

REPORT ON THE TERN POPULATION
NANTUCKET ISLAND, MASSACHUSETTS, 1980

by Nan Jenks-Jay
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Introduction

In 1978, the Trustees of Reservations initiated the first Tern Management Program on their Nantucket Coskata-Coatue Wildlife Refuge. The following year, 1979, the terns failed to nest on this property. Faced with this situation, the Tern Chief made a decision to broaden the scope of the project to include other tern nesting sites. Sanctioned by the Trustees of Reservations, the Nantucket Conservation Foundation and private landowners, the Tern Management Program encompassed the entire island. The results proved to be quite beneficial. A complete picture of Nantucket's total nesting tern population evolved.

The 1980 Nantucket Tern Management Program encompassed seven tern colonies on the island. These colonies were located at Great Point, Coatue Point, Quaise Point, Low Beach, Siasconset, Surfside, and Quidnet. The species observed were Least Tern (*Sterna albifrons*), Common Tern (*Sterna hirundo*), Arctic Tern (*Sterna paradisaea*), and Roseate Tern (*Sterna dougallii*). Only two of these species actually nested on Nantucket: Least and Arctic.

Method

The three main objectives of the Tern Management Program were: to census the tern population, to provide protection to nesting terns, and to increase public awareness through interpretation and education.

Census: The census method employed was that of direct count. After the colonies were established, the censusing commenced. A census was made during regular colony visitation. With routine visits, the nesting activity was monitored. Nests were numbered and plotted on a corresponding map. Information regarding breeding pairs, nests, eggs, chicks and fledglings was recorded. Most observations were made from outside the colony, either using a vehicle as a blind, as suggested by Blodget (1978), or using a spotting scope from a distant vantage point in order to create less disturbance. Colonies were not entered in the mid-day heat nor when cold or damp weather conditions prevailed.

The comparative data that the census provided exhibited local trends in nesting. When compiled with the census data collected by other tern programs, it showed the fluctuations in state and coastal tern populations.

Protection: Protective measures were taken in an effort to decrease the disturbances and dangers that nesting terns are exposed to under normal conditions. The goals of such intervention were to see an increase in the fledgling survival rate and eventually in the total population.

The tern colonies were protected from human disturbance by posting signs, erecting fencing and patrolling the area to reduce intrusion. A survey early in the season determined the location of seven tern colonies on Nantucket. Protective measures varied in accordance with the specific needs of each individual colony. Colonies in areas of unrestricted and frequent Off-Road Vehicle (ORV) use required more physical barriers. At Coskata-Coatue Wildlife Refuge the tern colony was fenced with cedar posts strung with telephone cables. Strips of reflector tape were tied on the cable between posts to alert approaching vehicles. Driftwood was placed between posts at the ends of the colony which faced oncoming ORV traffic. Three-inch plastic reflectors on each post forewarned night drivers. "Bird Nesting" signs alerted and informed beach visitors. As recommended by Buckley (1976), buffer zones were left between nests and the posts when possible. The narrowing of some beaches prohibited the allowance of a buffer zone where sufficient space had to be reserved for passage of ORV during high tides. Vehicles were encouraged to use a single, well-established track which directed them safely around the colony. Signs reading "Caution - Baby Birds in Tracks" were posted when chick-hatching dates arrived. Other more undisturbed colonies required only the posting of signs. Shingles with reflector tape were placed between the signs to make the size and shape of the colony more apparent to occasional beach visitors.

Regular visits to the colonies by the Tern Chief and volunteers discouraged human intrusion and disturbance. During this patrolling, interaction with beach visitors helped to increase public awareness and establish good public relations.

In addition to providing protection from human disturbances, measures were taken this season to provide protection from predators as well. For two consecutive years avian predation has posed serious problems to Nantucket's Least Tern populations. In 1978 a pair of kestrels (Falco sparverius) decimated the tern colony on Siasconset Beach.

Feeding their own 5 nestlings, the pair picked up a tern chick approximately every 15 minutes until not a chick remained (Study and Census of Terns, Nantucket, 1978). In 1979 a female Northern Harrier (Circus cyaneus) considerably reduced the success of the Tom Nevers Colony. Of 80 chicks only 4 fledglings were able to escape the keen eye of the harrier (Study and Census of Terns, Nantucket Island, 1979). The hawks began to hunt over the colonies after the first 3-day-old chick left the nest and the protective incubation of its parents.

