Each spring, piping plovers and least terns return to nest and raise their young on Maine's coastal beaches. They share the beach with other wildlife and with people - both of which affect their ability to survive.

Unfortunately, their survival is not guaranteed. Both are listed as Endangered Species in Maine, which means they are in imminent danger of disappearing. These birds are an important part of the natural beauty and heritage of Maine's coast. By conserving them, we are also conserving our environment, which relies on a delicately balanced interplay of all its inhabitants.

Maine Audubon Society and the Maine Department of Inland Fisheries and Wildlife work in partnership with other groups to protect and conserve these rare birds. This is only possible with the assistance of people like you. By taking the time to learn more about these birds and their needs, you can greatly contribute to their recovery.

The Piping Plover

Piping plover and clutch

While its plaintive call is easily recognized, the six-inch-tall piping plover can be difficult to spot against a sandy backdrop. The small bird's back and head are soft gray, while its belly and chest are creamy white. Viewed from a distance, the strokes of black across its forehead, around its neck, and at the tip of its tail feathers look like seaweed washed up onto the beach. Adult piping plovers have yellow-orange legs which speed them along as they search the shoreline for marine worms, crustaceans, sand fleas, and various insects.

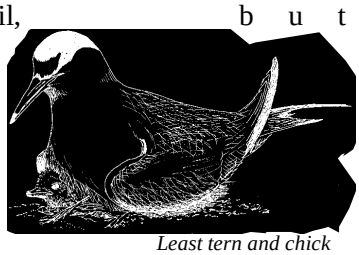
After wintering on beaches from North Carolina to Florida, and occassionally south to the Bahamas and West Indies, piping plovers migrate north to breed, some as far as Canada. Arriving in Maine by late March or early April, they remain until September, when they migrate south again for the winter. The piping plover's nest - or "scrape" - consists of a small indentation made in the sand above the high tide line and may be lined with seashell fragments or small stones. Sometimes the birds choose to shelter their nests under a tuft of vegetation.

Unlike other coastal birds in Maine, nesting piping plovers are not colonial. During courtship, a male bird makes numerous scrapes before his mate chooses one in which to lay her clutch of four eggs. Usually, she will lay one egg each day, incubating the clutch only after laying the fourth egg. Piping plover chicks hatch after approximately four weeks and are already full feathered and able to probe the sand and wrack line for invertebrates. They fledge (begin to fly) in approximately thirty days and, if they are lucky, may live as long as fourteen years.

The Least Tern

At only nine inches in height, the least tern is the smallest North American tern (it was once known as the "sea swallow"). The least tern has a gray back, white chest and belly, orange legs, and the black head characteristic of the tern family. The most observable field mark for the identification is the white wedge on the least tern's forehead. Although least terns will eat crustaceans, they are more likely to hover above the water before diving to catch small fish.

Least terns winter in Brazil, but migrate annually to their breeding habitat on the sandy beaches along North America's Atlantic coast. They reach Maine, their northernmost destination, by mid-May and begin their courtship ritual.

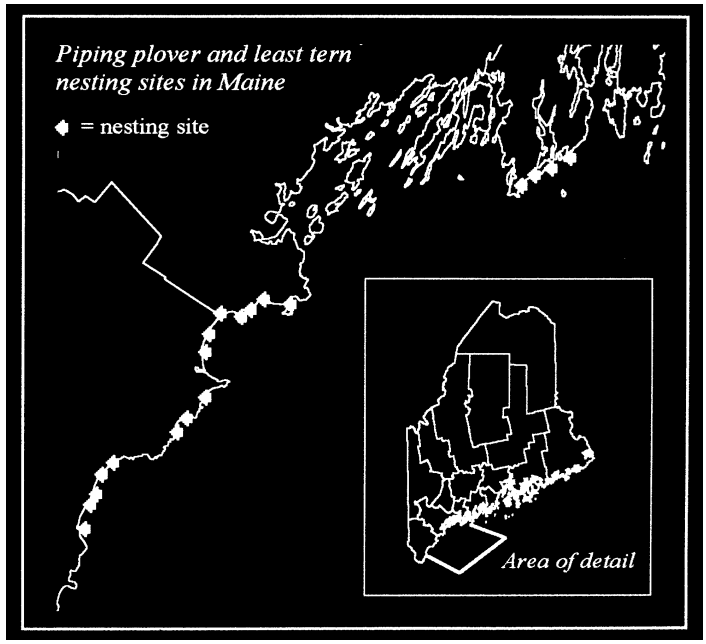


Least tern and chick

Least tern nests consist of small scrapes in the sand above the high tide line. A female least tern will lay two to three eggs in a nest. After approximately twenty-one days of incubation, the chicks hatch, but are completely dependent on their parents for small fish brought to them by their parents. The least tern's colonial nesting behavior means that the chicks stay within the colony and often in the nest so the adults can easily locate the chicks. The birds in the colony also provide protection from predators by "dive bombing" intruders and pelting them with droppings. Least tern chicks fledge three weeks after hatching and are known to live twenty years or more.

