

## Florida's Introduced Birds: Sacred Ibis (*Threskiornis aethiopicus*)<sup>1</sup>

---

Steve Johnson and Monica McGarrity<sup>2</sup>

Many non-native birds have been introduced in Florida—perhaps as many as 200 species! Of these, at least 16 introduced species are considered established, according to various authorities, and some are now considered invasive and could have serious impacts in Florida. This fact sheet introduces the Sacred Ibis, and is one of a series of fact sheets about Florida's established non-native birds and their impacts on our native ecosystems, economy, and the quality of life of Floridians. For more information on Florida's introduced birds, how they got here, and the problems they cause, read "Florida's Introduced Birds: An Overview"

(<http://edis.ifas.ufl.edu/UW297>) and the other fact sheets in this series, [http://edis.ifas.ufl.edu/topic\\_series\\_floridas\\_introduced\\_birds](http://edis.ifas.ufl.edu/topic_series_floridas_introduced_birds).

### Species Description

The Sacred Ibis (*Threskiornis aethiopicus*) is a member of the ibis and spoonbill family (*Threskiornithidae*). Birds in this family are wading birds with long, downward-curved bills that they use to probe in mud or grass for invertebrates and other

prey. Sacred Ibises are larger than Florida's native ibises. Adults are approximately 30 inches long (75 cm) with a wingspan of 44–49 inches (112–124 cm) and weigh about 3 pounds (1.4 kg). Sacred Ibises (Fig. 1) have mostly white bodies and wings; the trailing edges of their wings (tips of the feathers) are gray-black. They have very distinctive long, black feathers or *plumes* on their rumps (Fig. 1). During the breeding season the feathers on the sides of their chests and on the outer wings (near the edge when folded) may have a yellowish (or reddish) tinge, and their lower legs may be tinged with reddish-copper; bare patches of scarlet-red skin may also be visible under their wings. The heads and necks of young Sacred Ibises are covered with black and white feathers, giving the head and neck a mottled appearance (Fig. 2); these feathers are lost as the birds mature. The heads and necks of adults are bare of feathers and are gray-black, as are their long, curved bills, legs, and feet. Sacred Ibises are quiet birds and lack distinctive calls.

- 
1. This document is WEC267, one of a series of the Wildlife Ecology and Conservation Department, Florida Cooperative Extension Service, Institute of Food and Agricultural Sciences, University of Florida. Original publication date October 2009. Visit the EDIS Web Site at <http://edis.ifas.ufl.edu>.
  2. Steve A. Johnson, assistant professor and Extension specialist, Department of Wildlife Ecology and Conservation and Gulf Coast Research and Education Center, University of Florida/ IFAS—Plant City Center, 1200 North Park Road, Plant City, FL 33563; Monica McGarrity, biological scientist, Gulf Coast Research and Education Center, University of Florida/ IFAS—Plant City Center, 1200 North Park Road, Plant City, FL 33563

The Institute of Food and Agricultural Sciences (IFAS) is an Equal Opportunity Institution authorized to provide research, educational information and other services only to individuals and institutions that function with non-discrimination with respect to race, creed, color, religion, age, disability, sex, sexual orientation, marital status, national origin, political opinions or affiliations. U.S. Department of Agriculture, Cooperative Extension Service, University of Florida, IFAS, Florida A. & M. University Cooperative Extension Program, and Boards of County Commissioners Cooperating. Millie Ferrer-Chancy, Interim Dean



**Figure 1.** The Sacred Ibis (*Threskiornis aethiopicus*) is similar in appearance to native ibises, but is much larger. This invasive bird also looks very similar to the native Wood Stork. However, the bill of the Sacred Ibis is more slender and curved; the head, neck, bill, legs, and feet are much darker black; and it has long black plumes on its rump. Credit: Richard Mittleman ([www.gon2foto.com](http://www.gon2foto.com)), 2006 Credits:



**Figure 3.** The White Ibis (*Eudocimus albus*) is smaller than the invasive Sacred Ibis, and is nearly solid white with a reddish bill, legs, and feet. The head and neck are covered with white feathers. Only the tips of the wings are black, and the black wing tips are usually hidden unless the bird is in flight. Credit: Steve A. Johnson, University of Florida, 2005 Credits:



