

ShIPLEY'S Great Egrets

An insight into this fantastic bird's lifestyle



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Table of Contents

About Great Egrets	2
Great Egrets, Their Environment and Migratory Path	2
Life Cycle of a Great Egret	2
The Search for a Colony Site	2
Courting	3
Nest Making and Parenting the Young	6
The Life of an Adult Great Egret	7
Foraging Techniques and Diet	8
The Great Egret's Importance	9
The Environment	9
Human Impact on the Great Egret	10
Negative Human Impacts	10
Positive Human Impacts	12
How to Help Great Egrets	12
Works Cited	14

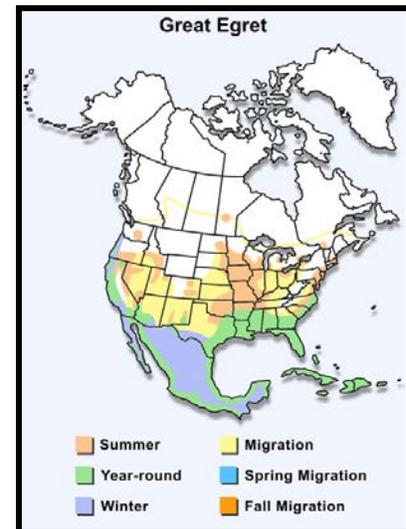
About Great Egrets

Great Egrets, Their Environment and Migratory Path:

Great Egrets are an all-white bird who stands over three feet tall with a graceful, S-shaped neck, dagger-like yellow bill, and long black legs. When in flight, the shape of the bird differs. Their necks are tucked in, but their legs stick out past their short, feathery tail.

This wading bird is widely distributed throughout the world including North and South Americas, Eurasia, Africa and Australia. Great Egrets prefer living near any water body such as along streams, lakes, in saltwater and freshwater marshes, wetlands, muddy areas and ponds, shores, and mud flats. Around the world this bird can be referred to as the Common, American, or Great White Egret, or White Heron.

Most Great Egrets move south for the winter, traveling as far as the West Indies or southern Central America. They are usually seen migrating by day in small flocks. Some years, though, individuals, specifically from the southern United States, may not migrate at all.



Migration path.

Fun Fact! Great Egrets can be found in all continents across the world except Antarctica.

Life Cycle of a Great Egret

The Search for a Colony Site:

Before the courtship begins, the Great Egrets must find a safe area to build their nests and raise their young. The decision of finding the perfect area, or colony site, is up to the males. The males choose a location, one that is usually near the top of the tallest tree around, to place his nest. One may ask: how do the male Great Egrets choose a colony site? There are three deciding factors which could be known as: predators, disturbance, and foraging.



A Great Egret's colony site.

The male egret wants to find a safe place where predators cannot reach their young. This is why he usually finds the tallest tree in his area such as the tall sycamore trees at Shipley Nature Center. This tall species of tree is great protection from land predators such as coyotes. If

these trees are grouped together, to what is known as a grove, the many branches and leaves add protection from air predators.

Male Great Egrets also want a nesting site that is protected from disturbances, which can come in many forms. Loud noise, especially from humans, is a great example as it can scare off the adult birds leaving the young vulnerable to the cold or any predators in that area. High winds are another example of a disturbance towards this bird, as they can blow the nests out of their trees.

Finally, the male egrets look for colony sites close to good foraging areas, where the food is plentiful. A lot of food is needed for the young to grow strong, as well as to feed the adult members of the siege.

Fun Fact! A location with all of the important factors is Shipley Nature Center. Ever since the Great Egrets first stayed at Shipley, in April of 2015, they have returned every year.

Courting:

Each year, at Shipley, around April, the Great Egrets come together to procreate. At the very beginning of this bird's breeding cycle, both the male and female will grow long ornamental plumes, also known as aigrettes. These feathers extend beyond the bird's tail—covering the lower neck and breast of the bird—and play a vital role during courtship displays. Along with the aigrettes growing, the feathers on top of the Great Egrets head become more intense and colorful. Even the bill of the bird becomes a brighter orange-yellow in color.



