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## **FIRST VERIFIED BREEDING RECORD OF THE RUDDY DUCK (*Oxyura jamaicensis*) IN FLORIDA**

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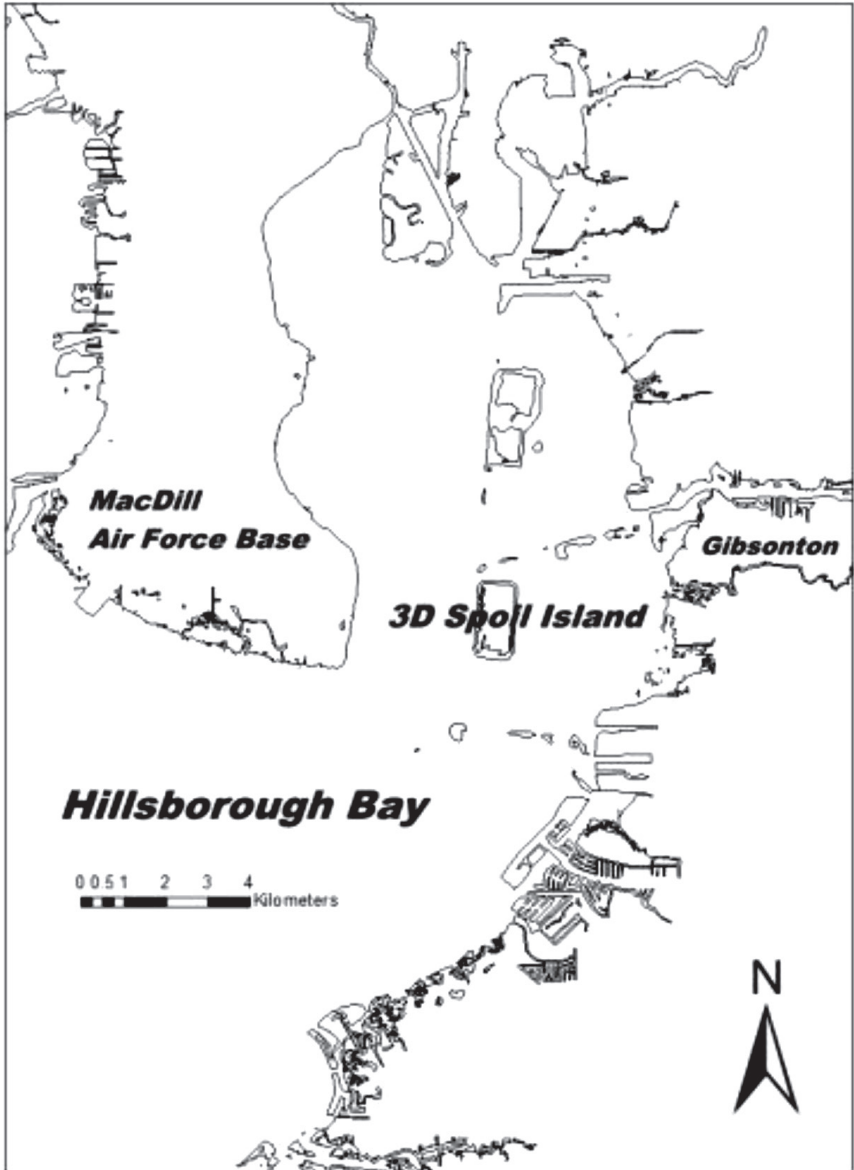
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Ruddy Ducks (*Oxyura jamaicensis*) breed primarily in the prairie pothole region of North America, although small numbers breed or have bred in Mexico, Central America, the West Indies, and southeastern North America (Brua 2002, McNair et al. 2006). Most of the few breeding records from southeastern North America are from inland impoundments and phosphate pits in the north- and central peninsular region of Florida (Menk and Stevenson 1977, Woolfenden and Woolfenden 1984, Brua 2002), though these reports did not include documentation such as still photos, video, or audio recordings (Greenlaw et al. 2014). Here I document with still photos and video the first verified breeding of Ruddy Duck in Florida and the first breeding of that species reported from a Florida coastal island.

### Study Site

The Tampa Harbor Dredged Material Disposal Facility, also known as “3-D” (27.8309, -82.4373) is a 155 ha (384 acre) dredged-material island in Hillsborough Bay, Hillsborough County, Florida (Fig. 1). The U.S. Army Corps of Engineers (USACE) constructed the island for the containment of material dredged from federal channels in Tampa Harbor. 12 m-high dikes contain the dredged material, which is pumped onto the island in a slurry. The interior of the island is topographically varied, with borrow pits and higher elevations. Terrestrial vegetation is sparse to absent. No mangroves grow inside the dikes. About 100 ha (250 acres) is covered by shallow perched brackish water derived from the slurry and rain. Some of the more southerly locations transition to fresh water dominated by broadleaf cattails (*Typha latifolia*). The



**Figure 1. Location of spoil island 3-D in Hillsborough Bay. GIS from Tampa Bay Estuary Program.**

breeding site, in the southern part of the island, was in a 3-4 ha borrow pit, 1.5 m at its deepest point, tenuously connected to the large expanse of more northerly ponds. It was the only area that contained cattails



**Figure 2. Spoil island 3D with the Ruddy Duck nesting pond location marked. Courtesy U.S. Army Corps of Engineers.**

after a dredging project in 2015 and 2016, indicating that the water was relatively fresh. No water testing was done to collect quantitative data on salinity. The extent, depth, and connections of the pond are expected to vary with dredging work.

