

**Songbird
ReMix**

Pelicans

of the World



Avian Models for 3D Applications

Characters and Procedural Maps by Ken Gilliland

Songbird ReMix

Pelicans

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Songbird ReMix

Pelicans

Introduction

“Songbird ReMix Pelicans” includes all eight species of Pelican found throughout the world. This bird is often seen skimming low over the water in formation where they use their remarkable thermal soaring ability to commute, sometimes over 100 km each way, in search of good fishing grounds. Pelicans use their flexible mandibles and greatly expanded gular pouches as hoop nets for capturing fish. These distinctive adaptations are strictly for prey capture, not storage.

Each species of pelican was digital recreated with the features Songbird Remix series users have come to expect such as real-time folding wings, webbed feet that can fold together and a large compliment of morphs. From the American Brown and White Pelicans to the exotic looking Peruvian and Pink-backed Pelicans, these birds from this package are a worthy centerpieces in any form of imagery.

Overview and Use

The set is located within the **Animals : Songbird ReMix** folder. Here is where you will find a number of folders, such as **Bird Library**, **Manuals** and **Resources** . Let's look at what is contained in these folders:

- **Bird Library:** This folder holds the actual species and poses for the "premade" birds. Birds are placed into a "type" folder (such as "Birds of Prey (Order Falconiformes)" which for example would hold falcons, hawks and eagles). The birds for this set can be found in the following folder(s):
 - **Herons, Ibises and Pelicans (Order Pelecaniformes)**
- **Manuals:** Contains a link to the online manual for the set.
- **Props:** Contains any props that might be included in the set
- **Resources:** Items in this folder are for creating and customizing your birds
 - **Bird Base Models:** This folder has the blank, untextured model(s) used in this set. These models are primarily for users who wish to experiment with poses or customize their own species of bird.

When using physical renderers such as Iray and Superfly, SubD should be turned to at least “3”.

Poser Use

Select **Figures** in the **Runtime** Folder and go to the **Animals : Songbird ReMix** folder. Select the bird from the renderer *Firefly or Superfly* folder you want and simply click it to load. Some birds in the Songbird ReMix series may load with attached parts (*Conformers*) such as tail or crest extensions. Some of these parts have specific morphs. You will need to click on the attached part to access those controls. Associated poses can be found in the same folder- **Bird Library : (Type) : Poses**.

DAZ Studio Use

Go to the **Animals : Songbird ReMix** folder. Select the bird from the renderer (*3Delight or Iray*) folder you want and simply click it to load. Some birds in the Songbird ReMix series may load with attached parts (*Conformers*) such as tail or crest extensions. Some of these parts have specific morphs. You will need to click on the attached part to access those controls. Associated poses can be found in the same folder- **Bird Library : (Type) : Poses**. **Note:** Using the "Apply this Character to the currently selected Figure(s)" option **will not** properly apply the correct scaling to the bird selected. It is better to delete the existing character first and load the one you want to use.

Physical-based Rendering

Iray and **Superfly** requires more CPU and memory horsepower than the legacy renderers because of ray-trace bounces and higher resolution meshes needed for displacement. Poser’s **Superfly** renderer will require that the “Min Transparent Bounces” be set to **at least 16** and that the “Max Transparent Bounces” be set to **at least 32** in render settings. Superfly renders may show artifacts in the head area. This is a known Poser issue and may be addressed in the future. Increasing the SubD may minimize this issue.

Posing & Shaping Considerations

This volume has various species, so when using generic poses not every pose will work perfectly with every bird. You may find that some minor alteration on the stock poses may be warranted.

Here are some of the most common alterations you may need to make:

- Birds will not be flat on the zero plane due to leg size and overall scale.
- Too much of a good thing- sometimes (especially in the neck area of this model) the transparency planes can create **unwanted seam lines** in certain poses and lighting situations. In **Correction Controls**, you have the ability to hide sections of “Fluff” transparency planes in order to minimize troublesome areas.

The Pouch

While there are numerous pouch shapes, using them all at once can be too much of a good thing and cause possible deformations or collisions in the mesh, so I'm including a couple tips to help avoid that.

- **Wide Lower Bill** - This control widens the top edges of the "flexible" lower bill which helps in collecting fish during "scoops". If you close the bill with this control active, obviously its not going to match up with the top bill. So, this control, when the bill is closed, should normally be set at "0".
- **The full pouch and the neck** - If you keep the back pouch shapes controls "on" and bend the neck into them, you are obvious going to get collisions between the neck and pouch. That part of the reason there are so many pouch controls, so you can vary the size of the pouch in areas. Dial back the "rear" pouch controls to correct this issue.

IK Concerns

Some poses may go askew when IK is turned on. By default, Poser's IK feature is turned off when loading a bird. To turn it on, select the "Figure" category from the main tool bar and "Use Inverse Kinematics" from the submenu.

By default, DAZ Studio's IK feature is turned on when loading a bird. I, personally find this annoying, and always turn off DAZ Studio's IK immediately when using my birds. Leaving IK on will cause the thigh and shin rotations change when the character is moved. The **CTRL K** keypress will turn IK on and off in DAZ Studio. IK doesn't work that well in Studio, so I suggest selecting the character in the **Scene tab** and simply deleting the two IK body parts to remove IK.

Where to find your Birds and Poses

Type Folder	Bird Species
Herons, Ibises and Pelicans (Order Pelecaniformes)	American White Pelican Brown Pelican Peruvian Pelican Great White Pelican Dalmatian Pelican Spot-billed Pelican Pink-backed Pelican Australian Pelican