One of the Great Egret's many displays.

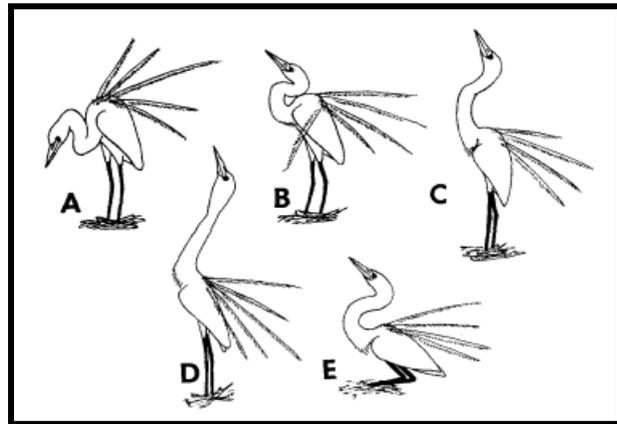
After the colony site is selected, and the female egrets have arrived, courtship begins. There are over sixteen different displays of behavioral repertoire, though only some are more prominent during courtship due to the aigrettes, which help magnify the optical effects of the displays.

Repertoire¹ is a broad range of skills or capabilities that are done consistently.

The behavioral displays in males during courtship usually consist of a stretch, snap, bow, wing preen, twig shake, and an inter-display stance. These displays are accompanied with multiple series of postures and moves. While this is going on, the females send signs of attraction through performing their wing preening, ritualized circle flight, and the supplanting attack. Not only are these moves a sign of attraction, but it also acts as a way of trying to get rid of other females.

Five behavioral repertoires will specifically be discussed to help one get an insight on these magnificent creatures. These displays can be known as the stretch display, wing-stroke, snap display, bow display, and circle flight.

The stretch display consists of two components. The first: a single upward motion—a stab as one could call it—or the toss of head and neck. The second being a rapid flexing of the legs, specifically at the heel, which is known as a bob. It is suggested that just before the neck area is distended, a low call is given, even if the bill is shut. This display is only seen prior to the pair formation—when two birds become mates.



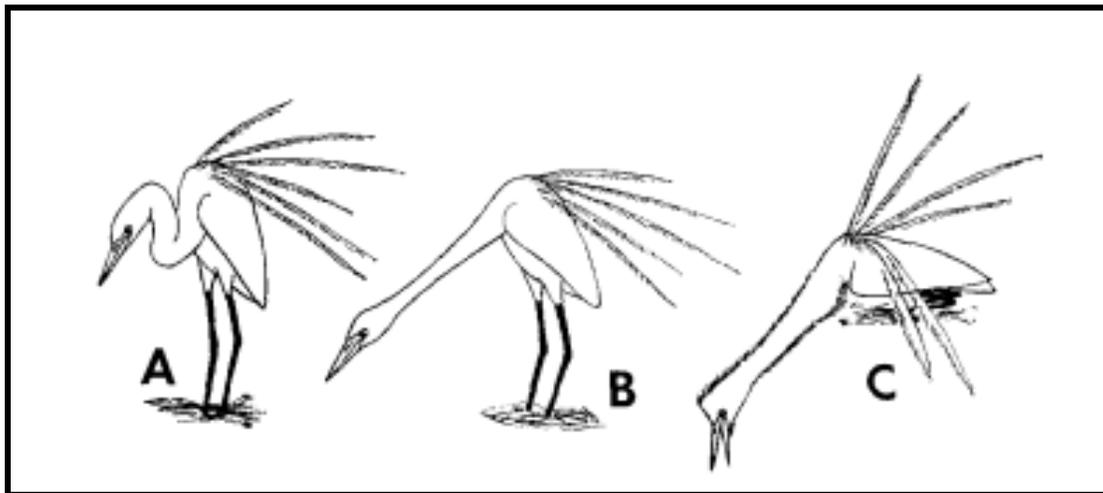
The steps of the stretch display.

