

PROTECTION OF MASSACHUSETTS' NESTING TERNS

by Scott Hecker and Ann Prince Hecker

In 1896, when the Massachusetts Audubon Society (MAS) was created to stop the killing of terns and other birds for their plumage, a tradition of avian species protection began that has remained an integral part of the conservation program. Through its Coastal Breeding Bird Program, the society continues to protect terns, plovers, and a variety of water birds that nest on the Massachusetts shoreline and to increase the total number of fledglings that live to depart with their parents in late summer and early fall for warmer climes.

There are several obstacles that the state's coastline birds face in their attempts to breed successfully. The most serious are predation, lack of appropriate habitat, and displacement by gulls. An ideal site for a colony is one that is free of foxes, skunks, weasels, rats, and other mammalian predators and above the reach of tides so that nests and young will not be washed away. And the site should be in close proximity to an abundant food source such as an offshore migratory-fish route, a salt-marsh creek, a coastal shallow, or an intertidal mudflat. It is the goal of Massachusetts Audubon to make certain that the locations available for tern colonies are as close as possible to being optimal sites for nesting. Most of the sites that the MAS Coastal Breeding Bird Program oversees occur on town and private lands on the South Shore and Cape Cod. A full-time coordinator, research assistants, and seasonal interns are employed by the society to monitor these areas.

Each year approximately thirty tern nesting areas are posted with signs, patrolled regularly, monitored for predation, and censused for nesting success. At the three largest colonies in the state, New Island, Bird Island, and Plymouth Beach, the young of Common and Roseate terns are banded. Common, Roseate, and Arctic terns require similar nesting conditions and often occur together in mixed colonies, sometimes containing over four thousand pairs. It is possible to distinguish the three species from each other by bill colors and by subtle differences in plumage. The Least Tern, which is half the size of the others, cannot be mistaken for any other tern.

Typically, the nesting habitat for Common, Roseate, and Arctic terns is an area on an island or on the tip of a barrier spit that is well above the high tide line and is lightly vegetated with beach grass or herbaceous forbs. Within the varying boundaries of the colony, the three species form subcolonies. The Common Tern, usually the most abundant species, generally nests on bare sand or stone and on flat areas or slopes with no vegetation or light, herbaceous cover. It is the only local tern species that makes a nest, which it assembles with beach grass. The Common Tern usually lays three coffee-colored eggs with dark

Identification of Terns Nesting in Massachusetts

	<u>Common Tern</u>	<u>Roseate Tern</u>	<u>Arctic Tern</u>	<u>Least Tern</u>
<u>Length</u>	13-16 inches	14-16 inches	14-17 inches	8.5-9.5 inches
<u>Bill</u>	red orange, blackish tip medium length	mostly black longer	blood red shorter	yellow smallest
<u>Body plumage</u>	medium-gray back white breast	light-gray back white breast	medium-gray back light-gray breast white cheek stripe	light gray back white breast
<u>Feet</u>	red orange	orange red	orange red, small	yellow
<u>Call</u>	"kee-ar-r-r"	"aa-a-ak" or "che-bek"	"tr-tee-ar"	"zree-e-p" or "kip, kip kip"
<u>Tail length (at rest)</u>	shorter than wing tips	longer than wing tips	same length as wing tips	shorter than wing tips
<u>Abundance in the state</u>	common entire coastline	uncommon se coastline	uncommon	common entire coastline

brown speckles. The Roseate Tern nests on the highest ground in the colony, usually on a slope with dense vegetation. There are two cream-colored, darkly speckled eggs laid in a well-concealed nest. The Arctic Tern finds a place to nest at the edge of the colony on relatively open bare ground, which is often close to the tidal wrack line. The nest is lined with a small amount of grass or debris, and it contains two or three olive-brown, spotted eggs.

