

# AMERICAN WHITE PELICAN - PELECANUS ERYTHORHYNCHOS

**Taxonomy:** Kingdom: Animalia Phylum: Chordata Class: Aves Order: Pelecaniformes Family: Pelecanidae Genus: Pelecanus Species: P. erythrorhynchos

## **Habitat:**

**Biomes:** American White Pelicans breed mainly on isolated islands in freshwater lakes or, in the northern Great Plains, on ephemeral islands in shallow wetlands. They forage in shallow water on inland marshes, along lake or river edges, and in wetlands, commonly 30 miles or more from their nesting islands. Where late summer temperatures bring sunning fish near the surface, these pelicans can forage on deeper lakes. During migrations, they stop in similar habitats to forage and rest. Catfish aquaculture farms in the Mississippi Delta have become increasingly popular spring migration stops for more easterly migrating flocks. In the winter, they favor coastal bays, inlets, estuaries, and sloughs where they can forage in shallow water and rest on exposed spots like sandbars. They rarely winter inland, though the Salton Sea in Southern California is a regular exception. Other inland sites may include large rivers where moving water prevents surface ice, including stretches below dams.

## **Distribution:**

**In US:** Minnesota, Dakotas, Montana, Wyoming, Colorado, Utah, Nevada, California, Oregon, Michigan, and Alaska.

**In Other Countries:** Canada and Mexico

**Holistic Description:** One of the largest North American birds, the American White Pelican is majestic in the air. The birds soar with incredible steadiness on broad, white-and-black wings. Their large heads and huge, heavy bills give them a prehistoric look. On the water they dip their pouched bills to scoop up fish, or tip-up like an oversized dabbling duck. Sometimes, groups of pelicans work together to herd fish into the shallows for easy feeding. Look for them on inland lakes in summer and near coastlines in winter.

**Species Richness:** NO SUBSPECIES

**Population Dynamic:**

## **Evolution and Systematics:**

**Evolution:** Pleistocene and prehistoric records of living species from Florida and several Mid-western and West Coast states.

**Systematics:** Zoo hybrids reported from crosses with P. occidentalis and P. onocrotalus. Systematic position of Pelecanidae uncertain. Traditionally considered along with other totipalmate swimmers as members of Pelecaniformes, but recent evidence, especially from DNA, suggests Pelecaniformes is polyphyletic, with Pelecanidae, including all Pelecanus spp. and the Shoebill (Balaeniceps), more closely related to the New World Vultures and Storks than to the other members of the traditional Pelecaniformes.

**Number of Species:** NO SUBSPECIES

**Number of Genera:** NO SUBSPECIES

## **Physical Characteristics:**

**Size and Length:** Length: 50.0-65.0 in (127-165 cm) Weight: 158.7-317.5 oz (4500-9000 g)

**Wingspan:** 96.1-114.2 in (244-290 cm)

**Coloration:** Adult American White Pelicans are snowy white with black flight feathers visible only when the wings are spread. A small patch of ornamental feathers on the chest can become yellow in spring. The bill and legs are yellow-orange. Immatures are mostly white as well, but the head, neck, and back are variably dusky.

**General Body Features:** A huge waterbird with very broad wings, a long neck, and a massive bill that gives the head a unique, long shape. They have thick bodies, short legs, and short, square tails. During the breeding season, adults grow an unusual projection or horn on the upper mandible near the tip of the bill.

**Special Features of the Body:** The American white pelicans are superb soarers, and have a deep layer of special fibers in their breast muscles which allow them to keep their wings horizontal for gliding during flight. This feature enables pelicans, using thermal updrafts, to make daily foraging trips of more than 100 miles. This greatly enlarges their potential feeding area.

**Special Features of the Head and Sensory Organs:** The American White Pelican uses its beak to scoop up fish. Sometimes, these birds will fish in semi-circular or circular groups so they can concentrate fish for easy feeding. The pouch on the pelican's lower bill is usually folded up, but it can get bigger when the bird is fishing. A pelican's pouch can hold three gallons of water.

