , *Vultur gryphus* . Some authors have even put these species in a separate subfamily from the other New World vultures , though most authors consider this subdivision unnecessary .

There are two theories on how the king vulture earned the " king " part of its common name . The first is that the name is a reference to its habit of displacing smaller vultures from a carcass and eating its fill while they wait . An alternative theory reports that the name is derived from Mayan legends , in which the bird was a king who served as a messenger between humans and the gods . This bird was also known as the " white crow " by the Spanish in Paraguay . It was called *cozcacuauhtli* in Nahuatl , derived from *cozcatl* " collar " and *cuauhtli* " bird of prey " .

The exact systematic placement of the king vulture and the remaining six species of New World vultures remains unclear . Though both are similar in appearance and have similar ecological roles , the New World and Old World vultures evolved from different ancestors in different parts of the world . Just how different the two are is currently under debate , with some earlier authorities suggesting that the New World vultures are more closely related to storks . More recent authorities maintain their overall position in the order Falconiformes along with the Old World vultures or place them in their own order , Cathartiformes . The South American Classification Committee has removed the New World vultures from Ciconiiformes and instead placed them in *Incertae sedis* , but notes that a move to Falconiformes or Cathartiformes is possible . Like other New World vultures , the king vulture has a diploid chromosome number of 80 .

= = = Fossil record and evolution = = =

The genus *Sarcoramphus* , which today contains only the king vulture , had a wider distribution in the past . The Kern vulture (*Sarcoramphus kernense*) , lived in southwestern North America during the mid *@-@* Pliocene (*Piacenzian*) , some 3 *@. @* 5 ? 2 *@. @* 5 million years ago) . It was a little

@-@ known component of the Blancan / Delmontian faunal stages . The only material is a broken distal humerus fossil , found at Pozo Creek , Kern County , California . As per Loye H. Miller 's original description , " [c] ompared with [*S. papa*] the type conforms in general form and curvature except for its greater size and robustness . " The large span in time between the existence of the two species suggests that the Kern vulture might be distinct , but as the fossil is somewhat damaged and rather non @-@ diagnostic , even assignment to this genus is not completely certain . During the Late Pleistocene , another species probably assignable to the genus , *Sarcoramphus fisheri* , occurred in Peru . A supposed king vulture relative from Quaternary cave deposits on Cuba turned out to be bones of the eagle @-@ sized hawk *Buteogallus borraasi* (formerly in *Titanohierax*) .

Little can be said of the evolutionary history of the genus , mainly because remains of other Neogene New World vultures are usually younger or even more fragmentary . The teratorns held sway over the ecological niche of the extant group especially in North America . The Kern vulture seems to slightly precede the main bout of the Great American Interchange , and it is notable that the living diversity of New World vultures seems to have originated in Central America . The Kern vulture would therefore represent a northwards divergence possibly sister to the *S. fisheri* ? *S. papa* lineage . The fossil record , though scant , supports the theory that the ancestral king vultures and South American condors separated at least some 5 mya .

= = = Bartram 's " painted vulture " = = =

A " painted vulture " (" *Sarcoramphus sacra* " or " *S. papa sacra* ") is described in William Bartram 's notes of his travels in Florida during the 1770s . This bird 's description matches the appearance of the king vulture except that it had a white , not black , tail . Bartram describes the bird as being relatively common and even claimed to have collected one . However , no other naturalists record the painted vulture in Florida and sixty years after the sighting its validity began to be questioned , leading to what John Cassin described as the most inviting problem in North American ornithology . An independent account and painting was made of a similar bird by Eleazar Albin in 1734 .

While most early ornithologists defended Bartram 's honesty , Joel Asaph Allen argued that the painted vulture was mythical and that Bartram mixed elements of different species to create this bird . Allen pointed out that the birds ' behavior , as recorded by Bartram , is in complete agreement with the caracara 's . For example , Bartram observed the birds following wildfires to scavenge for burned insects and box turtles . Such behavior is typical of caracaras , but the larger and shorter @-@ legged king vultures are not well adapted for walking . The northern crested caracara (*Caracara cheriway*) was believed to be common and conspicuous in Bartram 's days , but it is notably absent from Bartram 's notes if the painted vulture is accepted as a *Sarcoramphus* . However , Francis Harper argued that the bird could , as in the 1930s , have been rare in the area Bartram visited and could have been missed .