Songbird ReMix

Pelicans

Field Guide

North America

American White Pelican
Brown Pelican

South America

Peruvian Pelican

Eurasia & Africa

Great White Pelican
Dalmatian Pelican

Asia

Spot-billed Pelican

Africa

Pink-backed Pelican

Australia

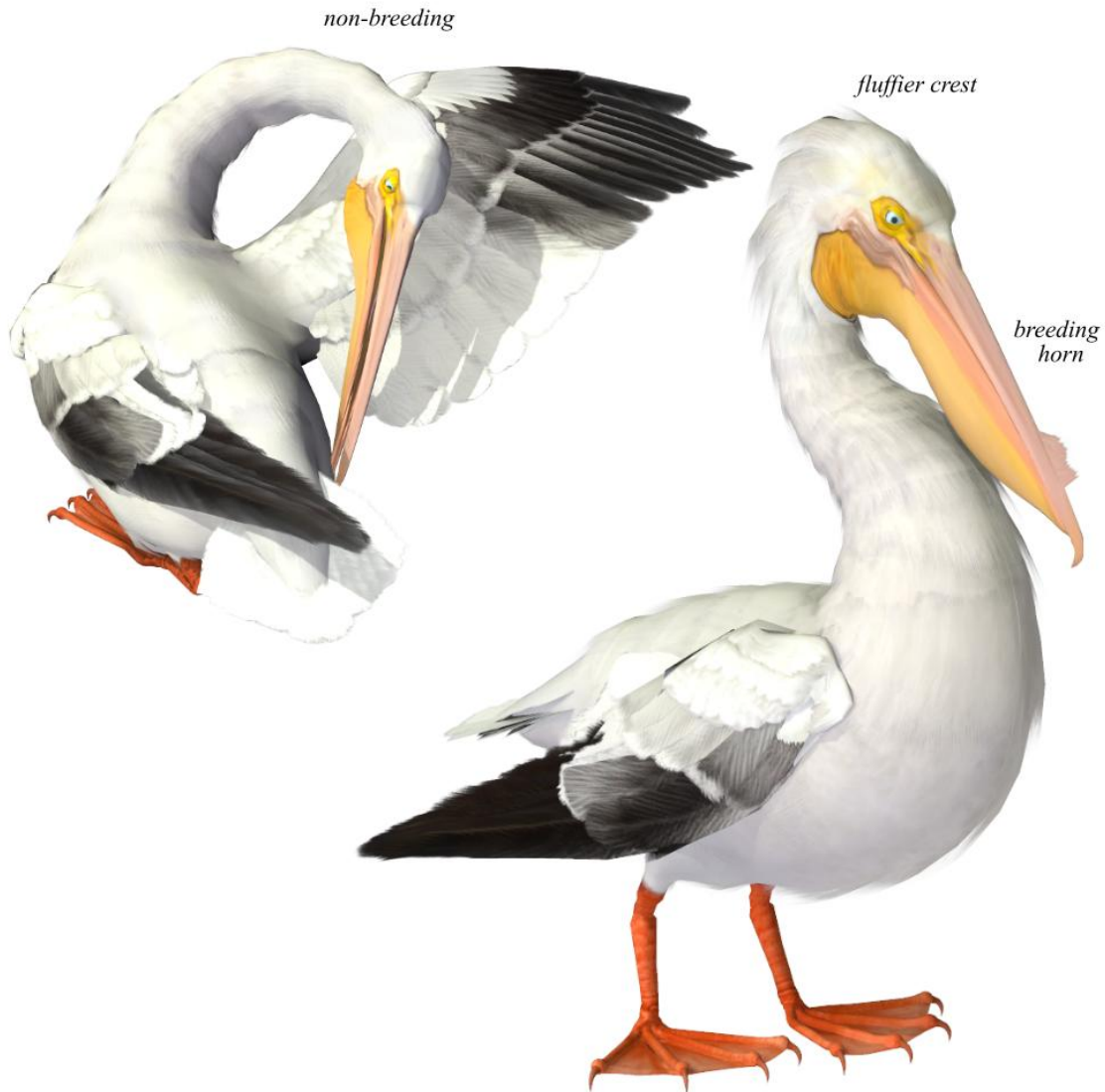
Australian Pelican

Common Name: American White Pelican
Scientific Name: *Pelecanus erythrorhynchos*

Size: 50-65 inches (127-165 cm)

Habitat: North America. **Summer Range:** Breeds throughout the northern Great Plains and mountain west in the United States. **Winter Range:** Winters in the Southern United States to Central America.

This pelican is found on the coast, in wetlands and inland lakes. It rarely winters at inland habitats, with the Salton Sea (in California) being a predictable exception.



Status: Least Concern. **Global Population:** 6,700,000-7,120,000 mature individuals with an increasing population trend. There was a pronounced decline in American White Pelican numbers in the mid-20th century, perhaps attributable to the excessive spraying of DDT and other pesticides in agriculture as well as widespread draining and pollution

of wetlands. But populations have recovered well after stricter environmental protection laws came into effect.

Highly sensitive to human intrusions into breeding colony, which cause desertions, especially during courtship and early incubation. Throughout incubation and brooding periods, disturbed parents leave nests, exposing eggs and young to potential temperature extremes and gull predation. Loud and close passes by motor boats and low flying airplanes can cause upflights from colony. Feeding and loafing flocks are also dispersed by approach of motor boats.

All pelicans in the North and South America are protected by the Migratory Bird Treaty Act of 1918.

Diet: Fish and some marine invertebrates. Crayfish also taken seasonally on the Northern Plains.

It usually is found in flocks and flies with its head withdrawn. It searches for prey in shallow water (0.3-2.5 m deep). It is seen in open areas within marshes, along lake or river edges, on or below rapids. It will, but less commonly, forage near the surface in deep water of rivers and lakes where fish are either sunning themselves or feeding near the surface. Nocturnal foraging is common during breeding season, but not during the winter. It is an opportunistic hunter; typically floating and swimming on water surface, and dipping its bill into water, scooping prey into its pouch. It then raises the bill above a horizontal angle to swallow prey. Prey are located visually in the daytime, and that is why bill contact combined with increased rate of bill dipping becomes more important during nocturnal feeding.

Nesting: Sexes similar in all plumages. It is a large white pelican with black primaries and outer secondaries. It has an enormous bill with an expandable gular pouch, and totipalmate webbed feet. In early breeding season, the bill and legs are bright orange, its head is with white plumes and there is a laterally flattened "horn" on upper mandible. The eye is bluish-gray. After breeding season, the leg color fades, the head darkens, and the plumes and the horn are lost.

Immature birds have light gray plumage with darker brownish nape and remiges. Their bare parts are dull gray.

They breed at inland lakes and are colonial breeders, with up to 5,000 pairs per site. The birds arrive on the breeding grounds in March or April. The nest is a shallow depression scraped in the ground, in some twigs, sticks and. After about one week of courtship and nest-building, the female lays a clutch of usually 2 or 3 2-3 chalky white eggs. Both parents incubate for about one month. The young leave the nest 3-4 weeks after hatching; at this point, usually only one young per nest has survived. Hatchlings are naked at first, and then grow white down feathers all over, before molting to the immature plumage.

Cool Facts: The American White Pelican is one of the largest birds in North America. The White Pelican does not dive for fish as the Brown Pelican does. Instead, it dips its head underwater to scoop up fish. Several pelicans may fish cooperatively, moving into a circle to concentrate fish, and then dipping their heads under simultaneously to catch fish.

Common Name: Brown Pelican
Scientific Name: *Pelecanus occidentalis*

Size: 41-54 inches (100-137 cm); wingspan 200 cm

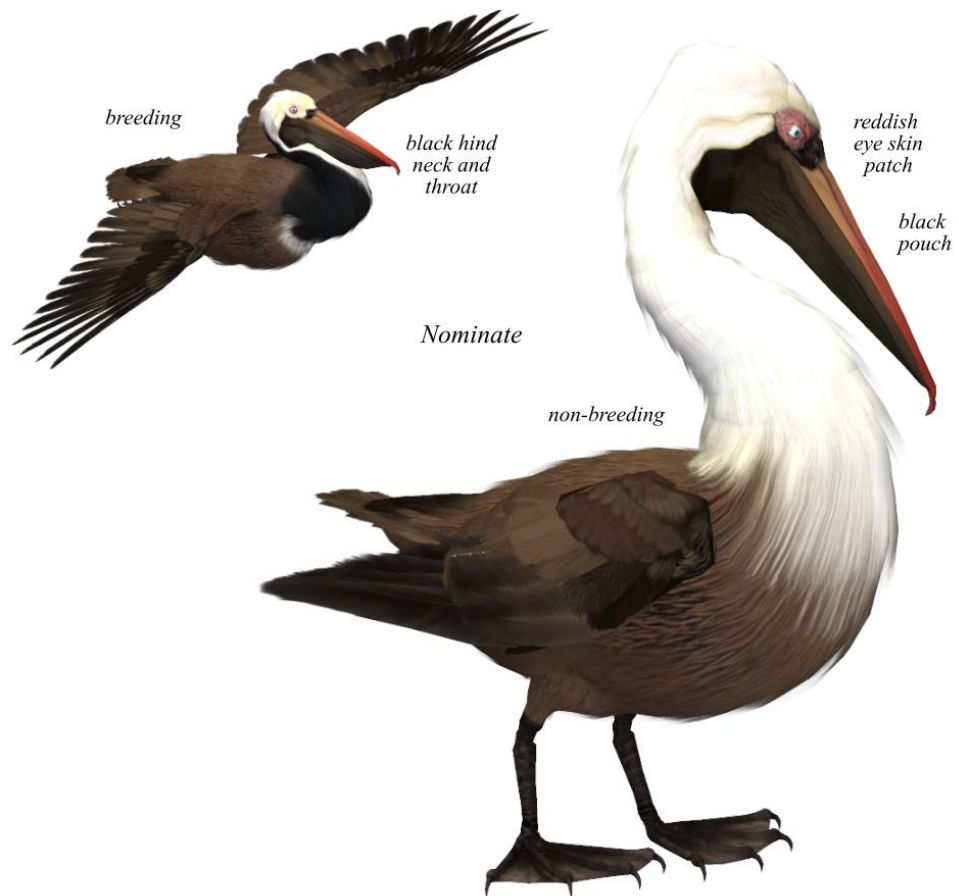
Habitat: North America & Northern South American. **Summer Range:** Breeds in scattered locations along coasts from Maryland southward around Florida and westward to southern Texas and Mexico, to Honduras. On Pacific Coast from southern California to South America. Also in Caribbean and northern South America. Wanders widely after breeding, north to British Columbia and New England. **Winter Range:** Winters along both coasts from central California and Virginia southward to South America.

This pelican is only found on coastal regions and will not visit inland lakes. It prefers warm coastal marine and estuarine environments.