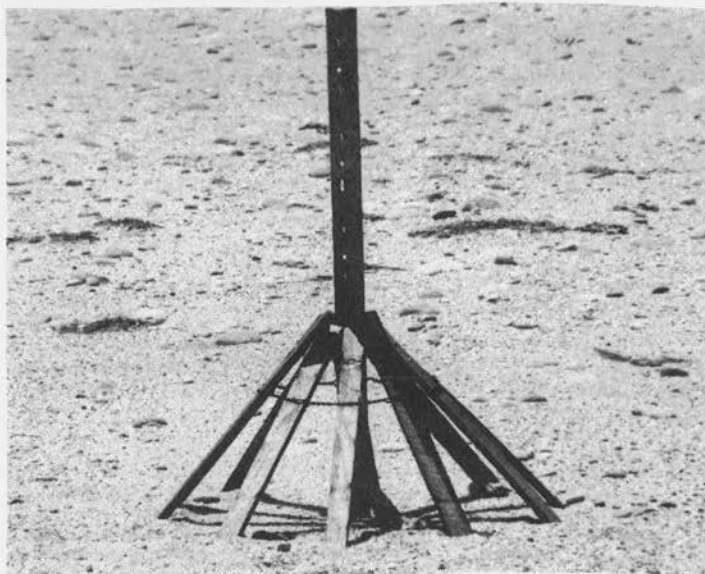
Traditionally, Least Terns nest on the sandy beaches close to the high tide mark, which is sparsely vegetated. Least Terns on Nantucket are no exception. These areas provide little or no shelter for tern chicks once they leave the nest. With only an occasional piece of beach debris or Sea Rocket (Cakile edentula) to crouch beside, the tern chicks become easy prey for avian predators. Out of necessity and sheer frustration came the conception of the Least Tern Shelter.

It was critical to have an understanding of the tern chicks' behavior. After the chicks are a few days old, they run randomly throughout the colony. These periods coincide with the sudden appearance of avian predators. Therefore, it is assumed that this activity attracts the hawks to the nesting sites. Adult terns have not fallen prey to the hawks, nor do the predators force adult terns off their nests. It is only when the chicks begin to wander that they become prey to hawks. It was also imperative to know that the Least Tern chicks seek shelter from the intense summer sun, whether in the shade of a tire track or in the shadow provided by small vegetation.

Because of these behavioral patterns, the Tern Shelter was designed to provide shade for chicks, thereby reducing the amount of random running in the colony. This reduction of chick activity and visibility failed to attract the hawks to the colony even when they were sighted in the vicinity. At the same time that the shelters provided shade from the sun, they provided protection from the talons of hunting hawks.

The Tern Shelters are constructed out of discarded snowfencing. There are two benefits to recycling old snowfencing. First and foremost, it is free. Second, it is in large supply following the winter season. Damaged sections can be acquired from the local Department of Public Works, the State Highway Department or community landfills.

Essentially the snowfence is taken apart, modified and reassembled into a Tern Shelter. (See photo.) Slats are removed from their wire supports, cut and drilled, and returned to the wire supports, now in the shape of a cone. The cone shape and open design allow sand and beach litter to blow through the shelter without build-up. The open feature which characterized the shelter discouraged mammals such as mice and rabbits from nesting in the shelters. Another favorable aspect of the open design was that it enabled the chicks to spot and hear respective parents arriving with food. Previous observation noted that hungry chicks would run to a parent which had arrived with a fish. Surprisingly, when shelters were placed in colonies, the reverse was found to be true. Many chicks remained inside them when the adult brought food. The parent spotted the chick, walked into the shelters, fed the chick and left.



Least Tern Chicks Crouch in the Shade
Provided by Tern Chick Shelter
Photo by Nan Jenks-Jay

This reduced the great amount of running-about which had been characteristic in the colony before the chicks were fledged. The shelter's cone-shape design provided shade from one slat or another throughout the day. The center posts varied in height. Those that extended beyond the top of the shelters were not used as perches by avian predators. The only example of center post perching was exhibited by one of the 3 Arctic Terns. Some posts were attached to the shelters; others were not. It appeared to make little difference, for even an unattached post, which was the same height as the shelter, was sufficient to secure it in high winds. Throughout the entire season no shelters were damaged or lost.

Tern Shelters were placed at random throughout the colonies. The first observation of shelter use was in the Great Point Colony. Three chicks from a 3-egg clutch found their way to a shelter on the first day that they left the protection of the nest. The three traveled approximately 20 yards to the shelter.

The shelters were not defended by adults as was the territory of nest sites. Chicks of all ages were observed in the shelters. Even fledged birds stood in the shade provided by the slats of the cone. Up to 5 chicks were observed utilizing a shelter at one point. Data showed that the greatest amount of usage occurred when temperatures were the highest. Increased shelter usage coincided with increases in daily and seasonal temperatures. Shelter use was less in the early morning hours and on overcast days.

In regard to visibility on the beach, the Tern Shelters were moderately unobtrusive. The recycled snowfence cone did not look terribly out of place on Nantucket beaches which are strewn with snow fencing used in efforts to control erosion.

The positive public reaction to the Tern Shelters was unpredicted. The nature of repeated visitor comments was that they now knew something was actually going on in the colony. Untrained observers had great difficulty seeing nests, eggs, or chicks. If adults were in the air, beach visitors had some disbelief when reading posted signs which warned of a nesting area. Even if their function was not understood, the shelters were found to provide visitors with something visible. They were often able to spot chicks inside the shelters. In this way the shelters helped to increase public awareness of our efforts to protect the terns.