Harper noticed that Bartram 's notes were considerably altered and expanded in the printed edition , and the detail of the white tail appeared in print for the first time in this revised account . Harper believed that Bartram could have tried to fill in details of the bird from memory and got the tail coloration wrong . Harper and several other researchers have attempted to prove the former existence of a king vulture relative in Florida at this late date , suggesting that the population was in the process of extinction and finally disappeared during a cold spell . Additionally , William McAtee , noting the tendency of birds to form Floridian subspecies , suggested that the white tail could be a sign that the painted vulture was a subspecies of the king vulture .

= = Description = =

Excluding the two species of condors , the king vulture is the largest of the New World vultures . Its overall length ranges from 67 ? 81 centimeters (27 ? 32 in) and its wingspan is 1 @.@ 2 ? 2 meters (4 ? 6 @.@ 6 ft) . Its weight ranges from 2 @.@ 7 ? 4 @.@ 5 kilograms (6 ? 10 lb) . An imposing bird , the adult king vulture has predominantly white plumage , which has a slight rose @-@ yellow tinge to it . In stark contrast , the wing coverts , flight feathers and tail are dark grey to

black , as is the prominent thick neck ruff . The head and neck are devoid of feathers , the skin shades of red and purple on the head , vivid orange on the neck and yellow on the throat . On the head , the skin is wrinkled and folded , and there is a highly noticeable irregular golden crest attached on the cere above its orange and black bill ; this caruncle does not fully form until the bird 's fourth year .

The king vulture has the largest skull and braincase , and strongest bill of the New World vultures . This bill has a hooked tip and a sharp cutting edge . The bird has broad wings and a short , broad , and square tail . The irises of its eyes are white and bordered by bright red sclera . Unlike some New World vultures , the king vulture lacks eyelashes . It also has gray legs and long , thick claws .

The vulture is minimally sexually dimorphic , with no difference in plumage and little in size between males and females . The juvenile vulture has a dark bill and eyes , and a downy , gray neck that soon begins to turn the orange of an adult . Younger vultures are a slate gray overall , and , while they look similar to the adult by the third year , they do not completely molt into adult plumage until they are around five or six years of age . Jack Eitner of the Center for the Study of Tropical Birds in San Antonio , Texas reviewed the plumage of birds in captivity of various ages and found that ventral feathers were the first to begin turning white from two years of age onwards , followed by wing feathers , until the full adult plumage was achieved . The final immature stages being a scattered black feathers in the otherwise white lesser wing coverts .

The vulture 's head and neck are featherless as an adaptation for hygiene , though there are black bristles on parts of the head ; this lack of feathers prevents bacteria from the carrion it eats from ruining its feathers and exposes the skin to the sterilizing effects of the sun .

Dark @-@ plumaged immature birds may be confused with turkey vultures , but soar with flat wings , while the pale plumaged adults could feasibly be confused with the wood stork , although the latter 's long neck and legs allow for easy recognition from afar .

= = Distribution and habitat = =

The king vulture inhabits an estimated 14 million km² (5 @.@ 4 million mi²) between southern Mexico and northern Argentina . In South America , it does not live west of the Andes , except in western Ecuador , north @-@ western Colombia and far north @-@ western Venezuela . It primarily inhabits undisturbed tropical lowland forests as well as savannas and grasslands with these forests nearby . It is often seen near swamps or marshy places in the forests . This bird is often the most numerous or only vulture present in primary lowland forests in its range , but in the Amazon rainforest it is typically outnumbered by the greater yellow @-@ headed vulture , while typically outnumbered by the lesser yellow @-@ headed , turkey and American black vulture in more open habitats . King vultures generally do not live above 1500 m (5000 ft) , although are found in places at 2500 m (8000 ft) altitude east of the Andes , and have been rarely recorded up to 3300 m (10000 ft) They inhabit the emergent forest level , or above the canopy . Pleistocene remains have been recovered from Buenos Aires Province in central Argentina , over 700 km (450 mi) south of its current range , giving rise to speculation on the habitat there at the time which had not been thought to be suitable .

= = Ecology and behavior = =

The king vulture soars for hours effortlessly , only flapping its wings infrequently . While in flight , its wings are held flat with slightly raised tips , and from a distance the vulture can appear to be headless while in flight . Its wing beats are deep and strong . Birds have been observed engaging in tandem flight on two occasions in Venezuela by naturalist Marsha Schlee , who has proposed it could be a part of courtship behaviour .