Status: Least Concern.

Global Population: 18,600,000-26,000,000 mature individuals with an increasing population trend. The Brown Pelican population declined severely in the

first half of the 20th century. Shooting for feathers, "protecting" fishing caused declines in pelican populations, pesticide poisoning (especially by DDT) caused severe declines across the range in the late 1950's and the extirpation from Louisiana ("the pelican state"). It was listed as Endangered throughout the range in 1970. The ban on DDT led to a population recovery, and it was removed from the Endangered Species list in Atlantic Coast states in 1985. Breeding numbers in most states are stable or increasing, and the total population in the United States now exceeds historical levels. Pelican populations took a hit in Gulf Coast



region from the 2010 BP Oil spill. Populations on the western coast are still protected. All Pelicans in the United States are protected by the Migratory Bird Treaty Act of 1918.

Diet: Fish and some marine invertebrates.

Prey is usually caught by an aerial dive into the ocean.

Nesting: Sexes look alike, although males are about 10% larger than females. It is a large, dark coastal seabird with the typical pelican features (a long bill, extensible gular pouch and totipalmate feet).

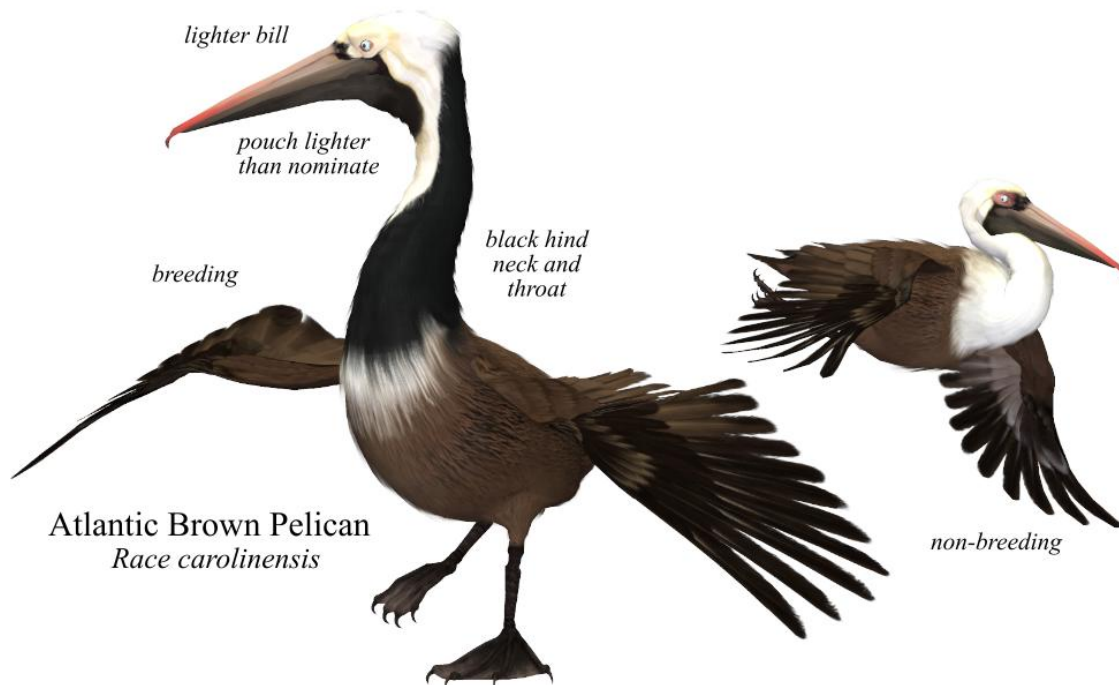


In the "Definitive" plumage, the upper parts are a gray to gray-brown, with the belly being a black-brown. The remainder of the under parts are a striped black and silver. The molt of the head and neck produces 3 distinct appearances per annual cycle: The head is pale yellow and the neck white during post-breeding season. The head is yellow and the neck, a dark brown, just prior to onset of breeding; and the head turns white (sometimes speckled with dark feathers) and the neck is black-brown during nesting season. The outer portion of gular pouch is dark gray-green year-round.

During courtship, the proximal third of pouch turns bright red in the western part of the range and blackish metallic green in the east. With onset of incubation, colors fade to yellow-gray and gray-green, respectively.

Immature juvenile are dirty brown all over with white belly, pale line along middle of the under wings. Their bills are gray-brown. Yearlings are similar, but grayer on back and with some white feathers on sides of head and neck. Bills become paler and may have some yellow or orange. Gradually, it assumes its “Definitive” Adult plumage by 3–5 years of age.

It breeds primarily on islands. Nests are large flat bowl of sticks lined with grasses or leaves. It is placed in short trees, shrubs, or on ground. Pelicans nests in colonies, often with herons and other water birds. 3 chalky white eggs are laid. Unlike most birds, which warm their eggs with the skin of their breasts, pelicans incubate their eggs with their feet. They hold the eggs under the webs that stretch from the front toes to the hind toe, essentially standing on the eggs to warm them. This peculiar incubation method made them vulnerable to the effects of the pesticide DDT. The DDT made the eggshells thin, and the incubating parents frequently cracked their eggs.



Cool Facts: It is unique among the world’s seven other species of pelicans as it is found only along the ocean shores and not on inland lakes. It and the Peruvian Pelican are the only pelicans that dive from the air into the water to catch its food.

While the Brown Pelican is draining the water from its bill after a dive, gulls often try to steal the fish right out of its pouch. They sometimes even perch on the pelican's head or back and reach in. The pelican itself, however, is not above stealing fish from other seabirds. It also follows fishing boats and hangs around piers for handouts.

The Brown Pelican frequently lowers its head onto its shoulders with the bill open, pulls its head back, and stretches the pouch over its throat and neck. The exposed neck looks like a large lump sticking up out of the pouch.

The five subspecies are distinguished on the basis of differences in plumage color, the color of the bill and orbital in breeding condition, and body size.

- *P. o. occidentalis*. First reported by Linnaeus in 1766. The nominate subspecies, “Southern Brown Pelican”, breeds in the Caribbean from the southern Bahamas south through the Greater and Lesser Antilles to the coasts of Colombia east to Venezuela and Trinidad. It wanders to the Gulf coast of Florida, Caribbean coast of Mexico, and along the Atlantic coast of South America to eastern Brazil. It averages small. In breeding plumage, the ventrum is dark moderately streaked with pale and in breeding condition, gular pouch a blackish blue-green.
- *P. o. carolinensis*. First reported by Gmelin in 1789. The “Atlantic Brown Pelican” breeds coastally from Maryland south to southern Florida, in the Gulf of Mexico from southern Florida to southern Texas, in southern Veracruz, at various points around the Yucatan Peninsula (Mexico and Belize), and in Honduras. It also breeds on Pacific coast of Honduras, Costa Rica, and Panama. It wanders north along the Atlantic Coast to the Maritime Provinces, south to eastern Brazil, inland to various locales in the eastern United States and Middle America, and on the Pacific Coast from southern Mexico to northern Peru. It is like the nominate, but its body size is much larger and the ventrum of breeding plumage is generally paler.
- *P. o. californicus*. First reported by Ridgway in 1884. The “California Brown Pelican” breeds coastally at scattered locations from the Channel Island off southern California south along the Baja California Peninsula and through the Gulf of California south to Sinaloa, and has bred inland at the Salton Sea in southeastern California. It has wandered both coastally north to southeastern Alaska and south coast to El Salvador and inland to the southwestern United States, with some reports from the Gulf Coast of Mexico, Texas, and Florida and from the Atlantic Coast of Florida and, possibly, Georgia. It is similar to Race *carolinensis*, but the gular in the breeding condition is a bright red. The bird overall averages larger.
- *P. o. murphyi*. First reported by Wetmore in 1945. As is the nominate, it is also called the “Southern Brown Pelican” and it breeds along the Pacific coast and the offshore islands of Colombia and Ecuador. It ranges along the Pacific coast southward to northern Chile. It is like Race *carolinensis*, but the dorsum is darker and the ventrum is more extensively streaked with pale.
- *P. o. urinator*. First reported by Wetmore in 1945. The “Galápagos Brown Pelican” is endemic to the Galápagos Islands. It is similar to Race *californicus*, but the gular is blackish (not red) and the dorsum (and often the ventrum, too) is darker.