**Figure 2.** Juvenile Sacred Ibises are similar in appearance to adults, but their heads and necks are covered with black and white feathers. This gives the head and neck a mottled appearance, making it easy to confuse young birds with endangered native Wood Storks. However, even young Sacred Ibises have the characteristic black plumes on their rumps. Credit: Helen Harris, Kenya Birds ([www.kenyabirds.org.uk](http://www.kenyabirds.org.uk)), 2009 Credits:



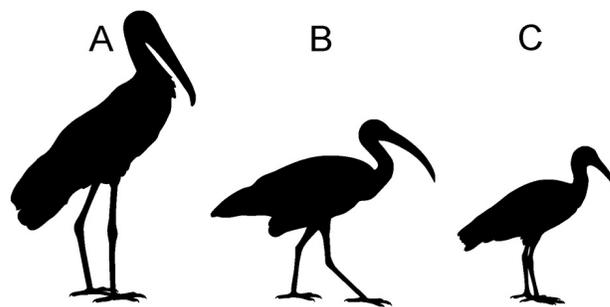
**Figure 4.** The endangered Wood Stork (*Mycteria americana*) is larger than the Sacred Ibis, and the head, neck and bill are much lighter and marked with gray and tan. Notice that the black outer feathers of the wings can be seen even when the wings are folded. Credit: Steve A. Johnson, University of Florida, 2005 Credits:

## Similar Species

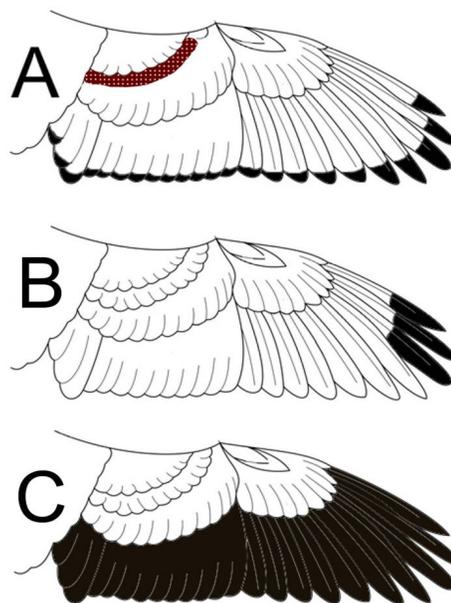
Sacred Ibises are somewhat similar in appearance to the native White Ibis (*Eudocimus albus*), but are larger. Adult White Ibises (Fig. 3) are approximately 22–27 inches (56–68 cm) long, weigh about 1.5–2.5 pounds (750–1,050 g), and have a wingspan of only 38 inches (96.5 cm). The feathers of White Ibises are mostly white—only the three feathers at the tips of their wings are tipped with black. They also have feathered white heads and their bills, legs, and feet are an obvious reddish-pink, not black like those of Sacred Ibises. During the breeding season, White Ibises' reddish bills are tipped with black.

Sacred Ibises look very similar to the native Wood Stork (*Mycteria americana*), a member of the stork family (Ciconiidae) that is federally listed as an endangered species. Wood Storks (Fig. 4) are larger than Sacred Ibises, and have a more erect body posture when resting than ibises (Fig. 5). Wood Storks also have lighter-colored heads and necks with grayish or tan markings (Fig. 4). Young Sacred Ibises (Fig. 2) look especially similar to Wood Storks, due to the mottled appearance of the black and white feathers on their heads and necks. However, the bills of Wood Storks are mostly straight and only the lower third of the bill curves downward (Fig. 5A); ibis bills form a long, continuous curve (Fig. 5B & C). Wood Stork bills are mostly brown, and only the base of the bill is black; Sacred Ibises have solid black bills. Wood Storks also lack the characteristic black plumes seen on the rumps of Sacred Ibises. Resting Wood Storks can also be identified by their black outer (primary) feathers (the edges of their wings are black), which are visible even when their wings are folded (Fig. 4).

All three of these species look very similar when viewed from the underside as they fly overhead. Sacred Ibises have white wings with a black trailing edge (Fig. 6A); during the breeding season they may also have bare patches of scarlet skin under the leading edge of the wing. Adult White Ibises have nearly solid white wings with black tips (Fig. 6B). Wood Storks have much more black on their wings—all of the outermost feathers are black (Fig. 6C).