Distend² means to enlarge, expand, or stretch out.

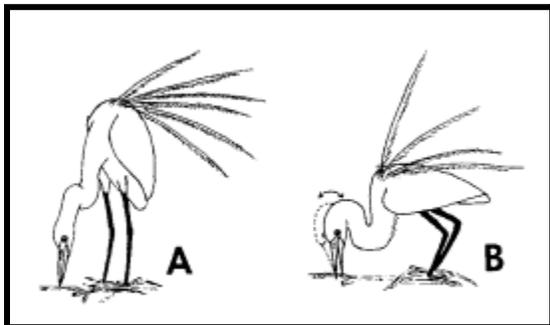
The wing-stroke is when the egret extends one wing slightly, while having an open bill, and strokes their wing in a downward motion. The primary feathers, or the feathers on the outer or end of the wing, passes through the open bill, never touching it. This was found out through thorough research and film analysis. This behavioral repertoire can be seen either before or after

other displays. The females usually do the wing-stroke while watching the male who is displaying on his nest.

The snap display that the Great Egrets do consist of a lowering and downward extension of the head and neck. This step is then followed by a bob. After, the egret erects their head and neck plumage, and loudly “snaps” their upper and lower jaw of their bill together. This movement is done right before the bird’s neck is fully extended. Males are generally seen doing this display prior to pairing. But as the snap display is an integral part of pair formation, it is performed by both males and females.



The steps of the snap display.



The steps of the bow display.

The bow display consists of a trembling shoving movement and a bob. The male egret lowers his bill to the bottom of the nest, or the nest platform, grasps a twig, and pushes down with head shaking movements. The display’s movements look similar to bowing hence its name. Though it may look similar to the stretch display or the snap display, this behavior repertoire is one of its own. It is more common to see the males perform this display rather than the females.

The circle flight is performed by the egret leaping off of his perch with deep, exaggerated wingbeats. The neck is extended, feet trailing, until about five to fifteen meters away from his perch when they then resume normal flight. The bird then flies once around the colony until resuming the circle flight posture once again when fifteen to twenty-five meters from his nest

platform. The male then lands on the platform and calls loudly. This display is rarely used when the male is attempting to attract the female. Rather, this display is used during the pair formation.

Fun Fact! The word “egret” was borrowed from the French word “aigrette” which in turn implies “plume feathers,” or ornamental feathers. These feathers are developed during the breeding season to attract a potential mate.

Nest Making and Parenting the Young:

After the Great Egrets pair together and become mates, they need to build a nest in preparation for their young. Each species of bird is different when it comes to building the nest and specifically who it is that builds the nest. For example, the female hummingbird is the one that builds the nest. But for the Great Egrets, the male and female mainly work together to create it.

The nest’s construction is first started by the male, who builds the platform with long sticks, stems, and twigs. Afterwards, he pairs up with a female and they collaborate to finish the nest. There are times, though, where the male just finishes the nest himself. The nest is generally three feet across and one foot deep. It is lined with a soft plant material that dries to form a cup-like structure.



A Great Egret and their three eggs.

Once the nest is created, around May at Shipley, the female lays her eggs. This species lay from a range of one to six eggs, a pale greenish-blue in color. They lay their eggs at a two to three day interval.

Incubation begins sometime between the laying of the first and second egg. Both the male and female alternate when it comes to incubating. Around twenty-three to twenty-six days later is when the first egg begins to hatch. After that, within twenty-four hours is when the next egg begins to hatch. From then on, the succeeding eggs hatch at two to three day intervals, depending on the laying interval.

At Shipley, only one or two chicks hatch per pair. These chicks can be seen covered in white down, with elongated down on the head, which is formed as a crest. Their upper bill is gray with a black tip while the lower bill is a yellow-gray. The chicks irises range from the color of straw to a green in color. Their lores are a pale blue gray which soon becomes



A Great Egret and young.

yellow. Both their neck and legs are pink in color, though the legs become gray-green.