Common Name: Peruvian Pelican
Scientific Name: *Pelecanus thagus*

Size: 54-60 inches (137-152 cm)

Habitat: South America. Restricted to the coast of central Peru and Chile

Status: Near Threatened. **Global Population:** 100,000 - 1,000,000 mature individuals with a stable population trend. It is likely to have been as badly affected by the El Niño event of 1998 as other Humboldt Current species such as Inca Tern (*Larosterna inca*), which declines over this period approached 30%. Pelicans are notoriously susceptible to disturbance at breeding colonies, either intentional (e.g. by fishermen), or unintentional (e.g. by tourists). Although the



population may currently exceed 500,000 mature individuals, this is a fraction of former numbers and numbers fluctuate greatly in association with El Niño, and with numbers of schooling anchovies. A network of protected islands now provides some support and the population now appears to be stable or perhaps, increasing.

Diet: Fish and some marine invertebrates. This Pelican has strong preference for Peruvian Anchovetas (*Engraulis ringens*).

It feeds by diving into the water from flight, like the Brown Pelican.

Nesting: While similar to the Brown Pelican (*P. occidentalis*), it is larger and tends to have longer nuchal white crest at start of breeding season. The scapulars and tertial coverts are whitish, while the median and many lesser upper wing-coverts are a pale silvery gray (forming large pale panel that contrasts in flight). It has a cream-yellow head and continues as pale line around pouch base. The dark on the neck in breeding plumage is blackish rather than dark chestnut, and the abdomen is hardly darker than the sides and flanks. Each feather has a narrow pale shaft and may retain some pale spots. The facial skin is often blacker and warty at the forehead. The bill is largely pale horn to straw-yellow with red on the distal part of the maxilla and more of the distal half of the mandible. In breeding condition, the pouch appears to be largely pale powder blue with some black and cream-yellow at base. Its legs may have olive or even dull yellowish tinge. Plumage maturation takes about two years.

Sub-adults retain much white on abdomen. The juvenile has a largely straw-yellow and pale gray bill with some orange-red on sides. The pouch is a straw-yellow to pale gray, and the legs are cream-yellow to gray. The head quickly becomes white, while immatures may have head and neck of pre-breeding adult, and courtship-colored bill when the body still mostly brown.

It breeds in large colonies on rocky coasts, feeding in shallow offshore waters along the coast on small schooling fish. Pairs nest in discrete groups of different sizes, ranging from ten to several hundred birds. Breeding occurs mainly from September to March. Settlement and courtship begins in mid September through October. Usually 3 eggs are laid in hollow scrape. Most chicks hatch between late December and early January. White down-covered chicks gather in crèches when three to four weeks old and fledge at about 85 days of age.

Nests are predated by gulls and Turkey Vultures.

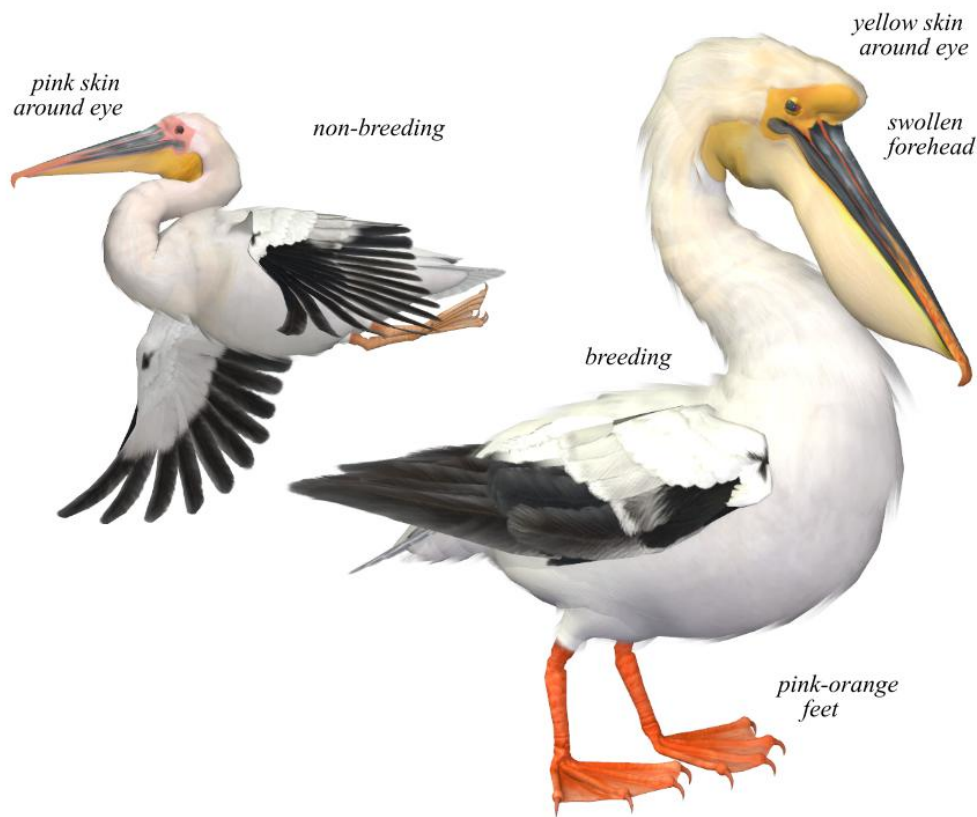
Cool Facts: It used to be considered a subspecies of the Brown Pelican (*P. occidentalis*). The Peruvian birds are nearly twice the bulk of the Brown Pelican, averaging 15.4 lb (7 kg) in weight; they are also longer, measuring about 5 ft (1.5 m) overall.

Common Name: Great White Pelican
Scientific Name: *Pelecanus onocrotalus*

Size: 55-70 inches (140-175 cm)

Habitat: Europe, Asia and Africa; they breeds from southeastern Europe through Asia and in Africa in swamps and shallow lakes. More than 50% of White Pelicans breed in the Danube Delta. This pelican migrates short distances, wintering in northeast Africa.

In Eurasia, it is found in fresh or brackish water of lakes, deltas, lagoons and marshes. It requires extensive reedbeds for breeding. In Africa, it is seen in alkaline or freshwater lakes, and sometimes in marine regions. . It is generally in the lowlands, except in east Africa. It breeds on inselbergs in west Africa, and flat inshore islands off Banc d'Arguin. Their fishing technique usually demands shallow, warm water.



Status: Least Concern to Near Threatened. **Global Population:** 270,000 - 290,000 mature individuals with a declining population trend. It has declined dramatically in the Palearctic over past century and now considered regionally threatened, although numbers thought to be fairly stable or slightly declining. The total Palearctic population estimated at 7,345–10,500 pairs at 23–25

colonies, with 3,000–3,500 pairs at Danube Delta in Romania, and about 3,070–4,300 pairs in Russia. Large colonies may exist in Iraq. Some 40% of the Palearctic breeding population occurs in Southeast Europe and Turkey. In 2011–2012 the population in this region was estimated to be 4,702–5,175 pairs, and has remained more or less stable during the last decade. A minimum of over 75,000 counted on autumn migration through Israel, late 1980s. The winter counts have yielded about 10,000 pelicans in Northern India and Pakistan.

The main threats are habitat destruction, depletion of food supplies, persecution and disturbance, pollution, flooding, disease, etc. could also have devastating effects, especially given typically large colonies they form. They are still fairly numerous in Africa, with the total African population at 75,000 pairs

Overall, the population in southern Africa has been regarded as near-threatened since it breeds permanently at a limited number of locations, but it has recently increased in South Africa. In Egypt, this species is hunted and sold as food in markets. Throughout its range, it is at risk from habitat loss (wetland drainage), varying water levels, which can flood nests and/or cause fish to die, environmental pollution, disturbance of breeding colonies, and several other factors, including persecution as pest at fish farms. It suffers some mortality through flying into power lines when migrating, and proliferation of wind farms could pose a further serious hazard. The White Pelican is one of the species to which the “Agreement on the Conservation of African-Eurasian Migratory Waterbirds” (AEWA) applies.

