SOME OBSERVATIONS ON THE BREEDING BEHAVIOR OF LEAST TERNS

by Alan E. Strauss

During the summer of 1991 I participated as a volunteer in a program to monitor the behavior of Piping Plovers and Least Terns, both endangered species, in Rhode Island. The program at Goosewing Beach in Little Compton started in 1990 and was a joint effort between the Nature Conservancy of Rhode Island and the Lloyd Center for Environmental Studies in North Dartmouth. Peter Johnston, from the Lloyd Center, served as warden. The overall study was initiated in 1986 under the federal Piping Plover Recovery Program and the Rhode Island Natural Heritage Program. Volunteers help maintain the roped-off areas and reset displaced stakes and signs. In the course of my volunteer work, I studied the behavior of Least Terns throughout their breeding cycle. My data are descriptive, and only after my field work did I consult reference material to compare my observations with those already published.

Ecologically Goosewing Beach comprises three zones: open ocean, a line of dunes, and a salt pond (Quicksand Pond) located behind the dunes. Beach grass covers both the dunes and area just behind the dunes. The nesting area contained scattered small pebbles and cobbles, as well as dried vegetation and broken shells. Burroughs (1966) determined that Least Terns require a pebble substrate for egg camouflage and sparse vegetation to provide chick shelter. The terns occupied the base of the dunes and along the edge of the salt pond, the same areas used by Piping Plovers.

Least Terns arrived by about mid-May and began nesting by the beginning of June. Mating typically involved the male catching a fish and bringing it to the female. The male would wave the fish from side to side in front of the female and walk around her, pacing back and forth. Following this ritual, he would mount the female, copulate, and give her the fish (although sometimes the male would eat the fish). This type of behavior, called courtship feeding, has been previously reported for Least Tern (Haddon and Knight 1983). The nest consisted of a shallow depression in the sand, made presumably by the female. No lining or nest material was added to the shallow nest. Two eggs per clutch is typical across the United States (Houde 1977; Hays 1980; FWS 1983). The well-camouflaged eggs are off-white with dark gray-to-black speckles. Egg size ranges from 23.8 to 31.2 millimeters (Hardy 1957).

One bird would usually remain on the nest while the other member of the pair would stand nearby or forage for fish. Captured fish appeared to be sand lance, which are slender, silvery green, and slightly longer than an inch. The incubating bird would fly off its nest if a human or dog came too close.

The first young were hatched from early to mid-June. Incubation normally

requires nineteen to twenty-five days (Nature Conservancy, undated). Hatchlings are covered with yellow-brown down and have a dark yellow bill and yellowish legs and feet. Young terns are at first quite similar in appearance to Piping Plover chicks, but they develop much more rapidly and attain a slightly upright stance and the ability to waddle within a few days. I observed one tern chick immediately after hatching, and it walked weakly and hid among a tangle of dried seaweed. An adult always remained near the chick and would drive off Herring Gulls, even if they just flew over the general vicinity of the newborn chick. The chick was fed two fish per half-hour.

Juvenile Least Terns are gray-brown in overall appearance and have a dark bill. Wings are short but have the characteristic black outer primaries. The mantle of juvenile birds has distinct feathers with dark edges forming V-shaped patterns. The crown is streaked brown, with the beginning of an eye stripe. As juveniles age, they become more like adults in plumage. The bill turns yellow with dark smudges; the crown is streaked with dark gray; the eye stripe is more distinct; and the upperparts are pale gray. When immatures are seen in flight, they have a noticeably dark area on the leading edge of the wings, giving them almost the look of a Black Tern in molt. However, the trailing edge of the inner wing is light in color, and their flight is swift with quick wingbeats. The last part of the bird to attain adult plumage is the forecrown, which eventually becomes black but is often flecked with white. Leg color slowly changes from fleshy brown to yellow-brown to solid yellow, typical of a full adult.

Feeding behavior of young Least Terns at Goosewing Beach was variable and quite interesting. At times one or two adults with fish would land next to a young tern, and the young bird would maintain a hunched posture and show no apparent interest in the food. Eventually, the adults would fly off. At other times one adult with a fish would walk toward a young tern, which would seem to back away, opening and closing its mouth several times. A second adult with a fish would also approach the young tern, which would again back away. One of the adults might then fly off, and the other consume the fish; thus the young bird would not feed at all. At other times, however, one adult would fly in with a fish, pass it to the other adult, who then presented it to the juvenile, which was typically hunched in the beach grass. At still other times, one adult would fly in and give a fish directly to the juvenile, which would readily ingest it. The adult terns were generally silent unless they had a fish, in which case they would constantly make a harsh kip, kip, kip sound. This call was also made when a human or dog was nearby.

Juvenile birds typically fed in the salt pond, hovering and swooping down to catch fish in a manner quite similar to adult feeding behavior. Fish captured by juveniles appeared considerably smaller than those taken by adults (which fished in the open ocean), but may have been adequate to satiate the young birds. Perhaps this is why the immatures seemed to be uninterested in accepting

a larger fish from an adult.

Between July and August I counted approximately sixty Least Terns including about ten young. Using Litwin's conversion factor of 0.9, this total would equal about fifty-four pairs (Litwin 1983). The last nesting took place around mid-July, at which time six nests were established. A large storm with high winds and surf caused the destruction of all but one of these late nests, which was still present on August 7. Birds sometimes renest after storm damage (Jernigan et al. 1978), but it was late in the breeding season for this to occur. Between August 7 and 10, the egg in the remaining nest hatched. The chick spent most of its time hidden among dried vegetation, a behavior that may provide both protection from discovery and from too much sunlight (Blodget 1978). Adults were seen feeding this chick.

One juvenile tern was seen being preyed upon by a Great Black-backed Gull. Other potentially predatory species include Black-crowned Night-Heron, American Crow, Northern Harrier, American Kestrel, and various gulls (Nature Conservancy, undated).

I visited Goosewing Beach several days following Hurricane Bob and found only a few terns and one Piping Plover. Least Terns were seen flying over the dunes the day after the hurricane.

Least Tern nesting success is threatened by natural predators, human encroachment, and severe weather. Above-average rainfall and harsh weather conditions can account for many nest losses (Grover and Knopf 1982). Apparently, the bird protection program has contributed to the increase of breeding pairs of Least Tern in Massachusetts from over one thousand terns in 1974 to over twenty-five hundred in 1990 (Blodget 1992). It is crucial to maintain suitable and protected nesting areas for these birds because their breeding success can be so tenuous.

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ALAN E. STRAUSS is currently studying nesting species. He would like to thank Colleen Shaw and Griff Venator for their help.

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