Lores³ is the space between the eye and the bill of a bird.

When it comes to parenting the young, once again, both the male and female take on this role. They take turns feeding their chicks through regurgitation. The Great Egret parents feed their young about three to four times during the day and don't feed them during the night. For the first three weeks after hatching, at least one parent is always present at the nest. At the ages of three to four weeks, the young are sometimes left unattended at the nest. But after four weeks, an adult is only around to feed them.

When it comes to the chicks survival rate, Shipley's Great Egret parents successfully bring one to two chicks all the way to independence. The reason as to why others don't survive is due to predation and competition within the nest. In broods of three to six young, those who hatch later are smaller and weaker than their older nest mates. The older chicks aggressively peck at the younger ones during feeding time and force them away from the food. This would make it so the younger are getting less nutrients. If the parents bring plenty of food, all of the young survive, but if the food is limited, automatically the younger of the brood will die.

Broods⁴ are the young of an animal.

The chick will begin to take their first flight around forty-two to forty-nine days old, or seven weeks. If the nest is on the ground, they will usually walk around the nest for a few days before taking their first flight. Even though they are now capable of flying, the young Great Egrets are still cared for by their parents until they are about ten to eleven weeks old. After that, they must fend for themselves.

Fun Fact! Rather than creating a new nest during every breeding season, Great Egrets tend to look for an old nest to reuse or build off of.

The Life of an Adult Great Egret:

An adult Great Egret is all white. The feathers of their crown are slightly elongated but do not form a crest. The bill is yellow or yellow with a black tip. Their irises are yellow in color while their lores range from a green-yellow to yellow. There is a black line of bare skin that extends from the edge of this bird's gape, the corner of the upper and lower mandibles, to beyond their eye. Their head has no crown plumes and their legs are visibly dark in color—usually a gray-black to black.

Mandibles⁵ are the upper or lower segment of the bill of a bird.

The mortality of the adults in the first few months after leaving the nest is high. It was listed, in their first year, young adults have a mortality rate of seventy-six percent. After the first year, the mortality rate declines to thirty-six percent in the second year. In the following years after that, the mortality rate was twenty-two percent.



An adult Great Egret.

The mortality of the Great Egrets, like any other animal, is high in their first year because of the inexperience they have in the world. They die of starvation, human impact, disease, and predation. What will be focused on in this section, though, is their predators. The Great Egret in general has very few predators because they are close to the top of the food chain. Some of their predators include coyotes, the red-tailed hawk, other species of hawk, crows, jays, vultures, and racoons.

The Great Egret survives these dangers, by the time they are two or three years old, they will begin their search for a mate in hopes of continuing on with their species. Overall the average age that this species lives up to is usually fifteen years old in the wild. If this bird were in captivity, they would live up to twenty-two years old.

Fun Fact! When in flight, the Great Egret will retract its long, curved neck. The retractable neck is a common characteristic which is seen in herons but not storks or cranes.

Foraging Techniques and Diet:

The foraging aspect and overall diet of the Great Egret has been studied for many years. This species of bird usually feeds almost entirely during the day, being most active near dawn



An example of Walking Slowly.

and dusk; and in tidal environments it feeds according to tide stage, primarily on outgoing tides. When they are not feeding, the Great Egrets can be found resting in communal roosts at night with their mate, young, or even by themselves.

This bird feeds for most of its day, sixty to ninety percent, using a strategy called Walking Slowly. Walking Slowly usually takes place in shallow to moderately deep water, on shore next to water, or even on dry ground. They overall stand next to places

where prey is active. Along the active area, the Great Egret walks in what is known as an erect posture, where their head and neck are well extended at a forty-five degree angle. The bird stops walking when they see prey and couches, which involves holding its body horizontal and its head retracted. When examining the spot for prey, it may use other hunting methods such as head tilting, neck swaying, head swaying, or peering over.