Diet: Fish, mostly between 300–600 g. In Europe, this pelican prefers carp and mullet in China. The commonest prey in Africa are cichlids. In Africa, it generally takes larger fish than Pink-backed Pelican, but can survive on abundant small fish; large fish may make up c. 90% of diet. At Walvis Bay in southwestern Africa, unfledged young may take many eggs and chicks of the Cape Cormorant (*Phalacrocorax capensis*), and decline of pelican apparently related to drop in cormorant numbers. This pelican is known to also eat unsuspecting birds (primarily pigeons) as recorded at St. James's Park in London. They swallow them whole and still alive.

It normally feeds in groups, and often, co-operatively. It is seen solitary on occasions. Prey is caught by fishing from the water surface.

Nesting: Males are larger than females, and have a long beak that grows in a downwards arc, as opposed to the shorter, straighter beak of the female. In breeding condition, the female tends to have brighter orange facial skin.

Adult plumage is mostly white except on the remiges, usually with faint pink tinge especially on the neck. In breeding season, the base of the foreneck becomes yellowish, the bare parts are brighter, the forehead becomes swollen and the nuchal feathers comprise full shaggy crest. The crown-feathers reach base of the

culmen in wedge-shaped arrangement, otherwise it is largely bare facial skin from base of the bill including the sides of the forehead to around the eye, The white feathers may be tinged buffy. The primaries are black with white shafts at bases (sometimes with a paler tip and narrow fringe). The secondaries are also black with a whitish fringe, while the rest of feathers becoming grayer towards inner ones. The greater primary-coverts are black and the rest of upper wing-coverts and tertials are white. The under wing-coverts are white as is the tail. The iris is brown-red to dark brown and the facial skin pinkish. In breeding plumage, the skin may often turn yellow to orange, sometimes pale bluish lemon. The bill is mostly blue-gray, reddish on the cutting edges of maxilla along most of its length. The bill has a red tip. The gular pouch is cream-yellow to yellow. In pre-breeding, the birds become brighter, the gray becomes bluer, the gular pouch is rich yellow and the legs are dull flesh to pink. In breeding, the legs are yellow-flesh to pinkish orange.

The juvenile has mostly darkish dull brown upper parts including upper wing-coverts. It is darkest on part of the neck, rear scapulars and coverts on the inner upper wing. The upper wing-coverts and rear tertials often have paler tips, and may have an obvious silvery-gray tinge on the greater secondary-coverts and tertials. The brownish under parts are palest on central belly, rump and upper tail-coverts. The tail is blackish sometimes has silvery-gray tinge. The under wing-coverts are mostly dull whitish except mostly dark greater coverts and noticeable dark brownish bar over the central wing (lesser coverts). The facial skin and bill, including gular pouch, are a gray-horn to dusky gray color initially. The legs are grayish to pale flesh and the bare parts gradually acquire the non-breeding adult's color starting with the gular pouch and facial skin. The dull white plumage starts appearing on the head and upper parts to upper tail-coverts, contrasting with the brownish wing and dark tail. There is also whitish on the under parts, with marginal lesser upper wing-coverts usually being paler than posterior lesser and median ones. The later on the bird looks rather like a non-breeding adult, but with earth-brown upper wing coverts with whitish fringes. The last brownish or gray feathers to be lost are the tertials and coverts.

The tree nest is a crude heap of vegetation. All Pelicans nest in colonies.

Cool Facts: There is a group of three semi-wild white pelicans living on Pelican Island, St. James's Park in London. Their ancestors were originally given to Charles II by Russian Ambassadors in 1664 which initiated the tradition of ambassadors donating the birds. These particular descendants are noted as being the "pigeon eaters" of the park.

This species is also known as the "Eastern White Pelican". It is distinguished from all other pelicans, in all plumages, by its naked face with feathering on forehead reduced to central sharply pointed wedge (all-feathered in other *Pelecanus*)

Common Name: Dalmatian Pelican
Scientific Name: *Pelecanus crispus*

Size: 67 inches (160-180 cm)

Habitat: Eastern Europe and east-central Asia; in Serbia and Montenegro, Albania, Greece, Romania, Bulgaria, Russia, Azerbaijan, Turkey, Ukraine, Mongolia, Iran, Turkmenistan, Uzbekistan and Kazakhstan. European breeders

winter in the eastern Mediterranean countries, Russian and central Asian breeders in Iran, Iraq and the Indian subcontinent, and Mongolian birds along the east coast of China, including Hong Kong.

It is found in inland swamps, shallow lakes, freshwater wetlands but also at coastal lagoons and river deltas.

Status: Near Threatened. **Global Population:** 11,400 - 13,400 mature individuals with a declining population trend. Former declines were primarily caused by wetland drainage, shooting and persecution by fishermen. Continuing threats include disturbance from tourists and fishermen,

wetland alteration and destruction, water pollution, collision with overhead power-lines and over-exploitation of fish stocks. Hunting by herders (for traditional use of the pelican bill) has brought the Mongolian population to extinction. Nest



predation by wild boar at times of low water levels is the most important threat to the Bulgarian breeding colony.

It was previously considered Vulnerable, despite some positive news on population increases in isolated areas it was re-assessed as Near Threatened in 2017. Despite having some legal protection, habitat loss and illegal shooting persist, even in Europe, and hunting remains main threat to tiny eastern Asian population. The disturbance at breeding colonies and on wintering grounds continues to be a serious problem for these birds, and other threats include environmental pollution, human over-exploitation of fish stocks and mortality caused by flying into powerlines. The Dalmatian Pelican is one of the species to which the Agreement on the Conservation of African-Eurasian Migratory Waterbirds (AEWA) applies.

Diet: Fish and some marine invertebrates. It prefers carp, perch, rudd, pike (up to 50 cm), and eels.

Prey is caught by fishing from the water surface.

Nesting: Sexes are similar, but the female averages slightly smaller. The breeding adult has its upper parts and tail a chalky white, the feathers of head and neck can appear more or less “grizzled” because of partially exposed gray bases. The hindneck has curly feathers, and the nuchal feathers noticeably elongated, forming a “unkept” crest. The upper wings are largely blackish on bastard wing. The primaries and their coverts (except lesser ones), the secondaries are similar but have silvery fringes, these predominating towards wing base. The tertials are the palest; the exposed outer greater secondary-coverts have black shafts and a gray to blackish-brown central area. The rest of the upper wing-coverts are chalky white. The largest white feathers of the upper parts (including the upper wing and tail) have blackish shafts visible at close range. The under wing is pale gray over most of the coverts, axillaries and remiges, the latter noticeably dark at tips. Chalky white greater coverts form paler band along center of the wing. The under parts are chalky white with the lowermost foreneck and central upper chest having a cream-yellow to ochraceous tinge. The non-breeding adult is similar but has a much-reduced nuchal crest (and mane of upcurved feathers), the white of plumage looks dirtier, with slight or no yellowish tinge at base of its foreneck.

The iris is off-white to pale sky blue. It has its facial skin a yellow-orange color in pre-breeding birds, with the lower part a more cream-yellow, narrowly bordered below with blackish-gray skin. In other seasons, it is whitish with a slate-gray to the lower cheeks and anterior lores. The bill in pre-breeding birds is mostly a blackish gray with partly yellow cutting edges to maxilla, orange nail, and the gular pouch is a bright reddish orange with a black stripe sometimes visible below base of the mandible. In other seasons, the bill turns gray, the sides are

more fleshy and the gular pouch is more orange or yellowish. Its legs are dark to mid gray.

