



## Florida's Wading Birds<sup>1</sup>

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Wading birds are considered by many to be the most majestic of all of Florida's birds. Their long necks and graceful poses make these birds distinctly appealing. Although they come in a variety of shapes and sizes, wading birds are generally long-legged, carnivorous, and can be found in or around water. These large-bodied and colorful birds are a favorite among serious birders and casual observers alike.

Wading birds live throughout Florida and make up an integral part of the natural landscape, especially in south Florida where they often form large, multispecies feeding aggregations and nest and roost in large colonies. In addition to being enjoyable to observe, wading birds also play key ecological roles in their respective habitats. Wading birds are top predators in their systems and also function as indicators of ecosystem health (Powell and Powell 1986, Kushlan 1993, Main and Vavrina 2001). Many wading bird species are similar in appearance and yet information about their distinct characteristics and behaviors can aid in identification. Learning to identify species can increase enjoyment of wading birds, whether they are in a back yard, a neighborhood park, or the large expanses of wetlands that make up the Everglades ecosystem.

### Taxonomy and Status

Florida's wading birds include 15 native species representing three families, all of which belong to the order Ciconiiformes (Table 1). These families are Ardeidae, Threskiornithidae, and Ciconiidae. The family Ardeidae is by far the most numerous and includes herons, egrets, and bitterns. In Florida, the family Threskiornithidae encompasses two species of ibis and the Roseate Spoonbill (*Platalea ajaja*). The family Ciconiidae includes the Wood Stork (*Mycteria americana*).

Several species of wading birds found in Florida are non-native or recent arrivals; these are the Sacred Ibis (*Threskiornis aethiopicus*), Scarlet Ibis (*Eudocimus ruber*), and Cattle Egret (*Bubulcus ibis*). Although a member of order Ciconiiformes, the Cattle Egret is primarily a terrestrial bird often found around livestock and farm machinery where it watches for insects and small prey that might be flushed and make an easy meal. This species is thought to have arrived in Florida via natural range expansion. Unlike the Cattle Egret, the two ibises are wetland birds. Although the Scarlet Ibis may occasionally breed in Florida, the Sacred Ibis and Scarlet Ibis are not as abundant as Cattle Egrets and

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are typically only seen in southern Florida. These two ibises are accidentals, non-native species which have not become established.

## Cranes and Flamingos

Within Florida there are four particular species that look similar but are unrelated to wading birds of the order Ciconiiformes. These species are the Sandhill Crane (*Grus canadensis*), endangered Whooping Crane (*Grus americana*), Limpkin (*Aramus guarauna*), and Greater Flamingo (*Phoenicopterus ruber*).

The Sandhill Crane, Whooping Crane, and Limpkin are in the order Gruiformes. The two cranes are in the family Gruidae, and the Limpkin is in the family Aramidae. These three species have long legs, a long bill, and an elongated neck similar to wading birds. Although they do require wetlands for nesting and migration, Sandhill Cranes are primarily terrestrial birds common to prairies and pastures. Unlike wading birds, Sandhill Cranes consume a varied diet that includes plumage. Both also sift through the water with their bills when feeding. Despite these similarities, the two species are unrelated. The easiest ways to tell the two species apart are by the dark outer wing feathers (primaries) on the flamingo and both species' distinctive bill shapes (see Roseate Spoonbill in Table 2).

## Wading Bird Identification

Many of the wading birds are large and colorful, which makes them relatively easy to identify. However, it is still helpful to learn the distinguishing features to correctly differentiate between the various species. There are several key characteristics that can be used for easy identification: body size, plumage, and bill and leg color. Table 2 identifies these characteristics for adult wading birds found in Florida.

## Feeding Behavior

Wading bird feeding behavior includes a variety of strategies and behaviors, and no species is limited to just one strategy. There are two basic categories of feeding behavior based on how prey are located, either by sight (visual) or touch (tactile). Two

examples that characterize visual and tactile feeding are Great Egrets and Wood Storks, respectively. Great Egrets hold their heads above the water searching for prey and then strike at an individual prey item. Wood Storks, however, submerge their bills in the water and hold them open until they come into contact with prey. At that moment, the bill snaps shut and the prey is captured.

Although some species are solitary feeders, many wading birds may form large feeding aggregations. These aggregations can include multiple species and typically form where prey are abundant and easily available, such as in shrinking wetlands where prey become concentrated. The highly visible plumage of white wading birds may even be an aid in the establishment of feeding aggregations because it makes individuals more conspicuous to other birds flying in the area (Kushlan 1977).