When attempting to glean insects off plants, this bird uses foot paddling, wing flicking, and foot stirring. If they are flying while going after food, they use aerial techniques such as hovering and dipping.

Gleaning⁶ is to gather something bit by bit.

When feeding, the Great Egret will vigorously defend its site. They will also be highly aggressive in flocks to defend its feeding area as well. They tend to supplant nearby birds—usually after that bird catches something—robbing other birds or they themselves can be robbed. Robbing is quite common when birds attempt to handle relatively large prey. Another common tactic the Great Egret may use is to follow other animals to find feeding sites.

Supplant⁷ is to take the place of another usually by force or treachery.

In overall foraging, this species of egret is not very efficient, as they have a fairly low rate of success per attempt. Not only that, but they have not a particularly high strike rate. Young adult birds or immature birds are even less efficient—it is averaged for them to have around a nine percent success rate.

The diet of the Great Egret is quite diverse, but the specific prey they go after in most situations, being the time of day or the feeding site, is fish. In other situations insects or shrimp are the main meal. Insects include water bugs, water beetles, dragonflies, locusts, and crickets. Their diet also consists of lizards, snakes, crayfish, crustaceans, frogs, toads, worms, small mammals, and small birds. Overall, small prey dominates this bird's diet.

Fun Fact! The Great Egret is found to feed in groups, though more often, they are found to often feed alone.

The Great Egret's Importance

The Environment:

As stated before, the Great Egret has a diverse diet, ranging from insects to small prey. Having such a broad range makes them extremely important to the environment. Their importance is due to the fact that Great Egrets help control the population of the species they eat. If the number of this species of bird were to ever dwindle, there is a high chance that the population of insects and small animals they feed off are to skyrocket, making it so they overpopulate the area.

In mixed species colonies, the Great Egret is usually expected to be the first to arrive after migration. Their arrival seems to be what other species depend on. Researchers and journalists have noted that, after the arrival of the Great Egret, it seems as though their presence encourages other species to nest nearby.

These are not the only importance the Great Egret holds for the environment. In fact, this bird is the designated harbinger of any potentially dangerous changes in the environment. Both the creatures of the waterways and marshlands, as well as humans, depend on the Great Egret to indicate anything abnormal. For example, evidence of various air pollutants such as hydrocarbons, can be found by monitoring the said bird species.



Great Egret in their natural environment.

Harbinger⁸ is another word for something that foreshadows a future event.

Fun Fact! Even while the Great Egret is asleep, they are still alert. This allows them to keep an eye out for either prey or predators.

Human Impact on the Great Egret

Negative Human Impacts:

Prior to the twentieth century, the population of Great Egrets was nearly eradicated due to the demand for their lacy plumage—which was used for women's hats and other fancy garments. By 1917 this species, among other egret species, were doubted to be saved from extinction. Plume trade, along with bird and egg collecting, ultimately decimated the Great Egret's population, as well as many other bird species.



A Great Egret hair ornament.

Eradicated⁹ means to do away with completely.

Today, there are many human-induced threats, besides poaching, which endanger the survival of the Great Egrets. The first one that needs to be mentioned is habitat degradation. Habitat degradation occurs when humans leave a habitat intact but severely damage it in ways that make it unsuitable for animals. This type of habitat destruction mainly occurs when humans pollute a habitat. Some pollutants include agricultural chemicals that were created to improve crop yields, pesticides, and herbicides. If a farm, for example, is near that water, the chemicals can drain into it, spreading the destruction. Great Egrets get most of their meals from bodies of water, as they live in marshes and wetlands the most. The chemicals in the water will attach or be consumed by prey this bird species eats. Over time, the chemicals in the Great Egret's body, which was gathered by the prey they eat, will accumulate so much that it will prove fatal.



Wetlands before drainage.