Despite its size and gaudy coloration , this vulture is quite inconspicuous when it is perched in trees . While perched , it holds its head lowered and thrust forward . It is non @-@ migratory and , unlike the turkey , lesser yellow @-@ headed and American black vulture , it generally lives alone or in small family groups . Groups of up to 12 birds have been observed bathing and drinking in a pool

above a waterfall in Belize . One or two birds generally descend to feed at a carcass , although occasionally up to ten or so may gather if there is significant amount of food . King vultures have lived up to 30 years in captivity , though their lifespan in the wild is unknown . This vulture uses urohidrosis , defecating on its legs , to lower its body temperature . Despite its bill and large size , it is relatively unaggressive at a kill . The king vulture lacks a voice box , although it can make low croaking noises and wheezing sounds in courtship , and bill @-@ snapping noises when threatened . Its only natural predators are snakes , which will prey upon the vulture 's eggs and young , and large cats such as jaguars , which may surprise and kill an adult vulture at a carcass .

= = = Diet = = =

The king vulture eats anything from cattle carcasses to beached fish and dead lizards . Principally a carrion eater , there are isolated reports of it killing and eating injured animals , newborn calves and small lizards .

Although it locates food by vision , the role smell has in how it specifically finds carrion has been debated . Consensus has been that it does not detect odours , and instead follows the smaller turkey and greater yellow @-@ headed vultures , which do have a sense of smell , to a carcass , but a 1991 study demonstrated that the king vulture could find carrion in the forest without the aid of other vultures , suggesting that it locates food using an olfactory sense . The king vulture primarily eats carrion found in the forest , though it is known to venture onto nearby savannas in search of food . Once it has found a carcass , the king vulture displaces the other vultures because of its large size and strong bill . However , when it is at the same kill as the larger Andean condor , the king vulture always defers to it . Using its bill to tear , it makes the initial cut in a fresh carcass . This allows the smaller , weaker @-@ beaked vultures , which can not open the hide of a carcass , access to the carcass after the king vulture has fed . The vulture ? s tongue is rasp @-@ like , which allows it to pull flesh off of the carcass ? s bones . Generally , it only eats the skin and harder parts of the tissue of its meal . The king vulture has also been recorded eating fallen fruit of the moriche palm when carrion is scarce in Bolívar state , Venezuela .

= = = Breeding = = =

The reproductive behaviour of the king vulture in the wild is poorly known , and much knowledge has been gained from observing birds in captivity , particularly at the Paris Menagerie . An adult king vulture sexually matures when it is about four or five years old , with females maturing slightly earlier than males . The birds mainly breed during the dry season . King vultures mate for life and generally lay a single unmarked white egg in its nest in a hollow in a tree . To ward off potential predators , the vultures keep their nests foul @-@ smelling . Both parents incubate the egg for the 52 to 58 days before it hatches . If the egg is lost , it will often be replaced after about six weeks . The parents share incubating and brooding duties until the chick is about a week old , after which they often stand guard rather than brood . The young are semi @-@ altricial ? they are helpless when born but are covered in downy feathers (truly altricial birds are born naked) , and their eyes are open at birth . Developing quickly , the chicks are fully alert by their second day , and able to beg and wriggle around the nest , and preen themselves and peck by their third day . They start growing their second coat of white down by day 10 , and stand on their toes by day 20 . From one to three months of age , chicks walk around and explore the vicinity of the nest , and take their first flights at about three months of age .

= = Conservation = =

This bird is a species of least concern to the IUCN , with an estimated range of 14 million km² (5 @.@ 4 million mi²) and between 10 @,@ 000 and 100 @,@ 000 wild individuals . However , there is evidence that suggests a decline in population , though it is not significant enough to cause it to be listed . This decline is due primarily to habitat destruction and poaching . Although distinctive , its

habit of perching in tall trees and flying at altitude render it difficult to monitor .

= = Relationship with humans = =

The king vulture is one of the most common species of birds represented in the Mayan codices . Its glyph is easily distinguishable by the knob on the bird ? s beak and by the concentric circles that make up the bird ? s eyes . Sometimes the bird is portrayed as a god with a human body and a bird head . According to Mayan mythology , this god often carried messages between humans and the other gods . It is also used to represent Cozcacuauhtli , the thirteenth day of the month in the Mayan calendar (13 Reed) . An ocellated turkey (*Meleagris ocellata*) was also considered to be the bird depicted , but the hooked bill and wattle point to the raptor .

The bird ? s blood and feathers were also used to cure diseases . The king vulture is also a popular subject on the stamps of the countries within its range . It appeared on a stamp for El Salvador in 1963 , Belize in 1978 , Guatemala in 1979 , Honduras in 1997 , Bolivia in 1998 , and Nicaragua in 1999 .

Because of its large size and beauty , the king vulture is an attraction at zoos around the world . The king vulture is one of several bird species with an AZA studbook , which is kept by Shelly Collinsworth of the Fort Worth Zoo .