**Dentition:** Pelicans also have a distinct beak shape that allows them to scoop fish and drain water.

**Special Features of the Limbs and Digits:** They have short, strong legs and webbed feet that facilitate swimming.

**Any Special Internal Anatomy:** Also, pelican plumage is waterproof due to secretions of the preen gland, which the bird rubs with the back of its head before transferring oil to its plumage.

**Sexual Dimorphisms:** Apart from the difference in size, males and females look exactly alike. Immature birds have light grey plumage with darker brownish nape and remiges. Their bare parts are dull grey. Chicks are naked at first, then grow white down feathers all over, before moulting to the immature plumage. MALES ARE LARGER

**Differences Between Juvenile Stage and Adult:** ^^^^^^^^^^

**Behavior:**

**Diurnal, Nocturnal, or Crepuscular:**

**Activity:** These large, gregarious birds often travel and forage in large flocks, sometimes traveling long distances in V-formations. They soar gracefully on very broad, stable wings, high into the sky in and between thermals. On the ground they are ungainly, with an awkward, rolling, but surprisingly quick walk. Their webbed feet make for water-ski landings and strong swimming. They forage by swimming on the surface, dipping their bills to scoop up fish, then raising their bills to drain water and swallow their prey. They also forage cooperatively: groups of birds dip their bills and flap their wings to drive fish toward shore, corralling prey for highly efficient, synchronized, bill-dipping feasts. Pairs court in circling flights and in strutting, bowing, and jabbing displays at a chosen nest sites. Though females lay two eggs, only one chick per nest usually survives—one harasses or kills the other (a behavior known as siblicide). At 2 to 3 weeks old, chicks leave their nests and form into groups called crèches. Parents continue to forage for them, returning to the creche and searching out their young to feed them. Pelicans respond to threats by flying aggressively into a near-stall or, on land, adopting an upright posture and grunting. More severe threats from aerial predators provoke open-billed displays where the pelican lunges forward, jabbing with its enormous bill. Predators include foxes, coyotes, gulls, ravens, Great Horned Owls, and Bald Eagles.

**Locomotion:** Leans body from side to side, awkward, but able to walk rapidly or run, often with wings spread. Can hop up on rocks at least 30 cm high. Pushes off with feet from both land and water, stretches feet out ahead when landing, webs functioning like skis when landing on water. Flies gracefully, either singly, in flight formations, or soaring in thermal flocks. Singles common during departures from colony or foraging site, but they typically join others almost immediately or en route.

**Communication and Perception:** Adults are usually silent. In aggressive and sexual encounters at the colony site, they emit frequent low, brief grunts. Chick embryos squawk before hatching to express discomfort if conditions get too hot or cold. The begging calls (described as a "whining grunt") of hundreds of older young in the colony can be raucous..

**Home Range:** Territory established by the pair, adjacent to others, during final stages of courtship.

**Degree of Sociality:** Highly gregarious, typically in groups when migrating, nesting, flying to and from foraging grounds, foraging, and loafing. Breeds in large dense colonies subdivided into smaller sub-colonies that are to varying degrees spatially and temporally separated. Sub-colonies originate when courting birds at same stage of reproductive cycle group together and select nest sites in same localized area. All reproductive activities typically more synchronous within, than between, sub-colonies. Swims strongly. Sits high on water, buoyancy enhanced by large system of subcutaneous air sacs in breast area that increases volume up to 61.5%. Commonly swims in groups, with varying degrees of coordinated movements. Does not dive like Brown Pelican, but two instances noted of dives from about 5 m.

**Level of Aggression:** Jabs with snapping bill at head, bill, and horn on upper maxilla, sometimes holding bill of other. Common during territorial defense or by male directed toward rival male(s) during courtship, rarely also by female. Courting male occasionally lunges at female, who bows or flees. Incubating or brooding parents jab at others, sometimes lunge at and bite or toss foreign young that approach nest. Sibling conflict intense soon after hatching. Jabbing with physical contact among adults much more common than observed in tree-nesting Brown Pelicans.

**Migration:** Resident to medium-distance migrant. Northern breeding populations migrate to southern California, the Gulf States, Mexico, and Central America. Populations breeding in Texas and Mexico are resident.

