

The success of this capturing technique is based upon the grebes' behavior of leaving a nest by diving to open water rather than by swimming or flying. Incubating birds of both sexes were easily caught by placing a submerged net between the nest site and the open water so that it intersected their route of escape. To minimize the chances of nest desertion, trapping efforts were restricted to the 2-week period between clutch completion and hatching of the first egg. Placement of the net depends primarily on water depth. The lower 30 cm of each dowel was pushed into the marsh soil for support while the float line of the net was allowed to rest on or slightly above the water surface. In water <60 cm deep, I pushed the dowels in at an angle, leaning toward the nest site, so that most of the net was submerged. The net was usually set within 7 m of a nest. Setting the net loosely enabled entangled birds to reach the surface of the water and aided their retrieval. The operator must select a remote observation site that provides concealment and affords good visibility of the area surrounding the net. Occasionally grebes became entangled in the net while they were approaching a nest. Immediate retrieval of entangled birds is necessary to prevent possible injury or drowning. Most grebes, however, were reluctant to swim over or dive under the float line. They avoided the net by swimming along its length and then around either end. Incubating grebes were very attentive and readily returned to the nest, often within 5 min. As a general rule, I waited until the bird had settled on the eggs before flushing it from the nest. This was accomplished by approaching the nest from the nearest shoreline so that the incubating grebe was forced to retreat in the direction of the net. After weights and measurements were recorded, birds were released in the water a considerable distance from the net. A released bird was reluctant to return to its nest and generally spent several minutes bathing and preening. During this time, the nest was normally attended by its mate. By flushing the mate off the nest, I was able to capture this bird as well. When this was accomplished, I removed the net promptly to avoid the possibility of re-trapping the first bird.

Forty-three adults were captured using this technique. The capture rate per trapping effort was not quantified, but most initial attempts were successful. Grebes that avoided or escaped from the net were easily caught in a subsequent attempt by altering the placement of the net. On nine occasions, both members of a pair were captured in one trapping attempt. All grebes were released unharmed and, in most cases, nesting activities were interrupted only temporarily. Of 33 pairs in which one or both sexes were captured, only one deserted its nest. This occurred after both sexes had been captured simultaneously. Perhaps the greatest restriction in using this technique is its seasonal limitation. Outside the nesting period, grebes do not exhibit strong affinities for sites close to shore. This method was also unsuitable for capturing young grebes.

I wish to thank Bruce D. J. Batt and Robert W. Storer for their assistance in reviewing an earlier draft of the manuscript. Fieldwork was funded by National Research Council of Canada and Northern Studies Committee of the Department of Indian and Northern Affairs (grants awarded to Spencer G. Sealy, University of Manitoba), Gulf Oil Canada Limited, Manitoba Department of Renewable Resources and Transportation Services, and National Audubon Society.—ROBERT S. FERGUSON, *Ducks Unlimited (Canada), Box 776, Dauphin, Manitoba, Canada R7N 3B3*. Received 21 September 1979, accepted 30 January 1980.

Preventing Fox Predation at a Least Tern Colony with an Electric Fence.—In the summer of 1978, as part of a program for protecting nesting terns at Cape Cod National Seashore, an electric fence was erected around a colony of Least Terns (*Sterna albifrons*), as an anti-predator device. The colony on Nauset Spit, Eastham, Cape Cod, MA contained 138 nests on 17 June; its circumference was one mile.

This colony was one of several being monitored to determine the reproductive success of Least Terns within the Seashore. The area was posted with interpretive signs explaining the situation and urging no trespass; a large buffer zone was created between the outermost nests of the colony and a restrictive fence, as recommended in "Guidelines For The Protection And Management Of Colonially Nesting Waterbirds" (Buckley and Buckley, National Park Service publication, 1976). In addition, tern wardens, student conservation aides, and park rangers patrolled the area daily from 23 May to 30 August. Observers worked solely from blinds; no banding or marking activities were pursued.