## Diet

Wading birds as a group eat a variety of foods and will usually feed in waters no deeper than their legs are long. All wading birds are carnivores, but prey items vary from invertebrates to vertebrates, worms to mammals, and aquatic species to terrestrial species. Generally speaking, fish are the main food source for Florida's wading birds, but invertebrates such as crayfish can be very important as well. Prey sizes differ based on the size of the predator in many animals, and wading birds are no different. Larger birds tend to take larger prey, and longer legs mean greater accessibility to prey in deeper water. Wading birds that attempt to swallow anything that is too large, however, run the risk of choking.

## Breeding

Breeding among south Florida's wading birds peaks around April and May, although different species certainly vary and breeding periods are all longer than two months out of the year. In fact, wading birds nest asynchronously, which means that they do not all breed at the same time. Even within a nest, eggs are laid in intervals. The result of asynchronous nesting is that a group of birds will maintain a wide variety of stages of nesting at any given point in time. A comparison of the breeding

periods of Florida's wading birds is summarized in Table 3. Wading birds attempt to nest during periods of high food availability in order to increase their likelihood of successfully raising young. In the Everglades, the timing for nesting and raising young is correlated to the natural drawdown of water, a time when food becomes naturally concentrated and more accessible. Breeding efforts generally cease when the rainy season begins. At this time of year in the Everglades, aquatic prey become scattered and exposure to the elements is harder to endure.

Wading birds are colonial nesters and often nest over water. Researchers speculate that nesting over water provides some protection from mammalian predators, likely due to the water itself being a physical barrier and the potential threat of alligators (Frederick and Collopy 1989). Other predators of nests include Fish Crows (*Corvus ossifragus*), snakes, and night-herons.

The distribution of information is another advantage of wading bird nesting behavior. The direction of high-quality foraging sites is valuable knowledge since foraging sites may be scattered over a large area. Wading birds within a colony have better opportunities to observe the relative success of returning individuals (e.g. feeding chicks) and observe from which direction successful birds arrive. By living in close proximity to one another within a colony, wading birds have the opportunity to obtain information from their neighbors about the surrounding landscape and make decisions about where to feed accordingly.

## Movements

As with many of North America's birds, many wading birds migrate south for the winter. Migration is the seasonal movement of an animal, usually over long distances, to more suitable habitat. Florida's subtropical climate and historically expansive wetlands complex makes it an ideal winter retreat for birds from more temperate climates. Some of these birds move into Florida only to spend the winter, and others migrate to Florida to nest (Robertson and Kushlan 1974). Not all wading birds present in Florida in the winter are migratory. Many are permanent residents that can be seen throughout the year.

Wading birds travel for other reasons than migration. Kushlan (1981) identified dispersal and intraregional movement as two other types of population movements. Dispersal occurs at the end of the breeding season, when nesting colonies disband and individuals seek out more available resources. Intraregional movements are more localized than both dispersal and migration and are linked to prey availability. Wading birds are capable of making long flights on a daily basis. For example, Wood Storks have been observed to undertake feeding flights as long as 80 miles (Ogden et al. 1978), but typical flights to feeding grounds are between 1 and 6 miles (Custer and Osborn 1978).

## Conservation

Despite the magnificence of these birds and their important roles in local ecological systems, wading bird populations have suffered significant declines. Plume hunting at the end of the 19th century severely reduced wading bird numbers. The plumes of about 200,000 Great Egrets were sold in London in 1902 alone (Curry-Lindahl 1978), and the Reddish Egret may have actually been wiped out in southern Florida due to harvesting for the plume trade (Robertson and Kushlan 1974). Although many populations rebounded after the ban on plume hunting, some wading bird species remain in decline or threatened with extinction. The Florida Fish and Wildlife Conservation Commission has identified the species at risk (Florida Fish and Wildlife Conservation Commission 2008). Species of special concern within Florida include the Reddish Egret, Snowy Egret, Little Blue Heron, Tricolored Heron, White Ibis, and Roseate Spoonbill. The Wood Stork is more at risk and is classified as endangered.

