



2019 Wading Bird Nesting in the Everglades:

Restoring the hydrology-prey-foraging relationship in the Everglades is key to successful wading bird nesting in South Florida.

Overview

Wading birds are not only iconic Florida species, but also critical barometers for the health of the Everglades and efforts to restore the River of Grass. Each year, staff from the South Florida Water Management District, Florida Atlantic University, Audubon, and others combine survey results to measure nesting success across the Everglades.

Well-timed rainfall in the Central Everglades resulted in 2018 being a banner year for wading bird nesting. In 2019, the weather was not as fortuitous and it is no surprise that 2019's wading bird numbers declined from the previous year. Nevertheless, 2019's numbers come close to the 10-year average—an important measure because wading bird numbers vary from year to year based on the availability of prey, which is heavily influenced by rainfall in the right amounts, places, and times.

As a result, temporary wetlands vanished more quickly, and overall flooded habitat contracted, which limited prey production across the Everglades landscape. Because water levels peaked relatively early in the nesting season, a dry December heralded the start of a difficult 2019. Unfortunately, heavy rainfall in early 2019 inundated nesting areas and spread out prey, and successfully feeding chicks became nearly impossible for early nesters including Wood Stork, Roseate Spoonbill, and Great Egret. Birds that nested after water levels ebbed in February were more successful.

The Comprehensive Everglades Restoration Plan (CERP) and other restoration programs strive for a thriving bird population. While the success of the 2018 season moved the needle considerably in most measures, the 2019 season was comparatively disappointing.



Figure 1. Location of wading bird colonies with ≥ 50 nests in South Florida, 2019. Credit: South Florida Water Management District

Species	Total # Nests	Comparison to the Ten-year Average
White Ibis	21,667	27% decrease *
Great Egret	3,487	64% decrease
Wood Stork	1,488	50% decrease
Roseate Spoonbill	472	8% decrease
Tricolored Heron	1,453	5% increase
Snowy Egret	3,500	22% increase

*White Ibis make up more than half of all wading bird nests, so their success has a large impact on overall nest count.

It is important, in large-scale restoration efforts, to consider long-term trends. Long-term data reveal that several nesting responses have improved and the numbers of White Ibis, Wood Stork, and Great Egret nests have increased over the past 20 years, frequently meeting restoration targets.

Key Findings of the 2019 South Florida Wading Bird Report

Wading bird monitoring is important because birds are key indicators of the health of the Everglades and success of restoration efforts. Main indicator species include Great Egret, Snowy Egret, White Ibis, and Wood Stork. Across the greater ecosystem, Great Egret and White Ibis seem to be hitting restoration goals more frequently, with Snowy Egret lagging. Wood Storks have been moving north out of the Everglades system, as success in their historic heartland is chronically poor. Looking at the success of these species in each of the key regions of the Everglades helps us understand where restoration is working and where we still have room for improvement—for the benefit of birds and people alike.

Nesting by Region: Highlights

Northern Everglades

Kissimmee River

Nesting results: Aerial surveys on foraging birds on the River floodplain averaged about 100 birds per square mile, exceeding the goal of 80 birds per square mile.

Contributing factors: The Kissimmee River Restoration Project is almost complete, and wading birds have already begun to flock to the region to resume nesting.

Policy recommendations:

Support completion of the Kissimmee River Restoration project and follow up on next steps:

- Support South Florida Water Management District's efforts to set a water reservation for the River that prevents Orlando's growing population from using too much water.
- Support the five-year monitoring period that ensures the restoration is achieving its biological goals and that management strategies are successful.



The Kissimmee River. Photo: South Florida Water Management District

Lake Okeechobee

Nesting results: Florida Atlantic University researchers monitoring Lake Okeechobee reported an estimated 1,837 nests, less than a quarter of the 10-year average (5,320 nests) and the lowest number since the drought of 2008. Only eight colonies were active because many of the willow heads they depend on were dry. Twenty-eight Wood Stork and 20 Roseate Spoonbill nests were found at a gator farm near the lake, which is rather new for these species.

Contributing factors: Lake Okeechobee experienced another low water year. Ideal levels are considered a low of about 12 feet at the end of the dry season, but it dropped to 10.8 feet in 2018-19 dry season. This dries essential nesting and foraging habitat; as a result, most recorded nests sat on spoil islands along navigation channels.

Policy Recommendations:

- Ensure the new Lake water level management plan (the Lake Okeechobee System Operating Manual or LOSOM) manages the Lake between the optimal levels of a low around 12 feet at the end of the dry season and a high around 15 feet at the end of the wet season.

Western Everglades

Nesting results: The peak of observed wading bird nesting yielded a total of 504 wading bird nests from the Caloosahatchee River through northern Collier County region of the Western Everglades. This number represents approximately 30% of the nesting effort recorded in 2018, which does not come close to historic nest numbers recorded at Corkscrew Swamp Sanctuary.