To protect the colony against predation by Red Foxes (*Vulpes fulva*), over one mile

of fence was erected around the perimeter; it consisted of three strands of wire, 6 in, 12 in, and 18 in from the sand, connected to a 6-volt battery-operated charger and an 8 ft-copper ground rod. Generally the specifications followed those in "The Control of Fox Movement By Electric Fencing" (Patterson, *Biol. Conserv.*, **11**, 1977). Efforts were made to oversee all fox activity in the area of the colony. Researchers finding fox tracks walked over them so that fresh tracks could be recognized.

Tracks and scats of the foxes were first noticed near the colony on 28 May, and almost daily thereafter. On 18, 19, and 20 June, observers recorded that the incubating terns seemed "skittish, nervous, uneasy." This phenomenon was first thought to be associated with hatching, but no chicks were noted. Nest numbers decreased from 138 to 129 on 20 June, and from 129 to 61 on 22 June. By 23 June only 45 tern nests remained. Fox tracks crisscrossed the colony. On the nights of 22 and 23 June, a fox was observed in the colony and was chased away.

On 24 June the electric fence was erected. On 25 June we noted a slight increase to 48 nests; a week later, 2 July, we counted 60 nests, and by 6 July, 85 nests. Fresh fox tracks were seen near the colony, but they never came closer than 10 ft to the electric fence. New nests (ca 15, until 27 July) outside the fence were consistently taken by the foxes—none survived. Although we tried, we never saw a fox being repelled by the fence.

The fact that the fence repelled the foxes so completely is noteworthy, because on 4 July we discovered that the fence was not delivering a shock due to a number of factors. The fence was turned off for over a week and still the tracks never crossed it, nor even approached it. It is unlikely that the foxes had prior experience with electric fencing in this non-agricultural region. Perhaps a deterrent was a slight whistling sound which emanated from the taut wires in any wind.

Although the electric fence immediately stabilized the number of nests, we saw few chicks from the original 45 pre-fence nests. Chicks from these nests should have been evident by mid-July, but we saw no significant numbers of chicks until the third week of July and later. Most of these chicks were probably produced from the nests (ca 40) that appeared after the fence was up. We tentatively ascribe the nonproductivity of the earlier nests to night desertion, which was observed on 22 and 23 June.

The electric fence was placed in storage on 27 August. On 1 September we visited the site of the colony and found fresh fox tracks again crisscrossing the area.

We estimate that only 27 Least Terns fledged from this colony. Although this is low productivity considering the original 138 nests (0.19 fledged per nest), the figure is higher if only the post-fence nests are considered (0.67 fledged per nest).

We believe there would have been virtually no production without the fence. Further, for this particular colony, fox predation was probably the only significant factor in nest failure and egg and chick mortality. Human disturbance was almost nil, because the beach was closed to vehicular traffic, the site was almost a mile's walk from the nearest bathing beach, and extreme protective measures were taken, as discussed above. High tide damage, often the greatest mortality factor for Least Tern nests (Minsky, "Report of the Tern Warden, Season of 1978," Cape Cod National Seashore, 1978) was moderate here. Great Horned Owl (*Bubo virginianus*) kills, mainly of Herring Gulls (*Larus argentatus*) were observed in the area throughout the season, but not until mid-August did we find Least Terns (all fledglings) that had been killed by owls.

The electric fence required much labor to assemble and disassemble, had to be inspected daily, and was expensive (\$345.71, complete). Such a fence might be a liability in areas of human congestion; it might not be suitable for those species that perch. But for large colonies of Least Terns in isolated situations, where other anti-predator options are not possible, an electric fence may prove useful.

The following people contributed their time and energy to this project: Miriam Rowell, Kay Zimmer, Mary Mahaffy, Gary Dulin, Pablo Ruiz-Ramon, and Andrea Van Arsdale. Dr. I. C. T. Nisbet supplied the Patterson article and much encouragement. This note was prepared while I was employed at the South Florida Research Center, Everglades National Park. I am grateful for comments upon it by Dr. W. B. Robertson, Jr.—DENNIS MINSKY, *Cape Cod National Seashore, South Wellfleet, MA 02663*. Received 27 February 1979, accepted 2 March 1980.