Another threat to the Great Egrets is complete habitat destruction. Complete habitat destruction is when a large-scale conversion of what once was natural habitat is turned into something that precludes wild animals from living in the area. As stated before, the Great Egrets live in saltwater and freshwater marshes, wetlands, muddy areas and ponds, shores, and mud flats, or just near any bodies of water. These places, wetlands specifically, are often drained for conversion to other land uses. They are mainly drained for agricultural usage. Due to this, the Great Egret has been losing the habitats in which they live.



Wetlands after drainage.



Egret tested to monitor mercury levels.

Hydrocarbons are extremely problematic towards this species, making them a threat, because they cause the Great Egrets to lay thinner eggs that are more susceptible to cracking or damage before the young hatch. Not only that but these birds are exposed to mercury through the fish they eat. Mercury is naturally found in the earth, but can enter the atmosphere through the burning of fossil fuels and mining. The mercury in the atmosphere will eventually settle in bodies of water. Once deposited, certain microorganisms can change this heavy metal into something known as methylmercury, a highly

toxic chemical. Over time, it builds up in fish, shellfish and other aquatic creatures. Great Egrets, who eat these creatures, also collect the methylmercury from the bodies of their prey. The more aquatic prey this bird eats, the more the toxin enters their system, which is known as bioaccumulation. This is threatening as it has been observed that the mercury contamination led to a 50% reduction in attempts by the birds to breed, which shows that this heavy metal is affecting the reproduction process of the Great Egret. This means that during the breeding season, many egrets are sitting out. It has been acknowledged that heavy metals, such as mercury, or other contaminants can disrupt hormones, which can affect courtship and even the behavior of the bird.

Methylmercury¹⁰ is any of the various toxic compounds of mercury which accumulate in living organisms.

Bioaccumulation¹¹ is the accumulation of a contaminant in a living organism over time.

Positive Human Impacts:

In order to protect Great Egrets, and other species of birds, several federal laws came in to protect migratory, breeding and rare birds in the 1900s. The Lacey Act of 1900 particularly was important. The Lacey Act bans the trafficking in fish, wildlife, or plants that are illegally taken, transported, sold, or possessed.

Another act that came in to protect Great Egrets and other species of bird was the Migratory Bird Treaty Act of 1918. This act implements four international conservation treaties that the United States entered in with Canada, Mexico, Japan, and Russia. The Migratory Bird Treaty Act prohibits the capturing, killing, transporting, trading, and selling of any protected migratory bird—such as the Great Egrets—without prior authorization. This authorization would specifically have to be by the Department of Interior U.S. Fish and Wildlife Service.

Sometime in 1905 the National Audubon Society was created with the Great Egret as its logo. This was because they wanted it to symbolize the society's intent to save birds, like the Great Egret, from extinction.

How to Help Great Egrets:

The loss of habitats, such as the wetlands, is a major threat to the Great Egret. To help these birds, encourage the protection, conservation, as well as the restoration of said habitats. Understand that the nesting site at Shipley and the offshore island nesting areas, such as the ones in Bolsa Chica Wetlands, are extremely important. During the breeding and nesting seasons, visitors should especially respect the temporary fencing and area closures near nest sites.

Also make sure to support companies that embrace eco-friendly practices. While there are many companies who are responsible for the destruction of habitats, there are also some whose practices help protect local habitats. Supporting the companies that help protect habitats will, over time, put pressure on other companies to adopt a similar, environmentally friendly practice. By doing this, Great Egrets and other animals will be helped as well, because their habitats will be protected.

Clean up any litter you come across. This is one of the most important things you can do to help Great Egrets, or any wildlife in general. By doing this, you are keeping the environment clean and making it so this bird species is at less of a risk of dying from something they ingested that they were not supposed to.



The litter in a wetland being cleaned.



Toxic waste that can harm wildlife.

When discarding trash that is labeled as toxic to the environment and the wildlife—such as paint, pesticides, or household cleaners—contact your local sanitation department and solicit their advice. By doing this, you are getting rid of the hazardous waste properly as well as keeping the wildlife, like the Great Egrets, safe.

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