

2016 Wading Bird Nesting in the Everglades: Continued nesting decline underlines urgent need for restoration



The 2016 wading bird nesting season produced some of the lowest nest counts in nearly a decade and was the 8th consecutive year of below-average nesting, according to the 2016 South Florida Wading Bird Report compiled by the South Florida Water Management District.¹

An estimated 26,676 wading bird nests were initiated in South Florida during the 2016 nesting season (December 2015 to July 2016). This is a poor nesting effort compared to the 10-year annual average (42,023.9 nests). This marks the lowest count since 2008.

Wading birds are vital indicators of ecosystem health. Tracking changes in their numbers and nesting patterns are some of the primary tools used by Audubon scientists to evaluate the success of Everglades restoration.

Key findings of the 2016 South Florida wading bird report

⇒ **Wading bird nesting and foraging were down in Lake Okeechobee because of the wet conditions during the 2016 nesting season.**

These poor conditions are similar to what could be expected every year if the Lake were managed higher to store more water.

⇒ **Wood Storks did not nest at Audubon's Corkscrew Swamp Sanctuary in 2016. No nesting has taken place at Corkscrew Swamp for 8 out of the last 10 years.**

This was historically the largest Wood Stork rookery in North America. Remaining wetlands must be preserved and restored in areas surrounding this ecological gem.



Photo by Brennan Mulrooney

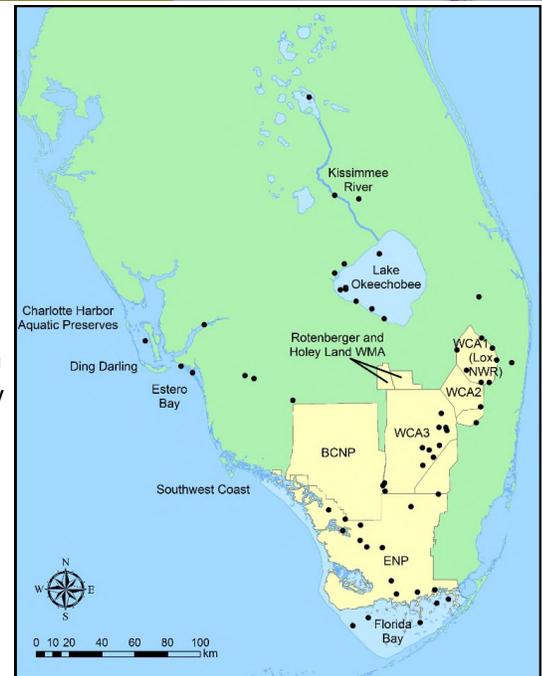


Figure 2. Locations of wading bird colonies with ≥ 50 nests in South Florida, 2016. Credit: SFWMD

⇒ **Less than 10% of the nearly 2.5 million wading birds estimated in the historic Greater Everglades Ecosystem remain in the Everglades today.**

⇒ **The Great Egret, Snowy Egret, White Ibis, Tricolored Heron, Roseate Spoonbill and Wood Stork are used to evaluate Everglades restoration progress.** Only Great Egret and White Ibis met 3 year average numeric restoration goals.

⇒ **The 2016 wading bird nesting season had a weather pattern that shifted from low to very high water levels.** Under these conditions, a poor nesting season could be anticipated. However, in a restored ecosystem, frequent above-average nesting years would also be expected, improving the resiliency of the populations.

⇒ **The overall wading bird nesting effort in the Everglades has been below the 10 year average for nearly a decade.** In a restored ecosystem, the impacts of a poor nesting year would be balanced by above-average years.

¹ South Florida Wading Bird Report. Cook, Mark I. and Baranski, Michael, Eds. Volume 22. January 2017. (www.sfwmd.gov)



Nesting by Region: Highlights

Northern Everglades

◇ *Kissimmee River and Chain of Lakes*

- ⇒ In 2016, 2,474 wading bird nests were recorded in the Kissimmee Valley. This is a decline in nesting compared to the 10 year average, similar to what has occurred in the previous two years.

While there is much optimism that wading bird nesting around the restored Kissimmee River floodplain will increase, current nesting remains low as the project nears completion. The two largest colonies this year were located on Bumblebee Island in Lake Istokpoga and Lake Kissimmee, which do not rely on the River floodplain.