Since the 1930s, wading bird numbers have declined by about 90 percent (Robertson and Kushlan 1974, Ogden 1994). This decline is often attributed to human activities, primarily the loss and/or alteration of habitat. ("Alteration" is nearly always synonymous with degradation when it comes to wildlife habitat.) Wetland loss and alteration, such as the channelization and diversion that has occurred in the Everglades ecosystem, are of serious concern because wading birds are dependent on aquatic systems. Starvation is one of the main causes of

wading bird nestling mortality (Jenni 1969), and the ability to acquire food is strongly correlated to surface water conditions. The presence of contaminants, such as heavy metals (e.g. mercury) and pesticides, in wading bird habitats also harms wading birds. Although their effects are primarily sub-lethal (the contaminated individual is usually not killed directly), contaminants may nevertheless have profound consequences for survival as they can alter normal behaviors, potentially interfering with adaptations which have been selected for over many generations.

Although conservation concerns remain, the future is full of possibilities. The majestic wading birds of Florida are now protected, and there is a public desire to see the Everglades returned to a more natural state. The value of wading birds these days is not in their breeding feathers but in their survival and natural beauty. Indeed, wading birds serve as a substantial source of income in the form of ecotourism (Main and Vavrina 2001). It is important to remember that humans are not alone on this planet and that our actions have consequences for the environments and other living species around us. We should, therefore, act with care and be mindful of the full ramifications of all our behaviors, from policy-making to daily life. Individuals can help by supporting public policy that conserves natural habitats for wildlife and by helping to conserve water, an important component of preserving Florida's wading bird populations. It is a moral responsibility of this generation to preserve and protect the integrity and natural beauty of the land for future generations.

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**Figure 1.** Great Blue Heron. Credits: Grant C. Sizemore