**Figure 5.** Native Wood Storks (A) have a much more erect stance when seen in silhouette, and only the tip of the bill is curved. Sacred Ibises (B) and native White Ibises (C) both have bills that are curved along the entire length and have similar silhouettes, but invasive Sacred Ibises are much larger than the native ibis. Credit: Florida Fish and Wildlife Conservation Commission, 2009 Credits:



**Figure 6.** The patterns on the undersides of their wings can be used to identify invasive Sacred Ibises in flight. Sacred Ibises (A) have white wings with a black trailing edge, and may have patches of bare, scarlet-red skin under the leading edges of the wings during the breeding season (stippled black when viewing in black-and-white). White Ibises (B) have nearly solid white wings with black tips. Endangered Wood Storks (C) have white wings with black outer feathers. Credit: Monica McGarrity, University of Florida, 2009 (Modified from basic bird wing outline by Muriel Gottrop, Wikimedia Project, 2008) Credits:

## Native Range and Habitats

Sacred Ibises are native to sub-Saharan Africa, the Middle East, and Madagascar; historically, they were also found in Egypt, where they are now extinct.

These large birds are often depicted in Egyptian hieroglyphs as the earthly representation of the god Thoth (also shown as an ibis-headed man) and were considered sacred—hence the common name. They are very similar in appearance and so closely related to the Black-headed Ibis (*T. melanocephalus*) in South Asia and the Australian White Ibis (*T. molucca*) that many scientists consider the three a "superspecies," and some believe they may actually all be the same species. In their native range, they inhabit coastal estuaries, lagoons, marshes, and other inland wetlands such as flooded agricultural fields and urban retention ponds.

### Mode of Introduction

The widespread destruction caused by Hurricane Andrew in 1992 resulted in the accidental release of many species of non-native wildlife in Florida, including Sacred Ibises. It is believed that the Sacred Ibises found living in the wild in Florida have descended from animals that escaped during this natural disaster. Five individuals escaped from the Miami Metro Zoo during or after the hurricane, but remained near the zoo. Although these animals were seen breeding nearby in the following years, the zoo was able to capture and remove young birds from the nests before they could disperse. However, the number of Sacred Ibises seen near the zoo gradually increased, suggesting that Hurricane Andrew may also have resulted in the escape of additional birds from private bird collections in the Miami area.

### Introduced Range and Habitats

In the United States, introduced Sacred Ibises have only been found in areas of southern Florida (Fig. 7), including Everglades National Park and the Arthur R. Marshall Loxahatchee National Wildlife Refuge. Escapes from zoos have also resulted in the introduction of Sacred Ibises in many parts of Europe. There are now established breeding colonies in Spain, France, Italy, Belgium, the Netherlands, and Germany.

Introduced Sacred Ibises can inhabit a wide variety of wetland and upland habitats, including coastal estuaries, lagoons, and marshes; inland wetlands and marshes; agricultural fields (flooded or not); and urban retention ponds. They are usually

found in close proximity to urban areas, especially waste management dumps, golf courses, and urban lakes. Although introduced Sacred Ibises have only been found in southern Florida, scientists believe that the flexible habitat requirements of this species could allow them to expand their range to include other areas of Florida. Identifying and reporting the presence of these invasive birds is extremely important, so that scientists can capture and remove them and thus prevent these birds from becoming established and spreading. For more information on efforts to control Sacred Ibises in Florida, see the "Solutions" section below.



**Figure 7.** Approximate United States range of the introduced Sacred Ibis (*Threskiornis aethiopicus*). Credit: Monica McGarrity, University of Florida, 2009 (Data source: Everglades Cooperative Invasive Species Management Area) Credits:

### Ecology

The diet of Sacred Ibises is broad and includes a wide variety of prey items. The generalist diet of this species may help it to successfully invade and survive in new areas. Sacred Ibises often forage in groups of 2–20 individuals, using their long, curved bills to probe mud or grass for prey or scavenge for scraps in garbage. They will eat virtually anything that moves—insects, worms, crayfish, mollusks, other invertebrates, small fish, amphibians, and small rodents. Sacred Ibises can also prey on the eggs and nestlings of other birds, especially seabirds. In addition, in urban areas they are often found near trash heaps, where they eat a variety of scraps and other refuse.