Since the 1950s the most serious threat to Common, Roseate, and Arctic terns has been the loss of productive nesting habitat to Herring and Great Black-backed gulls. In the past fifty to sixty years the combined breeding populations of the gulls in Massachusetts have exploded from essentially none to over fifty thousand breeding pairs. The gulls, which nest in April, have displaced the terns, which nest in May, from the better nesting sites such as small offshore islands. The terns have been forced to nest on less-protected beaches where they are vulnerable to predation by mammals and to disturbance by humans.

State censuses of the gulls and the terns in the past few years indicate another reversal in the population trends. Gull numbers may be declining as a result of the covering and closing of municipal landfills. In contrast, since 1984 the Common Tern population in the state has increased by 27 percent, from seven thousand pairs in 1984 to ninety-five hundred pairs in 1988. Roseate and Arctic terns, however, have not increased in numbers during that period. Other than the large Roseate colony on Bird Island in Marion, the population of this tern has declined by over nine thousand and ninety pairs in New England. The steady loss of Roseate Tern colonies in the Northeast is the reason this bird was declared a federally endangered species by the U.S. Fish and Wildlife Service in December 1987.

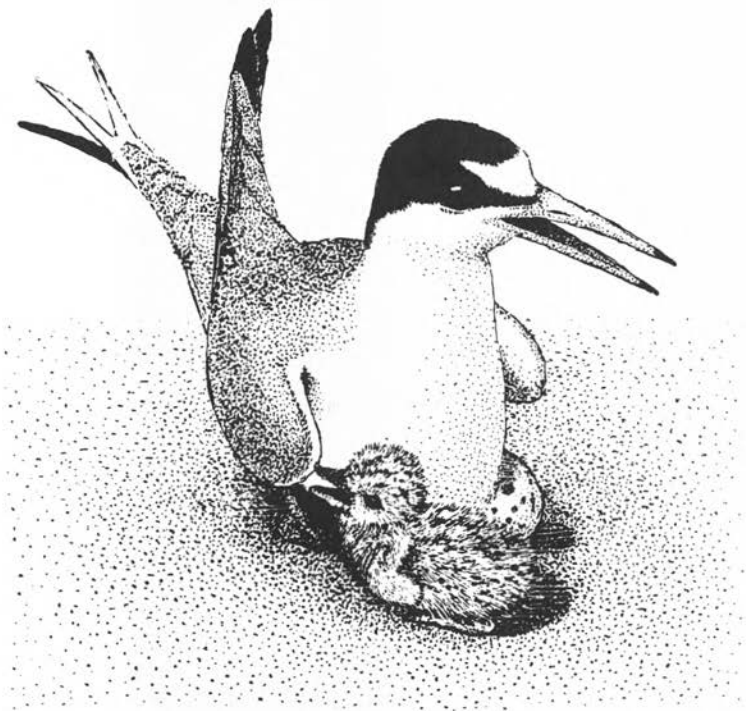
In 1988 there were approximately thirty sites where Common, Roseate, and Arctic terns nested. Of the more than eleven thousand nests censused in the 1988 breeding season, 82 percent occurred at only three colonies: New Island in Orleans, Bird Island in Marion, Plymouth Beach at Plymouth. As at nearly all the remaining smaller colonies, consumption of eggs and young by mammalian and avian predators was substantial at three of these large colonies. The colony at Plymouth Beach was heavily impacted by skunks and significantly disturbed by recreational use. At New Island nearly one hundred adult terns were killed by a Great Horned Owl in a one-month period. Only Bird Island, which is monitored by the Massachusetts Audubon staff on a daily basis, was virtually unaffected by predation. This year, however, Great Black-backed Gulls were seen killing and swallowing whole fledgling terns at most major colonies.

The Least Tern does not associate with the other tern species that nest in Massachusetts, but it is often found sharing the beach with Piping Plovers. Least Tern colonies are widespread on beaches in the portion of the state south of the North River area. The colony size ranges from a few pairs to over five hundred pairs. Typically, Least Terns nest on bare sandy or pebbly ground on the open beach at the tip of a barrier spit or island. The average-sized colony of thirty to sixty nests is usually located between the edge of the dune vegetation and the high tide line. Individual nests in which two sand-colored, finely speckled eggs are laid are nothing more than depressions, which are occasionally decorated with bits of white shell.

