

Effects of Disturbance and Predation on American Oystercatchers (*Haematopus palliatus*) During the Breeding Season, Cumberland Island National Seashore, Georgia, 2003

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Concern for the future of nesting shorebirds is high due to continued development along the US Atlantic coast, and the sensitivity of many shorebird species to human disturbance. With a total US breeding population estimated at 1,600 to 3,000 breeding pairs, the American Oystercatcher is one of four shorebirds listed as a species of extremely high priority in the US Shorebird Conservation Plan, Southeastern Coastal Plain-Caribbean Regional Shorebird Plan. The species is state-listed as rare in Georgia; only an estimated 100 pairs breed along the Georgia coast (Ozier *et al.* 1999; Winn 2000). Biologists have found that nest success is low (usually <25%); however, recent studies have not focused on exact identification of causes of nest failure and chick losses. Research is needed to identify these causes specifically. Additional research is needed to identify effects of disturbances (i.e., dogs, people, or vehicles) and predation, survival through fledging, and causes of mortality for the American Oystercatcher. This information is vital for effective management of the species.

Objectives

- Determine nest success on Cumberland Island
- Determine depredation rates and sources
- Determine disturbance frequency and duration and its effects on nesting success
- Quantify a threshold of tolerance to disturbance



Figure 1. Map of study area

Study Site

- Cumberland Island National Seashore
 - Largest barrier island in GA (8 x 28 km)
 - Provides high quality nesting habitat for American oystercatchers
- South end relatively disturbed
 - pedestrians, vehicles, ATVs, boats, pets
- North end relatively undisturbed (Wilderness)
 - occasional boats, vehicles, ATVs



Methods

- Monitored all nests on island during breeding season
- Used video monitoring equipment to determine causes of nest failure
- Collected activity budget data for all juveniles and nesting adults
 - 30-min observational period
 - Instantaneous activity at every 15-sec interval
 - 16 activity categories (feeding, preening, walking, incubating, etc.)
- Collected disturbance data
 - Type of disturbance
 - Distance of disturbance to subject bird
- Will use activity and disturbance data to determine effects of disturbance on nesting success



Video Monitoring Equipment

Results

- Surveys began 18 March 2003
- Ten breeding pairs, one non-breeding pair
 - established territories on southern third and extreme northern extent
- Clutch initiation began 28 March 2003
 - Nesting peaked in mid-April
 - Renesting peaked mid-June through July
 - Hatching occurred in May
 - Fledging completed by late June
- 19 nest attempts made
 - 4 successful (21%)
 - 15 failures (Figure 2)
- Predation was the cause of 10 nest failures (52%, Figure 3)
- >300 hours of activity and disturbance data collected
 - Classified nests into disturbed and undisturbed groups (Figure 4)
 - Data not yet analyzed

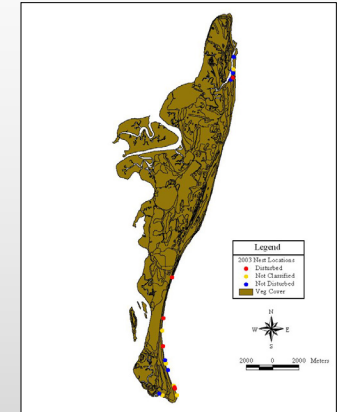


Figure 4. Nest disturbance classification

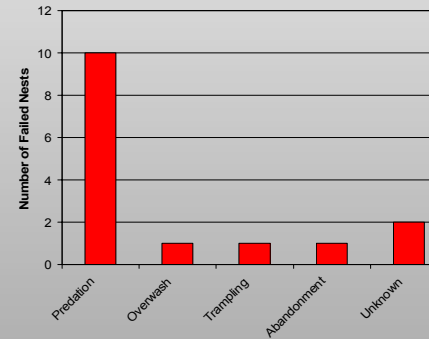


Figure 2. Causes of nest failure

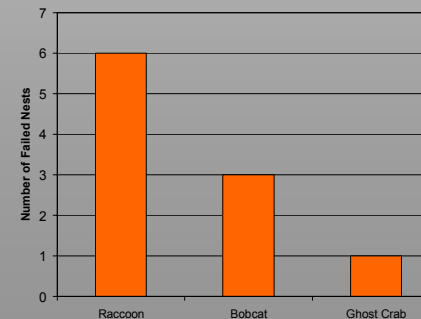


Figure 3. Predation Sources

Discussion

Nest success for the 2003 breeding season was high (21%), but within the range of nest success found in other research conducted in the Southeast. Preliminary data analysis suggests that predation is the primary cause of nest failure on the island. Disturbance may have some effect on nest success; however these data have not yet been analyzed. This analysis will occur later this fall.

We will continue our study in the 2004 breeding season. Because predation is a problem, we will test the effectiveness of predator exclusion devices.

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