Like many wading birds, Sacred Ibises roost in trees at night, often in large groups of hundreds of birds, sometimes with birds of other species. Sacred Ibises are usually the last birds to arrive at roosts each evening, often showing up well after sunset. They breed near their foraging and roosting grounds, and may nest individually or build large, communal platforms of sticks that hold as many as 30 nests. Each pair builds a nest of twigs, in which the female lays 2–3 eggs. The eggs hatch in 28–29 days, and the young remain in the colony for an additional 44–48 days; both the male and female care for the eggs and young birds. In the Everglades, Sacred Ibises roost and nest on tree islands, often among native species.

### Ecological Impacts

Sacred Ibises are one of only a few species in the bird Order Ciconiiformes (herons, storks, ibises, spoonbills) that prey on the eggs and nestlings of other birds. In their native range in Africa, Sacred Ibises eat the eggs of seabirds, including gulls, terns, cormorants, pelicans, and gannets. In their native range, Sacred Ibises take enough eggs and young from one Cape Cormorant (*Phalacrocorax capensis*) colony each year that they are considered one of the leading causes of mortality of these imperiled birds. Scientists studying seabird colonies in Europe have also found that predation by introduced Sacred Ibises is a significant problem.

We know very little about the impacts of Sacred Ibises in Florida. In Europe, Sacred Ibis populations have been known to grow exponentially, increasing their numbers from hundreds to thousands within five to ten years. Without aggressive, concentrated eradication efforts by wildlife professionals (see "Solutions" below), these large birds could proliferate and might eventually have negative impacts on our native species. Most importantly, Sacred Ibises in Florida nest in the same areas (and even in the same colonies) as endangered Wood Storks, and could prey on their eggs and young. Although Sacred Ibises in Florida have not been reported nesting with seabirds or preying on their eggs or young, Florida is also home to several threatened seabird species. If Sacred Ibises were allowed to become established and proliferate, they could cause harm to these species as well.

### Impacts on People and Pets

The impacts of invasive Sacred Ibises on humans would likely be minimal. Like all birds, ibises can carry a variety of disease-causing agents (bacteria, viruses, etc.) that can spread to humans, so their feces could pose a health risk. Sacred Ibises often forage in human garbage for scraps, and could become a nuisance if populations were allowed to become established.

### Solutions

Local governments (e.g., Palm Beach County), Florida Fish and Wildlife Conservation Commission (FWC), and the United States Department of Agriculture Wildlife Services Office (USDA/APHIS/WS) have teamed up to attempt to eradicate invasive Sacred Ibises. At this time, experts believe that all Sacred Ibises living in the wild in south Florida have been removed—approximately 75 birds total. Scientists are cautiously hopeful that the Sacred Ibis has proven to be a "success story" for invasive species management, and that these invasive birds may have already been eradicated. Efforts to manage Sacred Ibises and other invasive birds have gained increasing support from conservation societies, including the Florida Audubon Society, because of the serious threat that they pose to native species. Florida's citizens can also play an important role in efforts to manage invasive birds. For more information on what you can do, see "How you can help" below.

### How You Can Help

You can help to manage invasive species by becoming part of Florida's invasive species detection and rapid response network. Use the tips in this fact sheet to learn to identify Sacred Ibises, and keep your eyes open—especially in southern Florida! If you think you have spotted a Sacred Ibis, try to take a photo so that wildlife biologists can use it to confirm your sighting, and report it immediately. Never try to capture or kill a bird you think is a Sacred Ibis, since you could accidentally harm an endangered, native Wood Stork. Eradication is best left to professional wildlife removal experts.

Sacred Ibises have been found at several sites across south Florida (shown in Fig. 8), and all known individuals have been removed, so it is especially important to report sightings in new locations. You should immediately report the number of birds and their exact location to the FWC by contacting Larry Connor (e-mail: [ExoticReports@myfwc.com](mailto:ExoticReports@myfwc.com); Phone: (352) 357-2398). If possible, please e-mail digital photos of the birds along with your report, or contact Larry Connor for a mailing address for non-digital photos. After the FWC verifies the sighting, it will be reported to the USDA/APHIS/WS and shared with other agencies and groups working to deal with the growing problem of invasive wildlife in Florida.

In the coming years, Florida's scientists and government agencies plan to organize and train concerned citizens like you to create an official network of volunteers that will help to rapidly detect, report, and respond to new wildlife invasions. The support of citizens who are concerned with protecting Florida's native wildlife and ecosystems will be critical to the development and success of this network.