The juvenile appears grizzled on the head and neck, cap and rear ear-coverts usually whiter, dark brownish-gray bases to the feathers give variable dark tinge to the sides of the head and neck, elongated curly feathers of nape form short crest that continues as the mane to about mid-hindneck. It has a brownish-gray mantle, scapulars and upper wing-coverts, with dull white lesser upper wing coverts. The greater upper wing-coverts have blackish centers, the inner ones with more obviously pale fringes. The remiges are blackish, the bastard wing and primary-coverts (except marginal ones) are blackish brown. The back to upper tail-coverts are dull white with the tail feathers being a silvery gray to dull brownish with whiter inner webs. The under wing-coverts and axillaries are dull white with the remiges largely a whitish gray with dark brownish-gray tips. The lowermost foreneck and the rest of the underparts are dull white. The juveniles iris is brown with whitish naked skin around the eye, grayer skin over the cheeks with a dark gray to blackish loreal line from the eye to the base of the maxilla. The bill is gray, sometimes largely dusky over the culmen. The nail soon turns horn-yellow to orange as the bird ages. The gular pouch is a cream-tan color and the legs are gray (the soles may have yellow-flesh tinge). The upper parts become progressively whiter in subsequent plumages, starting on the central wing between the lesser and greater secondary-coverts.

It breeds in the spring, starting in late March or early April. It is a ground nester, and often nests on floating islands of vegetation. The nest itself is a crude heap of vegetation. Colonies can contain up to 250 pairs. The female lays a clutch of 1-3 eggs (usually 2) and incubation lasts about 30–34 days. They fledge after a period of about 85 days, and gain full independence at 100–105 days. Sexual maturity occurs after 3 or 4 years.

Cool Facts: They give barking, hissing and grunting calls. In alarm, it utters "wo-wo-wo" sounds and bill-claps.

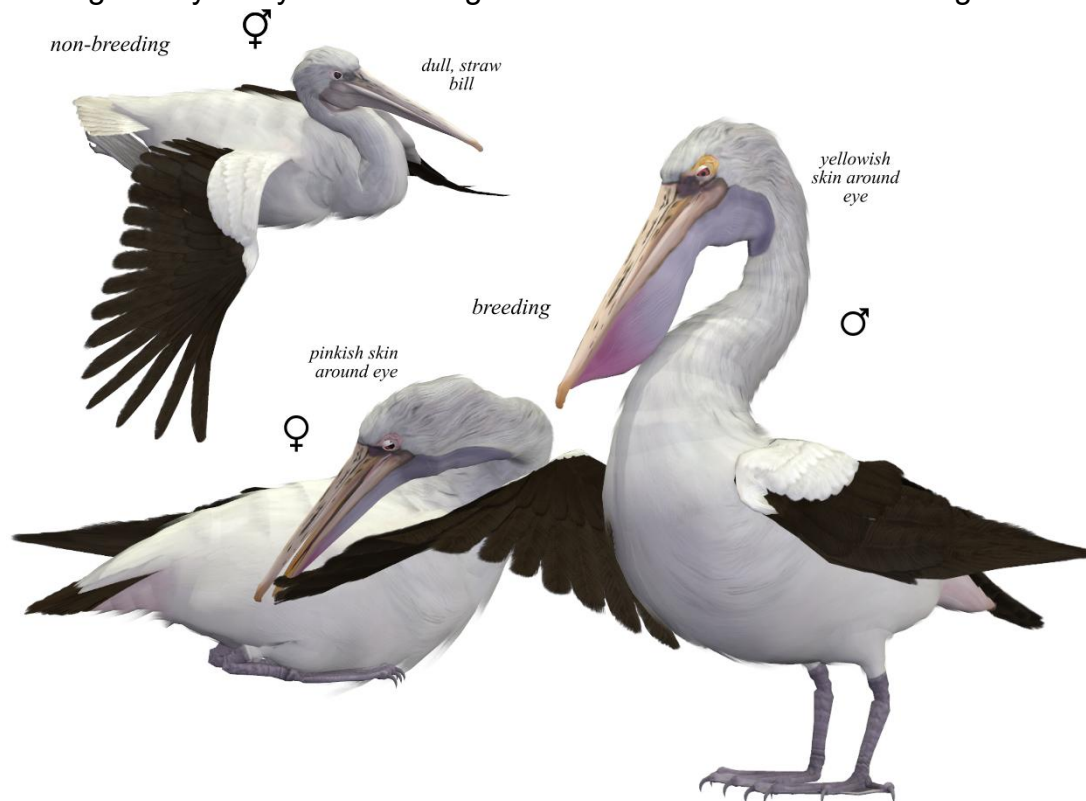
Common Name: Spot-billed Pelican
Scientific Name: *Pelecanus philippensis*

Size: 49-60 inches (127-152 cm)

Habitat: Asia; breeds in India, Sri Lanka and Cambodia.

It is often found inland at watery tracts which include marshes, jheels, rivers, estuaries, reservoirs, tanks, flooded fields, large lakes, brackish lagoons, and sometimes tidal creeks and along the coast. It often feeds in quiet backwaters. It requires large trees for nesting, normally in a swamp forest or swampy savanna area, but sometimes along the margins of paddy fields (if undisturbed). It also uses trees for roosting, with a certain preference for bare or dead trees.

Status: Near Threatened. **Global Population:** 13,000 - 18,000 mature individuals. This species has declined at a moderately rapid rate owing to a number of threats. A crucial factor in its decline was the loss of the Sittang valley breeding colony in Myanmar through deforestation and loss of feeding-sites. Key



threats are a combination of human disturbance at breeding colonies and wetlands, extensive felling of nesting trees, hunting and poaching of eggs and chicks. Additional threats include loss of important feeding-sites through siltation, agricultural intensification, aquaculture development, drainage and conversion of

wetlands, declines in wetland productivity as a result of pesticide use, and over-exploitation of fisheries. There is some persecution resulting from competition between the birds and fishers. A potential but as yet unqualified threat is posed by avian influenza. The Philippines population is extinct. According to BirdLife, other significant threats to this species are human disturbance at colonies and wetlands, extensive felling of nesting trees, adverse impact of invasive plants on wetland habitat, hunting and the taking of eggs and chicks; additional threats include loss of important foraging sites through siltation, agricultural intensification, aquaculture, building of power stations, drainage and conversion of wetlands, and declines in wetland productivity as a result of pesticide use, as well as human over-exploitation of fisheries, and some local persecution resulting from competition between pelicans and fishermen.

Diet: Fish and some marine invertebrates.

Prey is caught by fishing from the water surface. It normally feeds alone, though sometimes in groups.

Nesting: Sexes similar in plumage, but female slightly smaller. The breeding adult has a dull white head and neck that can be grizzled or somewhat peppered. The feathers on the hindneck have dark bases that form a brown-gray mane on the hindneck. The feathers are longest on the nape, creating dull white shaggy crest. The rest of upper parts including scapulars are dull white. The back and side of the rump are strongly tinged with dull pink or salmon pink. The upper wing has elongated dull white coverts that are slightly tinged pinkish or pale cream-yellow. They are more strongly pinkish-toned on lesser coverts at wing-base. The tertials and rearmost scapulars are off-white with narrow blackish shafts and often diffuse gray centers. The exposed outer greater coverts are grayer with blackish shafts. The primary coverts (except some marginal ones) are black like the remiges, while the secondaries have variable silvery-gray fringes. The under wing has gray remiges and the dull white greater coverts form a pale band on central wing. The rest of the coverts and axillaries are dull pink to cinnamon-pink, but can be variable. Many of the secondary and primary coverts can be dull white. The tail feathers are a silvery gray with narrow blackish shafts, and variably tinged dull brown with whitish fringes. It looks dull overall and contrasts with whitish upper tail-coverts (which may look fairly white if seen from below in flight under strong sunlight). The under parts are a dull white with pale yellowish tinge to the base of the foreneck and central upper breast. The posterior under parts (rump) is washed dull pink to cinnamon. The non-breeding adult looks dirtier, has a peppered head and grayer neck. The face is more contrasting with pale cream-yellow skin around the eye, while the nape and the most of the neck may be a dark grayish brown. The nape feathers are short, the rest of the body and wings are usually tinged a dull buff. The tertials are often largely brownish (similar to tail), and parts of the back

are tinged brownish (rather than pinkish), and some may appear ochraceous over most of abdomen.

