GROUND-NESTING OSPREYS ON A MISSISSIPPI BARRIER ISLAND

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INTRODUCTION

The Osprey (*Pandion haliaetus*) is a fish-eating raptor that usually nests in open areas near water, and is found year-round along the Mississippi Gulf Coast. Common nest locations include snags and treetops, but Ospreys have adapted to nesting on man-made structures such as channel markers, utility poles, and artificial nesting platforms. They will occasionally nest on the ground, particularly on islands, when above-ground nesting sites are limited or in the absence of mammalian predators (Bierregaard et al. 2014, Bierregaard et al. 2016). Ground nests have been reported on Gardiners Island, New York, Great Island, Connecticut, Martha's Vineyard, Massachusetts, and islands in the Ojo de Liebre Lagoon in Baja California Sur, Mexico (Spitzer and Poole 1980, Casellanos and Ortega-Rubio 1995, Bierregaard et al. 2014). Osprey ground nests may be vulnerable to high tides, storms, and land predators (Casellanos and Ortega-Rubio 1995).

OSPREY NESTING ON EAST SHIP ISLAND

We conducted bird monitoring during 2017-2018 on East Ship Island as a requirement of the Mississippi Coastal Improvements Program (MsCIP), Comprehensive Barrier Island Restoration (USACE 2014). Monitoring occurred daily from early August until the end of September 2017, weekly from October-February, and daily again starting 1 March 2018.

The first Osprey observation during 2018 was on 1 March. On 7 March, we observed 10 Ospreys on the island, several of which were resting on the ground, possibly tired due to recently arriving after migrating. By early-April, we identified at least five Osprey pairs on the island.

We observed six Osprey nests on East Ship Island in the spring of 2018. Not all of these nests were concurrently active, and at least one may have been a re-nesting attempt. Four nests were in snags located toward the middle of the island, at least one of which was abandoned by mid-April. We found two other Osprey nests directly on the sand beach on the south (Gulf of Mexico) side of the island. Among the six nests, the average distance to the nearest nest was approximately 190 m. There was also an active Bald Eagle (*Haliaeetus leucocephalus*) nest close to several of the Osprey nests in snags. The first Bald Eagle nestling was observed on 24 January and the nest fledged two young by the end of March. Antagonistic behavior was commonly observed between the adult Bald Eagles and the neighboring adult Ospreys. Including the Bald Eagle nest, the average distance from an Osprey nest to the nearest raptor nest was roughly 170 m.

We found the first Osprey ground nest on 10 April and it was well-defined (Figure 1). The outer part of the nest was composed of sticks, small pieces of logs and bark, and large grasses. The inner nest was lined with finer material such as smaller grasses and twigs. On 13 April, we observed one egg in the nest being incubated by an adult (Figure 2). We observed a second egg in the nest on 1 May and two nestlings on 19 June. Both juvenile Ospreys fledged the ground nest on 15 July.

We found the second Osprey ground nest on 1 May with three eggs. The nest was poorly defined, consisting of a few sticks, debris, and a large rope, on a raised area of sand (Figure 3). The eggs were resting directly on the sand, and were being incubated by an adult Osprey (Figure 4). We did not observe an adult Osprey

Figure 1. Well-defined Osprey nest on the ground on East Ship Island, Mississippi, 10 April 2018. Photo by Peter Blank.

Figure 2. Osprey adult incubating on the well-defined ground nest on East Ship Island, Mississippi, 2018. Photo by Elise Diehl.

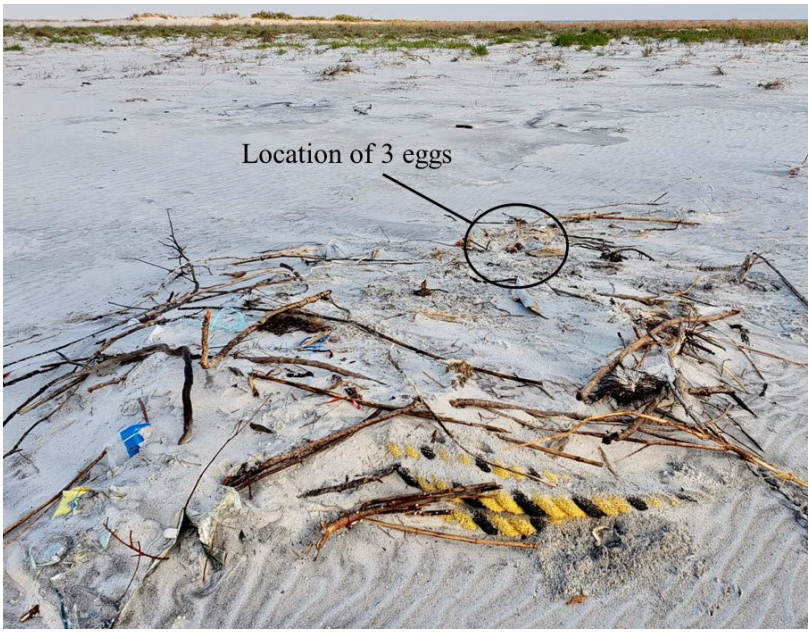

Figure 3. Poorly-defined Osprey nest on the ground, with three eggs resting on the sand, on East Ship Island, Mississippi, 1 May 2018. Photo by Elise Diehl.

Figure 4. Osprey adult incubating on the poorly-defined ground nest on East Ship Island, Mississippi, 2018. Photo by Elise Diehl.

bringing nest material to this site; most of the material on the ground looked to have been deposited by waves. On 22 May, we found the nest depredated; one egg was missing and the other two eggs were cracked open. We were unable to determine if the eggs were preyed upon before or after hatching. We suspect ghost crabs (*Ocypode quadrata*) depredated the nest, as there were several crab tracks in the vicinity.

DISCUSSION

To our knowledge, these are the first Osprey ground nests documented in Mississippi. We are uncertain why Osprey eggs were deposited and incubated at the poorly-defined nest found on 1 May. One possibility is that this was an impromptu re-nesting attempt after an Osprey pair was forced to abandon one of the nests in snags.

As a result of the MsCIP, East Ship Island is currently being expanded in size and will eventually be reconnected to West Ship Island (USACE 2014). However, during this study East Ship Island was relatively small (about 103 ha). Additionally, only about 12 ha contained snags large enough to support an Osprey nest; none of the short live trees appeared large enough to support a nest. Ospreys defend nest sites, not feeding territories, and usually defend only 50-100 m from the nest (Bierregaard et al. 2016). The average distance between nearest nests (including Osprey and Bald Eagle nests) was 170 m. We suggest that the small area of the island, the limited number of live trees or snags capable of supporting nests, and the proximity to existing nests contributed to the ground-nesting behavior. Nest sites in snags were initiated before the two Osprey nests on the ground. This suggests that nest-site availability on the island was limited and may have contributed to the ground-nesting behavior.

Another possible reason for the ground-nesting behavior by Ospreys on East Ship Island may have been a lack of ground-based predators. No mammalian predators were observed on the island during this study. As noted earlier, ghost crabs may have been a predator of ground-nesting Ospreys on the island. Poorly-defined nests may allow the crabs easier access to the eggs or young. We suggest that nest size and structure may influence the vulnerability of Osprey ground nests to ground-based predators.

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