Wood Stork family. Photo: RJ Wiley

Contributing factors: Though Wood Storks started nesting early, nearly all inland nests failed after heavy rainfall in December, January, and February. Only the Wood Storks on the Caloosahatchee River successfully fledged chicks, as they started nesting in late January.

Loss of wetlands to development and the further overdrying of the remaining wetlands, particularly at Audubon's Corkscrew Swamp Sanctuary, reduced the prey the nesting wading birds needed to feed their voracious chicks. While nest failures in 2019 appear to be weather-related, the rapid drying seen in recent years prevented re-nesting.

Policy Recommendations:

- Continue efforts to identify and remedy overdrying of Audubon's Corkscrew Swamp Sanctuary and surrounding wetlands during wading bird nesting season.
- Strengthen protection of short-hydroperiod wetlands by revisiting flawed permitting practices.
- Complete remaining portions of the Picayune Strand Restoration Project and prioritize monitoring of wading birds and their aquatic prey.

Central Everglades

Nesting results: Nest numbers were well below average in the Water Conservation Areas (WCAs) with very low nesting success. Most species nested later than normal, as a result of flooding in January and February. Great Egrets nested almost two months later than normal.

Wood Stork nesting success was extremely poor throughout the Everglades Protection Area (WCAs and mainland Everglades National Park). There were no Wood Stork nests in the WCAs.

Roseate Spoonbill numbers in the Everglades Protection Area have been increasing over the long term and were only slightly below the 10-year average (6% below). Although this species continues to expand its range into the Everglades Protection Area, the actual number of nests was likely severely undercounted because they nest low in the canopy and are difficult to spot during aerial surveys.

Contributing factors

In both WCA 1 and WCA 3, water levels were well below average at the end of the wet season, which, in turn, reduced the prey the wading birds need to feed their young. Following a similar pattern, water levels in WCA 2 remained too deep for the wading birds to easily forage for food. Overall, higher water levels throughout the WCAs in January pushed back nesting.

Policy recommendations:

- Prioritize construction of the Central Everglades Project to break down water flow barriers by removing more than 25 miles of canals and levees.
- Increase funding for invasive exotic control to maintain critical wading bird habitat, like the Arthur R. Marshall Loxahatchee National Wildlife Refuge in WCA 1.
- Fund and construct the Broward County Water Preserve Areas.



White Ibis. Photo: Candy Childrey/Audubon Photography Awards

Southern Everglades *Everglades National Park*

The **Cabbage Bay colony** was a borderline supercolony with just under 10,000 nests. White Ibis made up the vast majority of nesters.

Nesting results: Nest numbers in the mainland of Everglades National Park (ENP) was the third highest in the last 20 years, partially offsetting the low nesting effort in the WCAs. However, this success stems mostly from White Ibis, as other wading species fledged few chicks.

Contributing factors: Nesting increased within the park, with 2019 marking one of the highest nesting efforts in recent decades. Allowing fresh water to flow through the park will continue to provide habitat for nesting wading birds. In particular, researchers are keeping an eye on nesting in the estuarine region of the park: the goal is to record 50% of the park's mainland nests in this region. In 2019, 42% of nests were in the estuarine zone, the highest since monitoring began in 1988.

Policy recommendations

- Implement Combined Operational Plan (COP) for the Modified Water Deliveries Program, C-111 Spreader Canal, and South Dade projects while applying adaptive management to make changes where needed. Remove high and low water constraints from the COP.
- Prioritize development of the Biscayne Bay Southeastern Everglades Ecosystem Restoration (BBSEER) plan that provides regional benefits to both Florida Bay and Biscayne Bay, as envisioned in the C-111 General Reevaluation Plan (GRR), and including the incorporation of Bird Drive Basin.
- Ensure optimal water levels in the C-111 Spreader Canal Western project by raising water levels at S-18C and execute Comprehensive Everglades Restoration Plan state and federal agreements.

Florida Bay and southern estuaries

Nesting results: Nest numbers in the southern estuaries were stable (Florida Bay, Biscayne Bay, Estero Bay), or possibly slightly increasing (Charlotte Harbor), but are still well below historic numbers. Tricolored Heron numbers appear to be increasing in Florida Bay where counts are performed more haphazardly and incompletely; Roseate Spoonbill are well below targets.

Contributing factors: Roseate Spoonbill nesting has been delayed further into the dry season each year for the last decade. The effect of sea level rise is likely masking any positive response of this species to restoration efforts.

Policy recommendations for Florida Bay and southern estuaries parallel those outlined for Everglades National Park, above.

Funding for this project and continued monitoring of wetlands and wading birds in the Everglades ecosystems is critical to effectively identify causes for nesting declines and to determine whether Everglades restoration projects are achieving their intended benefits.



Roseate Spoonbill family. Photo: Charles Lee



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