The iris can be an off-white to orange (being redder outside iris). The iris is often browner in non-breeding birds. There is a broad naked ring around eye which is cream-yellow to pink (more usually pink to dark orange in females, deep yellow or paler in males), the lower half can be whiter, surrounded by slate-gray to blackish skin except above, broadly on the lores. In non-breeders, the dark areas are usually a paler gray, not contrasting with grayish face. The bill is flesh to orange-flesh with diagnostic dark spots on side of upper mandible, often with a dark spot at very base of lower mandible too, and is reddish on distal half of cutting edges, while base of lower mandible may be paler. The nail is orange to fleshy yellow and the gular pouch is purplish-red or more magenta distally with blackish spots throughout, or pale fleshy cream, pinker distally, with dark bluish-gray spotting, and may look largely grayish at distance. The bill and gular pouch is similar but duller in non-breeding birds with the gular pouch often appearing much paler. Its legs are gray to blackish gray, may have some pinkish flesh on soles and rear tarsus.

The juvenile has gray head and neck, peppered dark dull brown, with some curly feathers with dull brown bases forming a mane on the hindneck. It is longest at the nape. The base of the hindneck are often broadly dark brownish, dull brown over the mantle, scapulars and upper wing-coverts. Each feather has a pale tip when fresh, the coverts are not elongated and the lesser coverts at the base of wing are mostly white. The remiges are browner than the adult, and the back to the upper tail coverts are a dull white with narrow brownish shafts. The tail is brown-gray and the under parts are a dull off-white. The transitional plumage has gray-brown feathers of the dorsum and the upper wing-coverts merging with whitish ones, the latter elongated on the upper wing. At first, it has a very dull, unspotted bill and pouch (flesh-gray, the pouch can appear to be more creamy). The iris is a dull brown and the pale naked area around the eye is narrower than in the adult. The legs are a pale flesh color, but its bare parts soon become similar to those of the non-breeding adult.

Breeding season occurs from October to March. In India, it begins after the onset of monsoon season. It is a tree nester and is often found in mixed colonies with storks, egrets or cormorants. Normally, there are 3–15 nests per tree. It creates a large stick nest and usually lays 3 eggs. The incubation period lasts about 29–31 days and chicks fledge after 90–102 days. Fledging success is about 54–68%.

Cool Facts: Pakistan has designated it as the provincial bird of Sindh.

Common Name: Pink-backed Pelican
Scientific Name: *Pelecanus rufescens*

Size: 49-52 inches (125-132 cm)

Habitat: Africa; breeds in Africa, southern Arabia and apparently now extinct in Madagascar.

It generally prefers freshwater lakes, swamps, rivers and seasonal ponds. Sometimes, it can be seen along the coast, especially in bays. Also, it may frequent alkaline lakes. It can be found even in drier country when locusts



plentiful. It breeds in trees, often along the waterfront, and on sandy islands, mangroves, and even close to developed areas. Trees may be killed by repeated nesting use. It roosts on cliffs, coral reefs, sand dunes and sometimes

piers or walls in areas where food abundant. It is more tolerant of humans than other pelicans.

Status: Least Concern. **Global Population:** 42,000 - 62,000 mature individuals with a declining population trend. This species has a large range and is widespread however there have been significant population declines. There are threats by habitat loss in KwaZulu-Natal, as many suitable pans and flood-plains are being altered through drainage and cultivation, and the natural flooding regime of pans in the Pongolo system has been altered by the Jozini Dam. In southern Africa, the disturbance of this species is increasing at estuaries as these areas are becoming more intensively used by humans. The species is also susceptible to bioaccumulation of toxins in their body tissue, which may lead to a decline in their reproductive success. This pelican's greater tolerance of man makes it less susceptible to disturbance than some other species, and its habit of solitary fishing, tend to make it seem less of a competitor to fishermen. However, it has declined decidedly in Nigeria in recent years and now seeks out remote wooded wetlands for breeding. Breeding did occur in Madagascar, but the only colony was wiped out by villagers and species had disappeared by 1960.

Diet: Fish and some marine invertebrates. It prefers cichlids, especially *Haplochromis*.

It frequently fishing alone. Prey are usually caught by fishing from the water surface.

Nesting: Sexes similar in plumage, female averaging smaller. Breeding adult has most of feathers long and pointed, white, often mixed with gray. The nape feathers are mostly gray, forming a full shaggy crest. The upper part feathers have narrow blackish shafts. The base of the foreneck and central chest have feathers with a slight pale yellowish tinge, or with dull pink tinge, which is especially noticeable on the flanks and back. The feathers are often grayer on the lower rump and upper tail-coverts. The upper wing-coverts are the same as the upper parts. The outer greater coverts have broad blackish-gray central area, while the primary-coverts and bastard wing are gray to blackish. The primaries are black, while the secondaries and tertials are blackish-centered with a progressively broader silvery gray to whitish fringe at the base of the wing. The under wing has gray remiges that are darkest at their tips with white shafts that are sometimes visible on the primaries. The white greater coverts form pale band on the central wing contrasting with the remiges and with the dull pink of the rest of coverts and axillaries. The tail whitish with blackish feather shafts which may have a variable gray tinge.

The non-breeding plumage is grayer, with the nuchal feathers being much shorter. The pinkish tones on the flanks and upper parts are less noticeable, and its bare parts are duller. The iris is a very dark brown. The upper half of naked periorbital skin is orange-yellow to orange-pink and the lower is a half pale lime-

yellow, narrowly framed at the rear and broadly on the lores by blackish-slate skin.

The periorbital skin may be whitish and fully framed with blackish. In non-breeding season, the periorbital skin is whitish, with the blackish area becoming a paler gray. It can be restricted to a spot before eye. The bill is a straw yellow to pale pinkish, with the base sometimes having a few dark spots which are usually orange on the nail. The gular pouch is yellow with dense dark transversal parallel lines, or salmon reddish with dense, narrow, whitish transversal parallel lines. The legs are yellow-tan to fleshy orange, and are a brighter pinkish to pink-red in breeding season.

The juvenile is similar to the adult but has shorter (not long, lanceolate) feathers. It is largely gray-brown over the head and part of the neck. It has gray-brown feathers with pale fringes on the mantle, scapulars and most of the upper wing-coverts. It is much whiter on the back to upper tail-coverts. The remiges are browner than the adult, and it has plainer whitish under parts. The bare parts are similar to those of the non-breeding adult but its legs and bill are often grayer, and have a yellow nail.

This pelican breeds all year round, though most breeding occurs after the rainy season. It is a tree nester and found nests in colonies of 20–500 pairs. The nest is a large heap of sticks, in which, 2-3 large white eggs are laid. Incubation normally lasts about 30 days and fledge at about 84 days. The post-fledging care lasts a addition 21 days. The chicks feed by plunging their heads deep into the adult's pouch and taking the partially digested regurgitated fish. Sexual maturity for the fledglings starts at 3–4 years.