**Predators:**

**Predators:** Red Fox, Coyote, White-Headed Gulls, Raven, Great Horned Owls, and Bald Eagles.

**Anti-Predator Defenses:** Readily desert colony when disturbed by coyotes or man early in nesting period. Initial response of adults at colony to human approach is an Alert posture, similar to Alert posture of *Pelecanus conspicillatus*. Characterized by elevation of head, followed by standing with head up and wings partially raised, often with contagious wing flapping by many birds within a sub-colony. If encroachment continues, birds take flight and circle, then usually land on water nearby. May stay off nests for long periods early in nesting period. Later in nesting cycle will circle or loiter nearby, quickly walking back onto nests when disturbance ends. Late breeders and those on treed islands less likely to return quickly.

**Diet and Nutrition:**

**Adult Diet:** American White Pelicans eat mostly small fish that occur in shallow wetlands, such as minnows, carp, and suckers. Schooling fish smaller than one half their bill length predominate, though they will take sluggish bottom feeders, salamanders, tadpoles, and crayfish. They may also take deeper water fish like tui chub that spawn in the shallows. Because

they are opportunistic, their diet changes with water levels and prey species abundance. In some areas of the Great Plains, salamanders and crayfish can predominate in the pelicans' diet. These birds can take game fish like cutthroat trout during spawning runs when locally available. Their prey is usually of little commercial value, although catfish aquaculture ponds in the Mississippi Delta have become an increasingly favored food source in recent years, especially during spring migrations.

**Juvenile Diet:** May attempt to rob other pelicans regurgitating large fish to feed young.

**Special Adaptations for Getting Prey:** Opportunistic, selecting on basis of availability. Food swallowed for transport to colony, never carried in pouch. Opportunistic-typically floats and swims on water surface, dips bill into water, scoops prey into pouch, then raises bill above horizontal to swallow prey. Prey probably located visually in the daytime, bill contact combined with increased rate of bill dipping becoming more important at night.

### **Reproduction:**

**Mode of Reproduction:** ↓↓↓↓↓↓↓↓

**Mating System:** Monogamous. Sex ratio unknown but not obviously skewed.

**Mating Season:** April to July

**Courtship:** Courtship Flight, Strutting Walk, Bow, Head Swaying, Mate Guarding

**Territoriality:** Defend immediate vicinity of nest. Territory established by the pair, adjacent to others, during final stages of courtship. Defended with jabs or threats by both members of pair.

**Mating:** Copulation may be preceded by Upright by both sexes, and female Bow at nest site. Male mounts and grasps back of female's head or neck, waves wings, grunts. Both members of pair may give Upright Display after copulation

**Nesting:** The pair chooses a relatively flat nest site on gravel, sand, or soil near other pelicans at the same stage of the breeding cycle. In southern, drier regions, they nest amongst sparse vegetation. In forested regions, sites may be under shrubs or trees. Both sexes use their bills to rake up surrounding gravel, sand, or soil to create a shallow depression roughly 2 feet across with a rim usually no more than 8 inches high. Occasionally they dig into the bottom of the site as well and may include nearby vegetation, though neither of the pair leaves the site to gather material. Because of trampling, by the end of the nesting season, the broad cup is usually 2 inches deep at most.

**Egg-Laying:** Egg Length: 3.3-3.7 in (8.3-9.5 cm) Egg Width: 2.0-2.2 in (5.2-5.5 cm) Nestling Period: 63-70 days Egg Description: Uniform chalky white, rough to the touch, becoming smooth and discolored over time.

**Hatching and Incubation/Gestation:** Naked and helpless, with an orange body and grayish white pouch and bill, unable to walk. Altricial. Naked, body orange, pouch and bill grayish white. Eyes closed, opening before end of first day. Egg tooth present. Can hold head up briefly, but are poorly coordinated. Gape and vocalize for food and brooding. Can turn, creep a few centimeters, but unable to walk.

**Development:** Growth highly variable within broods; first-hatched chick normally grows significantly faster than second-hatched chick, which usually dies.