In conclusion, the Tern Shelters are constructed with a minimal expenditure of time, effort and money. They should endure for several seasons since replacement due to wind loss or damage is low. They are lightweight and easily transported. With the center post removed, the shelters stack for convenient storing. The shelters provide necessary protective shade for tern chicks. By the end of this season, chicks sought refuge in the shelters in instances of human, dog or vehicle disturbances. Many factors may have influenced the lack of hawk activity in the tern colonies, but it should be noted that no avian predation occurred in the seven tern colonies on Nantucket following the distribution of Tern Shelters.

Results and Discussion

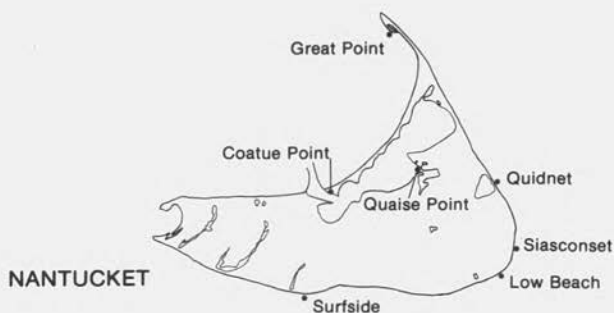
The census for the past two consecutive years has shown very little change in the Least Tern population (1979--210 pair, 1980--213 pair). Little fluctuation has occurred in the productivity of these colonies over this two-year period (1979--63 fledglings, 1980--66 fledglings). Therefore, it should be noted that in 1979 and 1980 the Least Tern population on Nantucket has remained stable.

Likewise, the number of Arctic Terns has remained the same, one pair and one nest helper at Quidnet.

The number of Common Terns nesting on Nantucket Island has decreased in a three-year period. In 1978, 12 pair nested at Great Point. In 1979, only 2 pair nested on Nantucket, again at Great Point. The Great Point lagoon was the site of many loafing and unmated Common Terns in 1980, but no Common Terns were observed nesting on Nantucket this year.

Seven colonies were established by nesting Least Terns in both 1979 and 1980. Many of the 1979 nesting sites were reused in 1980 with the exception of some shifting along the southeastern shore. Of the seven 1980 colonies, five were considered to be productive: Great Point, Surfside, Quaise

Point, Siasconset and Low Beach. Great Point saw the return of nesting Least Terns after a season of absence. However, ORV disturbance disrupted the Great Point colony, which only fledged 6 chicks. Quaise Point produced only 13 fledglings due to a late July storm washout. Low Beach produced 6 fledglings. Siasconset, a colony settled late in the season, produced only 4 fledglings as a result of high tide and storm water damage. Surfside proved to be the most productive colony again this year as it was in 1979. With a total of 37, Surfside successfully fledged more chicks than any other Nantucket colony.



The remaining two, Coatue Point and Quidnet, produced no fledglings. Coatue Point was abandoned early in the season. The Quidnet nesting was disrupted by ORV destruction on two fatal occasions.

Conclusion

An official Tern Management Program encompassing the entire Island is relatively new on Nantucket. Therefore, it is difficult to determine the long-range effects of the program over such a short period of time. However, for two consecutive years the Least Tern population has remained relatively stable. Fledgling rate has been consistent also. Enrichment programs continue to increase public awareness, but more attention is required in the area of ORV's to discourage abuse of the beaches and colonies. Regardless of the number of individuals who have become more aware of the terns due to the many outreach programs, it still only takes one vehicle to destroy an entire tern colony.

The Tern Shelters were designed in response to the need to discourage avian predation. With the use of Tern Shelters, hawk predation did not occur on Nantucket this season.

The Trustees of Reservations receive acknowledgement for initiating and continuing the Tern Management Program on Nantucket. Again, my sincere gratitude and admiration goes to author-naturalist, John Hay, who as a Standing Committee

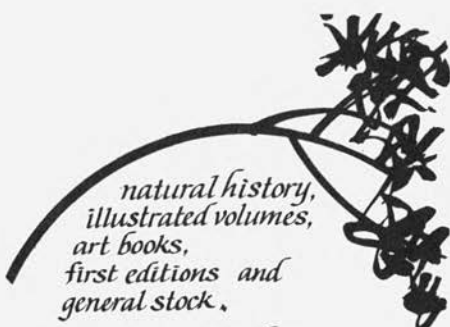
Member of the Trustees of Reservations generously provides funding for this project. It is his dream that we all share: to see the preservation of not only the terns and Nantucket, but also our environment.

Literature Cited

Blodget, Bradford G. 1978. "The Effects of Off-Road-Vehicles on Least Terns and Other Shorebirds." University of Massachusetts and National Park Service Cooperative Research Unit, Report Number 26.

Buckley, P.A. and Buckley, F.G. 1976. Guidelines for Protection and Management of Colonially Nesting Waterbirds. National Park Service. Boston, Massachusetts.

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