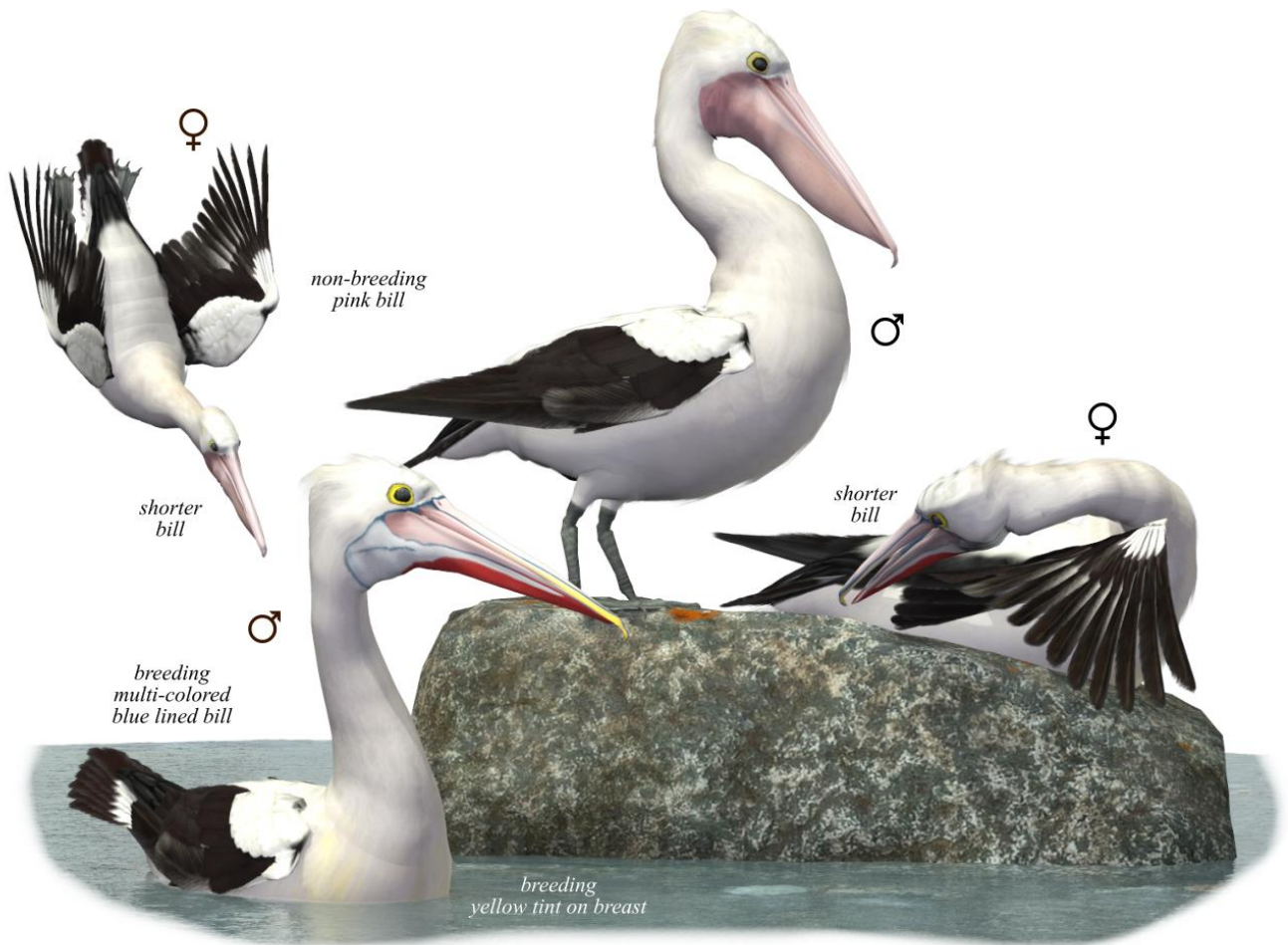
Cool Facts: This pelican was originally called the "Gray Pelican". It is locally nomadic in southern Africa in response to changing wetland conditions, and western African populations make northward movements into sub-Saharan steppe during the wet season, returning southwards in the dry season.

Common Name: Australian Pelican
Scientific Name: *Pelecanus conspicillatus*

Size: 60-74 inches (152–188 cm)

Habitat: Australia, Papua New Guinea and western Indonesia, with occasional reports in New Zealand and Sulawesi.

Any area with a large body of standing water is a potential pelican habitat. Though normally associated with the coast, the Australian pelican can also be seen inland at times of high rainfall, particularly near freshwater, estuarine and marine wetlands and waterways including lakes, swamps, rivers, coastal islands and shores.



Status: Least Concern. **Global Population:** 100,000 - 1,000,000 mature individuals with a declining population trend. This species has a large range and is widespread however there have been significant population declines; habitat destruction, introduced predators, oil spills, and pesticide poisonings (dieldrin in particular) have killed many birds. It is legally protected throughout Australia.

Diet: Fish and some marine invertebrates. In addition to small fish, they will eat crustaceans, tadpoles, turtles, some birds (Silver Gulls and Grey Teal) and even, small dogs.

Prey is caught by fishing from the water surface. It regularly feeds in groups, which may number close to 2,000 birds. They work often co-operatively and can be seen frequently solitary as well.

Nesting: This pelican is unmistakable and a “cartoon-like” appearance that also does seem unreal, especially with breeding season plumage. It is the only pelican in which the bare skin around the eye does not touch its bill. Sexes are alike, however the males is larger overall and has a significantly larger bill (409–500 mm in male, 346–408 mm in female).

The breeding adult has a mostly white head and upper parts, the feathers on the nape and upper hind neck can be variably tinged grayish and form a mane or short crest. There is a large black V from the outer and rear scapulars and sides of back meeting at the central lower rump. The exposed portion of the tail is black. The white upper tail coverts contrast with both the black “V” and tail end. The upper wing is black with the the primaries having white shafts at their bases. There is a large white panel over the median to marginal coverts on the central wing, with the median coverts being much elongated. The under wing-coverts and axillaries are white with a variable number of black feathers on center of the lesser coverts; some lacking any black there, others with long, bold and solid bars including part of the median and lesser coverts. The exposed remiges are grayish becoming diffusely darker on the broad tips. The under parts are white except a slight yellowish tinge on the lower-most foreneck. Non-breeding adults have a more obvious grayish-brown tinge on the nape and hindneck, but the nuchal crest is reduced to a shorter mane, and usually lacks yellow tinge at base of foreneck (but that area and the entire abdomen may be stained brownish ochre). The iris is black-brown with a narrow dark bluish orbital ring (which makes the eye appear larger). It is surrounded by broader bright yellow area which doesn’t reach the base of bill, which is usually narrowly outlined dark. The yellow is less rich outside pre-breeding season. The bill in pre-breeding season has narrow grayish-blue line at its base. The maxilla is pale pink to pink-flesh with yellow to ochre nail. The distal third of the maxilla is tinged blue at its sides with some yellowish on the cutting edges. The mandible is similar but has a deeper blue over the distal half. The pouch has creamy and partially yellow base and upper part, crossed by a longitudinal blue stripe. The lower half and distal region is salmon-pink. At other seasons, the bluish areas is duller and often reduced with the pouch being a pale pinkish flesh to creamy overall. The longitudinal stripe is much duller or invisible. The legs are dark slate-gray to bluish gray.

The juvenile is similar to non-breeding adult but the upper wing-coverts are shorter, the marginal and some of the lesser coverts are browner, the median and greater coverts and tertials are blackish-brown with white fringes, the scapulars have some white at their bases, and the “V” over the lower back is less solid, mixed with white, and may not reach the rear scapulars. Also the white band over the upper tail-coverts may appear broader, and the legs can have a dull flesh-brown tinge.

The Australian Pelican begins breeding at two or three years of age. Breeding season varies, occurring in winter in tropical areas and late spring in parts of southern Australia. Any time after rainfall is usual in inland areas. The nest is a shallow depression in earth or sand, sometimes with some grass lining. Grassy platforms are constructed at Lake Alexandrina in South Australia. Nesting is communal, with colonies located on islands or sheltered areas in the vicinity of lakes or the sea.

Breeding Australian pelicans will lay one or three chalky-white eggs. After they hatch, the larger one will be fed more, and the smaller one will eventually die of starvation. For the first two weeks the chicks will be fed regurgitated liquid, but for the remaining two months they will be fed fish such as goldfish or the introduced European carp, and some invertebrates.

Cool Facts: Australian pelicans may live 25 years or longer. They mostly feed in groups, cooperating to herd and enclose schools of fish, then swoop down on their trapped prey. They can eat up to 9 kilograms of food per day. They have been known to follow humans homes, hoping to be fed.

Special Thanks to my beta testers...

- 2009 Original Release: Bea, Jan, Kelvin, Nancy, Sandra & Walter
- 2022 Re-release: Alisa and FlinHawk

Species Accuracy and Reference Materials

Many birds of the same species do vary considerably in color. This package tries to emulate the colors and markings in the most commonly found variants.

The author-artist has tried to make these species as accurate to their real life counterparts as possible. With the use of one generic model to create dozens of unique bird species, some give and take is bound to occur. The texture maps were created in Painter with as much accuracy as possible. Photographic references from photographs from various Internet searches and several field guides were used.

Sources for this Volume and Field Guide

Books, Magazines and Papers

- **"Seabirds: The New Identification Guide"** by Peter Harrison. Martin Perrow and Hans Larsson. Lynx Publishing 2021.
- **"The Sibley Guide to Birds"** by David Allen Sibley. Allred A. Knopf, New York 2001.

Websites

- **Wikipedia** (<http://www.wikipedia.com>)
- **Cornell Labs Birds of the World** (<https://birdsoftheworld.org>)
- **Birdlife International** (<http://www.birdlife.org>)

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