**Parental Care:** Changeover from incubation (under foot webs) to brooding begins with onset of pipping in response to embryonic squawks. Brooding gradually terminates after about 17 d when thermoregulatory capacity becomes well developed and body size provides safety from gulls. Brooding newly-hatched chicks is continuous except when parent raises to feed chicks, preen, or provide shade. Parents alternate, usually daily, between brooding and foraging. After about 25 d, colony visits by parents become limited to brief periods to feed young. Begins on day 0, continuing until surviving chick leaves colony. One observation of parents feeding young up to 8 km from colony. Both parents feed alternately. When chicks are small, parent assumes characteristic feeding posture, head and neck turned backward and bill sloping diagonally down, tip near webs of feet. Parent regurgitates, food slides down mandible (pouch), where it is taken by gaping chick, first usually from the ground or top of foot webs, then from the mandible near the tip, by 10 d higher up near top of pouch. Older young reach down parent's throat for food. Parents and chicks return to the vicinity of their nest for feedings during the early stages of creching. Older chicks run toward parents as attachment to nest wanes

**Lifespan:** 15 – 25 years

### **Conservation:**

**Official Federal Status:** Least Concern

**Special Statuses in Individual States:** NONE

**Threats:** Populations of American White Pelicans have rebounded from lows in the mid-twentieth century and have grown at roughly 5 percent per year between 1966 and 2014, resulting in a tenfold increase, according to the North American Breeding Bird Survey. Waterbird Conservation for the Americas estimates a global breeding population in excess of 120,000. The species rates an 11 out of 20 on the Continental Concern Score and is assigned a status of Moderate Concern. They are not on the 2014 State of the Birds Watch List. These shy pelicans are highly sensitive to human disturbances at their breeding colonies and readily abandon nests. They used to be shot either for sport or from the idea that they competed with humans for

fish—though they are now understood to take fish of little commercial value. However, as their numbers have grown, their spring migration stopovers at catfish aquaculture ponds in the Mississippi Delta have increased, and shootings there have increased. Historically, human disturbance and destruction of foraging and breeding habitat have been major threats. Water management on the breeding grounds has effects on pelicans, too, since they depend on shallow wetlands. Either permanent flooding or permanent draining of wetlands renders those habitats inhospitable.

Conservation Efforts: ^^^^

**Extra Facts:**

1. In A Sand County Almanac, pioneering conservationist Aldo Leopold described a migrating group of American White Pelicans this way: “Let a squadron of southbound pelicans but feel a lift of prairie breeze... and they sense at once that here is a landing in the geological past, a refuge from that most relentless of aggressors, the future. With queer antediluvian grunts they set wing, descending in majestic spirals to the welcoming wastes of a bygone age.”
2. American White Pelicans cooperate when feeding. Sometimes, large groups gather in wetlands. They coordinate their swimming to drive schooling fish toward the shallows. The pelicans can then easily scoop up these corralled fish from the water.
3. American White Pelicans must provide roughly 150 pounds of food to nourish a chick from its birth to the time it's ready to forage on its own.
4. Contrary to cartoon portrayals and common misconceptions, pelicans never carry food in their bill pouches. They use them to scoop up food but swallow their catch before flying off.
5. Pelicans are skillful food thieves. They steal from other pelicans trying to swallow large fish and are successful about one-third of the time. They also try to steal prey from Double-crested Cormorants that are bringing fish to the surface. In their dense nesting colonies, some birds even steal the food that a parent on an adjacent nest has disgorged for its young.
6. Pelican chicks can crawl by 1 to 2 weeks of age. By 3 weeks they can walk with their body off the ground and can swim as soon as they can get to water. Older chicks move up to running, then running with flapping their wings, and by the age of 9 to 10 weeks, they can fly.
7. They forage almost exclusively by day on their wintering grounds, but during breeding season, they commonly forage at night. Even though it's hard to see, nighttime foraging tends to result in larger fish being caught than during the daytime.
8. American White Pelicans and Double-crested Cormorants are often found together. They sometimes forage together (though they mainly hunt different fish and at different depths). Cormorants even nest individually or in groups within pelican colonies.
9. Pelicans are big birds that can overheat when they're out in the hot sun. They shed heat by facing away from the sun and fluttering their bill pouches—which contain many blood vessels to let body heat escape. Incubating parents may also stretch their wings wide to aid cooling.
10. American White Pelican embryos squawk before hatching to express discomfort if conditions get too hot or cold.
11. The oldest known American White Pelican at least 23 years, 6 months old and was banded in North Dakota in 1983.