Photo by Charles Lee

◇ *Lake Okeechobee*

- ⇒ An estimated 2,453 wading bird nests were on and around Lake Okeechobee in 2016, 53% below the 10-year average.
- ⇒ Water levels in the Lake were too deep for wading bird use for nearly the entire season and the only species with above average numbers was the long-legged Great Egret.
- ⇒ Rapidly rising Lake levels in May 2016 caused almost 90% failure rates for remaining nests initiated after this time.

El Niño weather conditions pushed Lake Okeechobee levels to 16.4 feet in February 2016, a foot deeper than healthy Lake levels. With high Lake levels during the traditional wading bird breeding season, nest attempts failed when the rainy season added more water. Sixty-three Wood Stork nests and four Roseate Spoonbill nests were found on an alligator farm near the Lake but only 13 Storks and no Spoonbills were known to fledge.

The poor conditions for wading birds on Lake Okeechobee replicate the problems that would be seen if Lake Okeechobee was regularly held higher than 16 feet.

Central Everglades

- ⇒ A total of 14,005 wading birds nests were recorded across the Water Conservation Areas (WCAs), with White Ibis nesting making up the bulk of the nests in this region (8,985 nests total). The total number of nests for this region decreased by 41% compared to 2015.
- ⇒ Nesting in the WCAs represented 56% of the 10 year average and 68% of the 5 year average. This is a notable change compared to the 2015 season when nesting was 8% higher than the 10 year average and 51% higher than the 5 year average.
- ⇒ There is a continued downward trend for Tricolored Herons and Little Blue Herons nesting in the region. This sharp decline has been consistent over the past decade and is a cause for concern.
- ⇒ Great Egret nesting was the lowest in the past 6 years, closer to the 10 year average at 71% compared to other species. Roseate Spoonbills continue to nest in the WCAs, following a recent trend of increased inland nesting.

With the exception of 2010, the 2016 nesting season in the WCAs was the lowest effort in the last 17 years. The 2016 nesting season was preceded by a relatively dry wet season that limited prey production. Record rainfall during January and February 2016 then led to high water levels in the WCAs that caused most birds to delay nest initiation and provided for poor foraging conditions which limited breeding opportunities.

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Western Everglades

- ⇒ No Wood Stork nesting was observed at Audubon's Corkscrew Swamp Sanctuary or the Corkscrew Regional Ecosystem Watershed Management Area in 2016. Wood Storks have not nested as Corkscrew for 8 out of the last 10 years.
- ⇒ 483 total nests were found from 5 active wading bird colonies. This is 5% less than the 2015 wading bird nesting season.
- ⇒ All Wood Stork nesting in the Corkscrew region is initiating later than historic averages—beginning in March and peaking in May compared to November or December. Later nesting can lead to increased mortality for young who have not fledged before the onset of the wet season.

Much of the shallow wetland areas that Storks rely on for foraging during the nesting season have been lost. Despite poor nesting, the region still supported 45% of the total Wood Storks in the Everglades,

showing the importance of improving Western Everglades habitat. Observations of large numbers of Wood Storks around the Picayune Strand restoration project is a good indication that Storks will return to restored areas.



A Wood Stork at Audubon's Corkscrew Swamp

Southern Everglades

◇ **Everglades National Park**

- ⇒ In 2016, a total of 4,774 wading bird nests were recorded in Everglades National Park, 25.6% of the total wading bird nests in the Greater Everglades. This is down 21% compared to the 2015 nesting season.
- ⇒ Wood Storks and White Ibis nested in lower levels than recorded in 2015, decreases of 10% and 57%, respectively. Great Egret and Snowy Egret nesting increased by 17% and 75% respectively, compared to 2015.

◇ **Florida Bay**

- ⇒ A total of 367 Roseate Spoonbill nests were recorded in Florida Bay in 2016. Spoonbill nesting has been stabilizing at around 400 nests per year, but current nest numbers are much lower than historic levels.
- ⇒ A trend of Spoonbill nest initiation later in the year continues. 2016 had the latest initiation period (February 5th) on record.
- ⇒ Roseate Spoonbills continued to nest more frequently in inland colonies. This suggests that environmental cues and conditions have deteriorated for nesting within Florida Bay.
- ⇒ 793 Tricolored Heron nests were recorded within Florida Bay in 2016, up from 718 in 2015, and 50 in 2014. While Tricolored Herons continue to experience sharp declines in nest numbers in the Greater Everglades Ecosystem, their numbers appear to be increasing in Florida Bay.