**Figure 2.** Snowy Egret. Credits: Grant C. Sizemore



**Figure 3.** Great Egret. Credits: Grant C. Sizemore

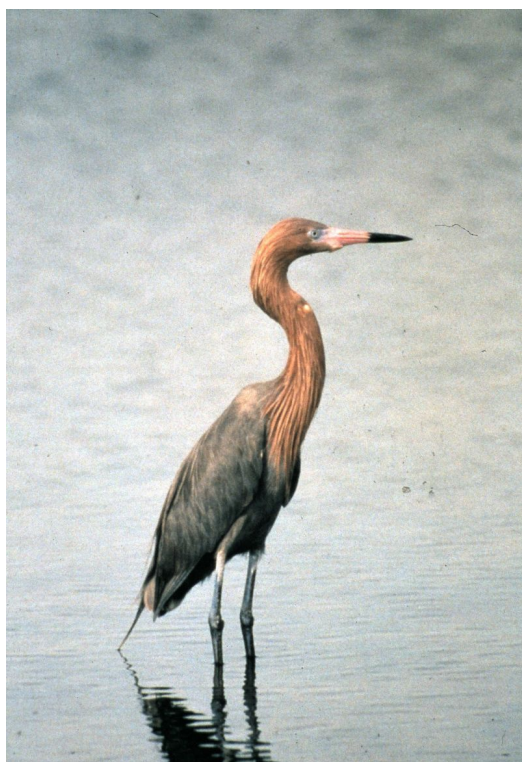


**Figure 4.** Cattle Egret. Credits: Grant C. Sizemore

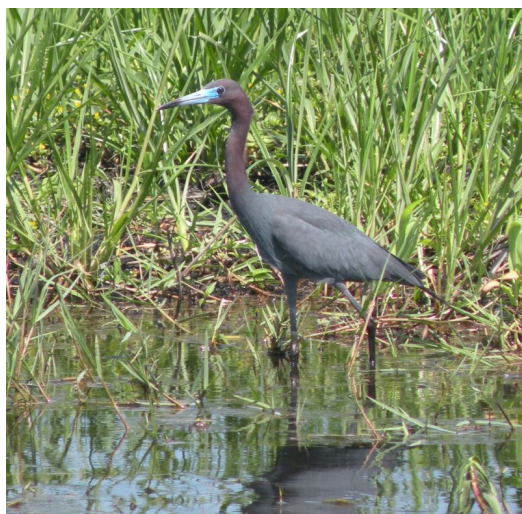


**Figure 5.** Tricolored Heron. Credits: Grant C. Sizemore





**Figure 6.** Reddish Egret. Credits: Florida Fish and Wildlife Conservation Commission



**Figure 7.** Little Blue Heron. Credits: Grant C. Sizemore



**Figure 8.** Black-Crowned Night-Heron. Credits: Elise V. Pearlstine

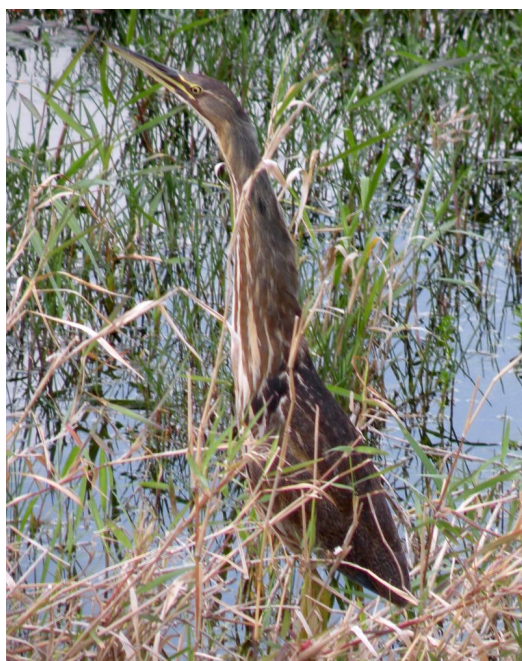


**Figure 9.** Yellow-Crowned Night-Heron. Credits: Grant C. Sizemore



**Figure 10.** Green Heron. Credits: Grant C. Sizemore





**Figure 11.** American Bittern. Credits: Grant C. Sizemore



**Figure 12.** Woodstork. Credits: Grant C. Sizemore



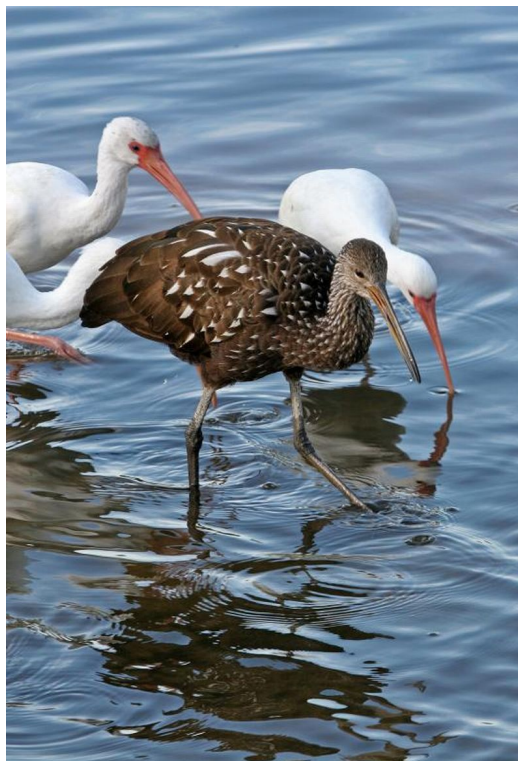
**Figure 13.** White Ibis. Credits: Grant C. Sizemore



**Figure 14.** Roseate Spoonbill. Credits: Florida Master Naturalist Program



**Figure 15.** Glossy Ibis. Credits: Grant C. Sizemore



**Figure 16.** Limpkin. Credits: Florida Master Naturalist Program



**Figure 17.** Sandhill Crane. Credits: Grant C. Sizemore



**Figure 18.** Greater Flamingo. Credits: Elise Pearlstine



**Table 1.** Birds of the order Ciconiiformes in Florida.

Common Name	Species Name	Family	Status
Great Egret	<i>Ardea alba</i>	Ardeidae	Native
Snowy Egret	<i>Egretta thula</i>	Ardeidae	Native
Reddish Egret	<i>Egretta rufescens</i>	Ardeidae	Native
Cattle Egret	<i>Bubulcus ibis</i>	Ardeidae	Native*
Great Blue Heron	<i>Ardea herodias</i>	Ardeidae	Native
Tricolored Heron	<i>Egretta tricolor</i>	Ardeidae	Native
Little Blue Heron	<i>Egretta caerulea</i>	Ardeidae	Native
Black-crowned Night-Heron	<i>Nycticorax nycticorax</i>	Ardeidae	Native
Yellow-crowned Night-Heron	<i>Nyctanassa violacea</i>	Ardeidae	Native
Green Heron	<i>Butorides virescens</i>	Ardeidae	Native
American Bittern	<i>Botaurus lentiginosus</i>	Ardeidae	Native
Least Bittern	<i>Ixobrychus exilis</i>	Ardeidae	Native
Wood Stork	<i>Mycteria americana</i>	Ciconiidae	Native
Roseate Spoonbill	<i>Platalea ajaja</i>	Threskiornithidae	Native
White Ibis	<i>Eudocimus albus</i>	Threskiornithidae	Native
Glossy Ibis	<i>Plegadis falcinellus</i>	Threskiornithidae	Native
Sacred Ibis	<i>Threskiornis aethiopicus</i>	Threskiornithidae	Non-native
Scarlet Ibis	<i>Eudocimus ruber</i>	Threskiornithidae	Non-native