### Survey Protocol

This area was monitored as part of a dredging contract following a USACE monitoring plan required by the Migratory Bird Treaty Act. David Goodwin and I surveyed the island for all bird species daily throughout the fall of 2016 (10 Oct-9 Dec).

### Chronology of Observations

**10 October 2016.** The first Ruddy Duck recorded in our survey of 3-D was a lone female on the south pond with Pied-Billed Grebe (*Podilymbus podiceps*) adults and young, Common Gallinule (*Gallinula galeata*) adults and young, and American Coots (*Fulica americana*). The water was more fresh than brackish as evidenced by the presence of cattails. The pond was about 0.9 m deep.

**19 October 2016.** I did not see this female again until the 19th, when I found her caring for five downy ducklings (Fig. 3). D. Goodwin and I studied the ducklings with 8X binoculars for about 40 min at distances as close as 15 m, and estimated that they were about one day old. Using the data in Brua (2002), I estimate that the date of first laying was about 22 September 2016.

**18 November 2016.** We saw the female and five young on this date for the first time since 19 October. I estimate that the young were about one month old. Rising water levels from new dredge slurry had



**Figure 3. Female Ruddy Duck with five downy ducklings 19 October 2016.**

widened the channel connecting the southern pond and the larger northern pond. I surmise that the family spent their time since their last appearance in cattails north of the southern pond.

**20 November 2016.** Two days later we first saw a male in breeding plumage in the pond. He escorted the ducklings and performed the “bubbling” display, pounding his chest to make bubbles (Fig. 4), which can be either courtship behavior or an aggressive action (Ladhams 1977). He seemed to be directing the display toward any of the American Coots, Pied-Billed Grebes, and ducks such as Northern Shoveler (*Anas clypeata*), chasing them when they approached the ducklings.

**25 November 2016.** The breeding-plumaged male remained on patrol in the southern pond, constantly guarding the ducklings and bubbling when any other species approached (Fig. 5). We did not see the adult female this day. The pond was now about 1.5 m deep and likely more brackish than in September.

**5 December 2016.** On this day we saw the ducklings flapping their wings. By this date they had about completed the pre-juvinal molt (Brua 2002).

**7 December 2016.** For the first time since 20 November we saw a female Ruddy Duck, presumably the one we had seen previously, with the rest of the family (Fig. 6).

**8 December 2016.** The breeding-plumaged male continued swimming with the juveniles (video clip: <<https://www.youtube.com/>



**Figure 4. Ruddy Duck male bubbling.**



**Figure 5. Ruddy Duck male with a duckling, about to bubble at a Northern Shoveler.**

watch?v=jey9yMm3HPA>. He performed the bubbling display near one of the juveniles, and the juvenile then bubbled, as though it were learning the display from him (video clip: <<https://www.youtube.com/watch?v=jD7GuIwpfxg>>).

**9 December 2016.** This was the last day of bird monitoring for this dredging project. All five young were now in juvenal plumage (Fig. 6).

#### DISCUSSION

This is the first breeding of Ruddy Ducks in Florida to be verified, with both still photos and video. It also extends the known breeding period for Ruddy Ducks in Florida, from April to mid-August (Greenlaw et al. 2014), to early September. The video recording may be the only one showing a juvenile seeming to learn the bubbling habit from an adult. The male observed with the ducklings was likely one of the parents, although other studies have observed non-related males with young (Ladhams 1977). It was the only male in breeding plumage among the 125 wintering Ruddy Ducks on the island during this breeding event.

This island was created as a working island, but has been well managed for breeding species for the past three years as the Army Corps of Engineers observes provisions of the Migratory Bird Treaty Act, and includes bird monitoring and habitat management in its



**Figure 6. Three Ruddy Duck juveniles with the presumed mother (at left).**

program. The salinity of the water in any given borrow pit can change dramatically depending on the volume of summer rains and the varying placement of the dredge slurry. Breeding sites on St. Croix have been on seasonal salt ponds (McNair et al. 2006), and previous breeding sites in Florida have included managed impoundments, phosphate pits, and an abandoned quarry. The continually changing geography and water content on this island may provide ongoing habitat for Ruddy Duck breeding, especially if bird monitors can help to manage work activities during nesting.

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