◇ **Biscayne Bay**

- ⇒ In 2016, a peak total of 78 wading bird nests were observed in Biscayne Bay. Great Blue Heron, Great Egret, Great White Heron, and Roseate Spoonbill nesting was reflective of the average over the past five years.

The Southern Everglades was under the influence of a severe drought for the year and a half prior to the 2016 dry season. This resulted in extended hypersaline conditions, likely triggering a massive seagrass die off within Florida Bay and subsequent algal blooms which remain today. These conditions are very similar to events that occurred during the 1987-1990 drought. The damaging effects of that drought, including a seagrass die-off and algal blooms, had long-lasting negative ecological impacts on Florida Bay that could be felt for several decades. The 1990s drought ultimately led to a collapse of the Bay's Spoonbill population. Under historic conditions, more freshwater flowed through the Everglades and into Florida Bay, offsetting the negative effects of drought. The current lack of freshwater flow from upstream sources puts Florida Bay in the precarious situation of being hydrologically driven by local rainfall.



Audubon Recommendations

Everglades restoration efforts aimed at reversing the negative wading bird nesting trends is urgently needed to bring back the abundance of birds that once characterized the Everglades. Wading birds depend on wetland ecosystems for survival. Restoring more natural hydrologic flows across the Greater Everglades will improve the resilience of these importance indicator species in the face of challenges like sea level rise, invasive species threats, and fluctuations in rainfall patterns. Audubon recommends the following:

Lake Okeechobee and Northern Everglades

- ⇒ Keep Lake Okeechobee water levels between 12.5 and 15.5 feet to maintain the health of the Lake's marshes.
- ⇒ Construct a storage reservoir in the Everglades Agricultural Area to provide a new outlet for Lake Okeechobee water during high water conditions.
- ⇒ Store water north of the Lake to provide a source of water to flow into Lake Okeechobee during low water conditions.
- ⇒ Complete the Kissimmee River Restoration project.
- ⇒ Set a water reservation for the Kissimmee River Restoration project that protects water for natural systems in the Kissimmee Basin.
- ⇒ Expand the Everglades Headwaters National Wildlife Refuge and other programs that work with private land owners.
- ⇒ Ensure the Basin Management Action Plan significantly reduces phosphorus flowing into Lake Okeechobee.



Central Everglades

- ⇒ Prioritize construction of the recently congressionally authorized Central Everglades Project to break down barriers to flow in the WCAs by removing more than 25 miles of canals and levees.
- ⇒ Acquire land and construct a reservoir in the Everglades Agricultural Area that will increase water management flexibility in the WCAs.
- ⇒ Maintain the Arthur R. Marshall Loxahatchee National Wildlife Refuge, where wading bird nesting has thrived.
- ⇒ Fund and construct the Broward County Water Preserve Areas.

Western Everglades

- ⇒ Strengthen protection of existing short-hydroperiod wetland habitats by revising flawed permitting practices.
- ⇒ Continue planning and design for the Western Everglades Restoration project, and implement those elements already designed and shovel-ready in the Big Cypress Hydrologic Restoration Plan.
- ⇒ Complete the remaining portions of the Picayune Strand Restoration Project.

Southern Everglades

- ⇒ Complete the 2.6 mile bridge along the Tamiami Trail to increase flows to the Southern Everglades.
- ⇒ Maximize operations of the Modified Water Deliveries projects, including the 1 mile Tamiami Trail bridge, to increase water flows to Shark River Slough and Taylor Slough.
- ⇒ Complete the construction of the C-111 South Dade project.
- ⇒ 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.
- ⇒ Reinitiate planning for the C-111 Spreader Canal Eastern project.

All regions will benefit from ensuring that sufficient funding is maintained for wetland and wading bird monitoring. Thus is critical to effectively identify causes for nesting declines and to determine whether Everglades restoration projects are achieving their intended benefits.