**Table 2.** Key characteristics of adults from the order Ciconiiformes in Florida.

Common Name	Height (inches)	Plumage	Bill Color	Leg Color	Notes
Great Egret	40	White	Yellow	Black	Pulls back head into "S" position in flight
Snowy Egret	24	White	Black	Black in front and yellow in back	Feet are yellow
Reddish Egret	30	Shaggy, body and wings dark gray, neck and head reddish-brown	Pink at base and dark at tip, may be dull in non-breeders	Dark gray	White variant (called a <i>morph</i> ) much rarer, common to saltwater habitats
Cattle Egret	20	White, orange coloration on head and chest during breeding season	Yellow-orange	Yellow-green	Terrestrial
Great Blue Heron	50	White crown, black stripe above eyes, neck reddish-gray, gray upper wings, dark gray-blue at trailing edges of wings	Yellowish	Dark greenish	White morph rarer and typically only found in extreme south Florida and Florida Keys, head tucked back during flight

**Table 2.** Key characteristics of adults from the order Ciconiformes in Florida.

Common Name	Height (inches)	Plumage	Bill Color	Leg Color	Notes
Tricolored Heron	26	Blue-gray back and upper wings; white chin, throat, and belly; reddish stripe along neck may be present	Yellowish, bright blue in breeding season	Gray-yellow	May pull back head into "S" position in flight
Little Blue Heron	26	Slate-blue, head and neck may appear deep maroon	Gray, black at tip	Gray or greenish	
Black-crowned Night-Heron	24	Black along crown and back, white neck and belly, gray wings	Black	Yellow-green	Stockier than most wading birds, often feeds at night
Yellow-crowned Night-Heron	25	Gray body, black head with white-yellow crown and cheeks	Black	Yellow	Stockier than most wading birds, often feeds at night
Green Heron	17	Chestnut-colored body; wings glossy green; glossy, black-green crown; throat and upper chest streaked white	Black and yellow	Yellow	Stockier than most wading birds
American Bittern	28	Brown with many white, vertical streaks; black streak from edge of beak down across throat	Dull yellow	Yellow	Stocky with thicker neck than most wading birds
Least Bittern	13	Dark crown and pale, brown body; neck and breast white; brown streaks run down neck; back black or dark brown	Yellow	Greenish yellow	Golden patches visible on wings in flight, stocky with thick neck
Wood Stork	40	Body white; flight feathers black	Black	Dark	Pink toes; bald, black head
Roseate Spoonbill	31	White and pink	Gray	Reddish	Bald, gray head; bill shaped like wooden spoon
White Ibis	25	White, black wing tips visible in flight	Reddish-orange	Reddish-orange	Long, slender bill curved downwards
Glossy Ibis	23	Chestnut body; wings glossy sheen of green, purple, and pink in breeding season	Dark	Dark	Long, slender bill curved downwards
Sacred Ibis	27	Black head, neck, and rear; white body	Black	Black	Long, slender bill curved downwards
Scarlet Ibis	23	Dark pink, black wing tips	Gray	Pink	Long, slender bill curved downwards

**Table 3.** Breeding periods for Florida's wading birds (adapted from Kale and Maehr 2005)

Great Egret	January – June
Snowy Egret	December – August
Reddish Egret	December – June
Great Blue Heron	November – July
Tricolored Heron	February – July
Little Blue Heron	February – September
Black-crowned Night-Heron	December – July
Yellow-crowned Night-Heron	March – June
Green Heron	March – June
American Bittern	April – June
Least Bittern	March – July
Wood Stork	November – May
Roseate Spoonbill	March – May, November – December
White Ibis	March – May
Glossy Ibis	May – July