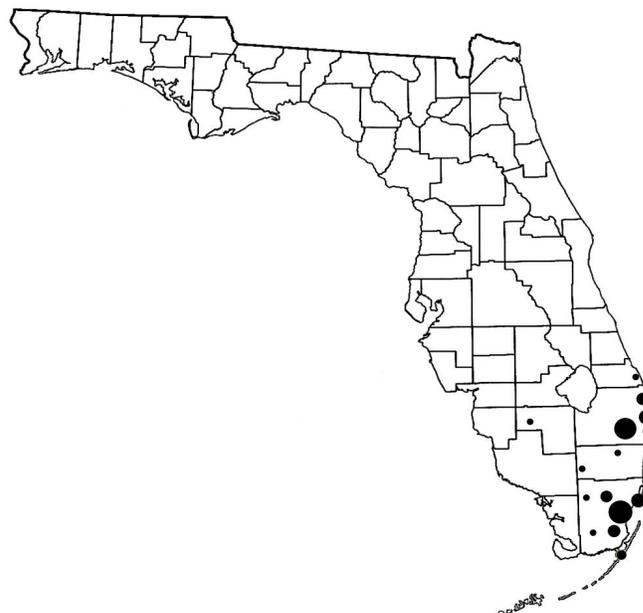
You can also help to alleviate the growing numbers of non-native bird species in Florida by being a responsible and educated pet owner. Never set any pet free outside! Finally, you can also help by learning more about invasive plants and animals and their impacts on Florida's natural environment, and by educating others. For more information on Florida's introduced birds and how you can help, read "Florida's Introduced Birds: An Overview" (<http://edis.ifas.ufl.edu/uw297>), and check out the Additional Resources listed below.

## Additional Resources

There are a variety of online guides, books and other publications that we recommend for additional information on Florida's native and non-native birds.

### Books and Scientific Publications

Alsop, Fred J., Smithsonian Handbooks: Birds of North America – Eastern Region. (New York: DK Publishing, Inc., 2001).



**Figure 8.** Documented locations of introduced Sacred Ibis (*Threskiornis aethiopicus*) sightings in Florida. Multiple sightings in nearby areas are shown by a single larger dot for ease of viewing. Check for new sightings of Sacred Ibises (and other introduced species) in your area by viewing the distribution maps on the Everglades Cooperative Invasive Species Management Area website at <http://www.evergladescisma.org/distribution>. Credit: Monica McGarrity, University of Florida, 2009 (Data source: Everglades Cooperative Invasive Species Management Area) Credits:

Bull, J., and J. Farrand, Jr., The Audubon Society Field Guide to North American Birds. (New York: Alfred A. Knopf, 1977).

Clergeau, P., and P. Yésou, "Behavioural flexibility and numerous potential sources of introduction for the sacred ibis: causes of concern in western Europe?" *Biological Invasions* 8 (2006): 1381-1388.

Herring, G., and D. E. Gawlik, "Potential for successful population establishment of the nonindigenous sacred ibis in the Florida Everglades," *Biological Invasions* 10 (2006): 969-976.

Kale, H. W. II, and D. S. Maehr, Florida's Birds. (Sarasota: Pineapple Press, Inc., 1990).

Peterson, R. T., Peterson Field Guides, Eastern Birds. (Boston: Houghton Mifflin Co., 1980).

Pranty, B., A Birder's Guide to Florida. (Colorado Springs: American Birding Association, 1996).

Robbins, C. S., B. Bruun, H. S. Zim, and A. Singer, A Golden Guide to Field Identification: Birds of North America. (New York: Golden Press, 1983).

Sibley, D. A., The Sibley Field Guide to Birds of Eastern North America. (New York: Knopf, 2003).

Williams, A. J., and V. L. Ward, "Sacred ibis and gray heron predation of cape cormorant eggs and chicks; and a review of ciconiiform birds as seabird predators," Waterbirds 29 (2006): 321-327.

Yésou, P., and P. Clergeau, "Sacred Ibis: a new invasive species in Europe," Birding World 18 (2005): 517-526.

### Online

International Union for Conservation of Nature—*2009 IUCN Red List of Threatened Species*.  
*Threskiornis aethiopicus*—species account.  
<http://www.iucnredlist.org/apps/redlist/details/144745/0>

Florida Fish and Wildlife Conservation Commission  
Non-Native Wildlife  
<http://myfwc.com/nonnatives/index.htm>—click on "Birds"

Everglades Cooperative Invasive Species  
Management Area (ECISMA)  
<http://www.evergladescisma.org>