SELECTION OF A STRAND LINE FOR NESTING BY LEAST TERNS: MANAGEMENT IMPLICATIONS

Jerome A. Jackson and William E. Davis, Jr.

Department of Biological Sciences
Mississippi State University
Mississippi State, Mississippi 39762

College of General Studies
Boston University
Boston, Massachusetts 02215

On 14 June 1992 we censused nesting Least Terns (*Sterna antillarum*) along the Mississippi Gulf coast in Hancock, Harrison, and Jackson counties. In the course of our census at the largest of colonies (ca 2000 pairs; see Jackson and Jackson 1985 for history of this colony) on the man-made beach in Gulfport, Harrison County, we became aware of a non-random dispersion of nests. Since this is a man-made beach, it continually erodes away and is replenished by pumping sand in from Mississippi Sound. On our visit, the beach sands were quite depleted, such that a recent storm tide had reached halfway up the beach, depositing a distinct drift line of debris dominated by chips of pine bark (Figure 1). We were censusing nests (early in the day to avoid overheating of eggs) by walking transects parallel to the seawall. There were relatively few nests until we reached the strand line. Then we found an abundance of nests. Beyond the strand line, again, there were fewer nests. It was also clear that the tan, dark-spotted eggs were less conspicuous in the strand line because of the debris. Away from the strand line, the beach is uniform light-colored sand with very little in the way of shell fragments or other materials as a result of the raking of the beach at two week intervals outside of the tern nesting season. To test the hypothesis that the birds had selected the strand-line microhabitat over the more open adjacent areas, we modified our census to specifically compare nest densities of the open beach with those of the strand line.

Along a randomly-selected 100 m length, 2 m width, of the strand line we found 15 nests with eggs and one with chicks. Along a 100 m length, 2 m width, transect parallel to the strand line, but precisely through the middle of the colony (midway between the nests closest to and most distant from the seawall), we found only 2 nests with eggs. We repeated the exercise in another part of the colony and found 22 nests with eggs along the strand-line transect and 3 along the mid-line transect. In a third part of the colony where there was a relatively dense growth of sandspur (*Cenchrus*), a 100 m transect along the strand line included 19 nests, whereas a 100 m transect through mid-colony included 8 nests.

The differences are so great that statistical analyses are not needed to demonstrate their significance, although the adaptive value of selecting strand-line sites over non-strand-line sites may include one or both of two possibilities. The eggs are more camouflaged within the more heterogeneous environment of the strand line, but at the same time, the variability in the pattern of scattered debris may provide cues that allow each pair to more easily locate their own nest in this large colony. Burger and Gochfeld (1990) suggest another possibility. They found Least Terns in New Jersey and New York preferentially nested in areas with shells mixed with sand and avoided pure sand beaches and suggested that the presence of the shells lessened the potential for drifting sand. Debris in a strand line might function similarly.

Our data suggest that land managers might be able to attract terns to specific areas—and possibly away from others—by spreading bark chips or similar material (commonly sold as mulch) in a pattern and density similar to those found in a strand line. Such a linear arrangement as a strand line, however, may have a negative potential: if the terns can use it as a cue for locating their nests, a predator might learn to do so as well. Under normal conditions, Least Terns shift nesting areas as a result of natural succession, moving to more open areas as vegetation becomes dense through natural succession. The Biloxi colony, however, has been managed for several years to maintain the early successional stage of the habitat and keep the birds within the same protected area. These management efforts have the potential of allowing predators to learn nest any such placement strategy of the terns. Certainly the balance between positive and negative impacts might vary from site to site and any such management efforts should be monitored carefully.

LITERATURE CITED

Burger, J., and M. Gochfeld. 1990. Nest site selection in Least Terns (*Sterna antillarum*) in New Jersey and New York. Colonial Waterbirds 13:31-40.

Jackson, J.A., and B.J.S. Jackson. 1985. Status, dispersion, and population changes of the Least Tern in coastal Mississippi. Colonial Waterbirds 8:54-62.

Figure 1. Strand line of bark chips and other debris left by an unusually high tide and used preferentially for nesting by Least Terns within the Gulfport, Mississippi, tern colony.