Piping Plovers often nest near or within the perimeter of a Least Tern colony. They usually choose to nest just within the edge of the beach grass or other vegetation but occasionally nest out in the open among debris on the tidal wrack line. The nest of this species is also only a small depression decorated with bits of shell. It typically holds a full clutch of four sand-colored eggs with fine, pepperlike speckling.

According to the 1988 Massachusetts census of Least Terns, there were over twenty-six hundred pairs at approximately fifty colony areas. The total is slightly higher than those of the past few years. Colonies with over one hundred pairs were recorded at six locations: Kalmas Park in Hyannis, North Monomoy Island off Chatham, Great Point on Nantucket, Popponessett Spit in Mashpee, and Nauset Heights Spit in Orleans.

The most serious threats to Least Terns and Piping Plovers are coastal development and the ever-increasing use of beaches for recreation. These disturbances have the same effect on Least Terns and Piping Plovers that colonizing gulls have on the larger terns. Development and beach use force the smaller nesters to move to poor sites where predation may be great and flooding tides are possible. If regular disturbances occur at a Least Tern colony in the early part of the summer, the colony will abandon the site to search for another. In Massachusetts foxes and skunks are the major predators on eggs and young. One fox regularly visiting a Least Tern nesting area can reduce fledgling productivity to zero.



Least Tern and Chick

Illustration by Scott Hecker

In 1988 the aim of the MAS Coastal Breeding Bird Program was to increase fledgling productivity of all four tern species at the larger colonies. An attempt to decrease the impact of predation by foxes, raccoons, and skunks included the use of two experimental techniques: solar-powered electric fences and conditioned taste aversion. The latter method is a technique of baiting tern nesting areas with chicken eggs injected with bad-tasting substances so that predators are conditioned not to eat any eggs found near the baited areas. This technique has been applied in the Great Lakes Region with high success.

How to help terns and other coastal waterbirds.

It is hoped that a combination of good management practices, testing new deterrents for predators, and enlisting the support and goodwill of the public will continue to help the nesting terns in Massachusetts. The following list indicates some of the ways individuals can become involved in this important conservation effort:

1. Write or call to ask where your local tern colony is and what you can do to help in its protection and management.
2. Help to plan a neighborhood slide lecture and guided tour, for the appropriate season, to a local tern colony.
3. Volunteer to spend an hour or more per week observing coastal species of birds during the nesting season.
4. Make a contribution to the MAS Tern Fund.
5. For further information about the MAS Tern Management Program, call or write to Scott Hecker, Massachusetts Audubon Society, Lincoln MA 01773 (telephone 617-259-9500).

SCOTT HECKER is coordinator of the Coastal Breeding Bird Program for the Massachusetts Audubon Society (MAS). His interest in birds stems from childhood in Olmsted Falls, Ohio. He combined interests in wildlife ecology and art at college in Arizona and continued in the field of natural resource management in graduate school in New Hampshire. An accomplished photographer and professional wildlife artist, he has taught biological illustration and produced drawings for the National Park Service. Scott's *Great Horned Owl* appeared on the February 1987 issue of *Bird Observer*. An exhibition and sale of his artwork was held in the summer of 1988 at the Green Briar Nature Center gallery in East Sandwich. Scott leads MAS natural history tours to Belize, where he pursued his doctoral study of the Aplomado Falcon.

ANN PRINCE HECKER is assistant editor of *Sanctuary*, the publication of the Massachusetts Audubon Society and loves to write. Her interest in birds was sparked when she met Scott, and now her favorites are warblers, plovers, and terns. Ann and Scott have lived in Belize where they worked on national park development. They now reside in Marshfield on the North River.