MAXIMUM # OF LEAST TERN PAIRS NESTING AT SITES IN MAINE (1990 - 1996)

Town	*Beach*	*# of Pairs*
Wells	Laudholm	14
Kennebunk	Crescent Surf	64
Kennebunkport	Goose Rocks	10
Scarborough	Higgins	6
Phippsburg	Seawall	33
	Popham	26
Georgetown	Reid	32



Threats

By the end of the nineteenth century, both piping plover and least tern populations were only a fraction of what they once had been. Their decline was caused by feather and egg collectors and market gunners who sometimes took as many as 1200 least terns in a day (at that time terns and plovers were hunted for food). The birds' demise helped ignite a public outcry for their protection. In 1918, federal lawmakers passed the Migratory Bird Treaty Act providing protection for all migratory birds, their nests and eggs.

Under protection from this law, least tern populations began rebounding by the late 1930s in the central part of their breeding range, although records show that the birds didn't return to Maine to breed until 1961. Maine's least tern population increased until the 1970s when it began to decline once again. Piping plovers are believed to have had a significant recovery in Maine by the 1940s. Unfortunately, interest in development of shorefront property and recreational use of beaches was increasing at that time, bringing with it a new threat to the plovers and terns.

Historically, Maine had more than thirty miles of suitable nesting beaches which may have supported more than 200 pairs of piping plovers and 1200 pairs of least terns. Since World War II, construction of seawalls, jetties, piers, homes, parking lots and other structures along the shoreline has reduced the available habitat for these two species by more than 75%, overtaking approximately twenty-one miles of shoreline.

PIPING PLOVER NESTING RECORDS

Town	Beach	# of pairs
Ogunquit	Ogunquit	5
Wells	Wells	4
	Laudholm	1
	Drakes Island	1
Kennebunk	Crescent Surf	5
Kennebunkport	Batson River	1
	Goosercocks	6
Biddeford	Fortunes Rock	3
Saco	Goosefare Brook	1
Old Orchard Beach	Old Orchard Beach	1
Scarborough	Pine Point	3
	Western	3
	Scarborough	2
	Higgins	5
Cape Elizabeth	Ram Island	1
Phippsburg	Seawall	7
	Popham	6
Georgetown	Reid	7
TOTAL*		***62***

* Could include renesting attempts

This increase in develoment has led to a more intense presence of humans and their pets on nesting beaches, which keeps adult plovers from tending to their eggs and chicks, which are then vulnerable to the elements and to predators. In addition, because the nests are hard to see, beachgoers can inadvertently step on them. Sometimes the birds will try to nest again, but a second nest is even less likely to survive later in the summer amid the increased presence of both humans and predators on the beach.

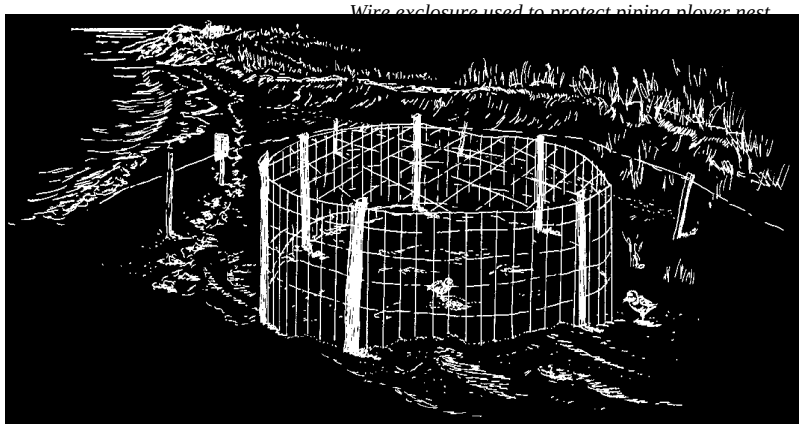
Encroaching development has also caused an increase in the numbers of predators such as foxes, raccoons, skunks, gulls, and crows, preying on eggs and chicks. Least terns will aggressively attempt to chase a predator away, but are not always successful. When a piping plover perceives that a predator is threatening its nest, the bird will attempt to distract it by moving a few feet away from the nest, pretending to have a broken wing and sounding a distress call. Even if this ruse works, the adult bird's absence leaves the eggs or chicks vulnerable to the elements.
Coastal beaches are dynamic systems, and piping plovers and least terns are well adapted to surviving losses natural to such systems, but only if the system is intact. The problem is that Maine's beach systems, like all others on the Atlantic coast, can be dramatically altered by winter storms or exceptionally high tides that erode nesting areas or wash eggs out to sea. Historically, birds could easily move to other sites; now those sites are unavailable due to development or other beach alterations. The remaining habitat's ability to support nesting plovers and terns is further reduced by intense recreational use and continued development. Although least terns still face declining populations, the piping plover has begun recovering due to some innovative conservation measures.

Conservation Measures

Recognizing the threat of inappropriate development within these rare habitats, the Maine Department of Inland Fisheries and Wildlife designated nesting, feeding and chick-rearing habitat as "essential" for piping plovers and least terns under Maine's Endangered Species Act in 1994. This designation allows the department to work with landowners to assure that any activity requiring a permit will not adversely affect habitat of piping plovers or least terns. Other state laws that protect natural dune systems in Maine have also benefited plovers and terns. These laws work to assure that the last remaining habitat will not be lost. Management, however, is still a key component of the recovery effort.

For the past 17 years, a coalition of groups (starting with the Maine Audubon Society, and now including the Maine Department of Inland Fisheries and Wildlife, The Nature Conservancy, the U.S. Fish and Wildlife Service, the Maine Bureau of Parks and Recreation, and municipalities) has worked with local residents, landowners, and beachgoers to protect these endangered shorebirds with a goal to increase their populations.

Wire exclosure used to protect piping plover nest

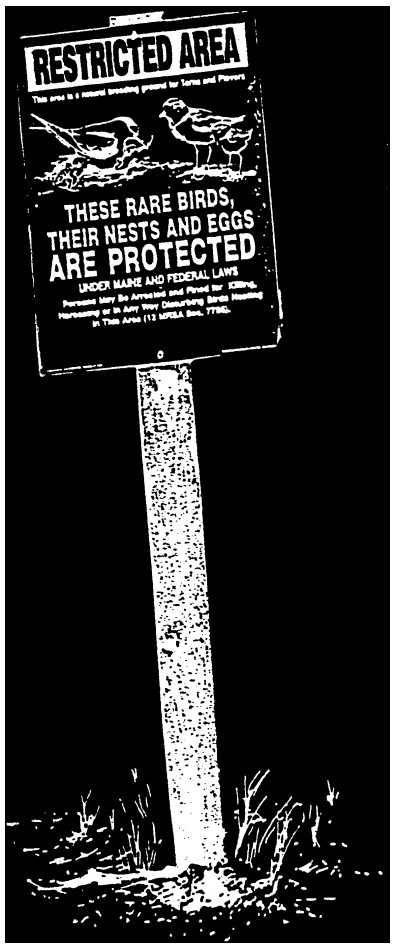


Conservation Measures *(Continued from Page 3)*

Once piping plovers return to their Maine breeding grounds, Maine Audubon staff and volunteers begin visiting each site. When the pairs begin to nest, each nest is surrounded with a circle of wire-mesh fencing, called an exclosure.

The openings in the mesh are large enough to allow birds to easily walk through, but are small enough to prevent predators from getting in. Rows of twine placed over the top of the exclosure keep avian predators from swooping down on the nest. Studies in Maine and elsewhere show that these exclosures greatly increase the likelihood that piping plover eggs will hatch.

Least terns nest in large colonies, making it difficult, costly, and ineffective to erect exclosures around their nests. Moreover, past attempts simply have not stopped predators. Instead, least tern nests are protected from human disturbance by erecting stakes, twine, and signs. They are protected from perisistent predators by occasionally removing problem animals.



Signs alert beachgoers of the presence of endangered birds.

Protective measures have led to a gradual increase in the piping plover population from a low of six nesting pairs in 1983 to over sixty nesting pairs in 1996. Nest exclosures have enabled more chicks to survive, returning to Maine beaches to breed themselves in the following years. As efforts to protect endangered birds continue in Maine, the state has exceeded *interim* goals for nesting piping plovers.

The least tern population, however, has continued to remain well below desired levels. Efforts to protect least terns by restricting access to their nests and controlling predators have allowed variable success with a high of 125 pairs producing 114 fledglings in 1993 to a low of ninety pairs producing only eight fledglings in 1989. New methods of protection are continually tested with the hope of increasing the least tern population as well.

For more information regarding the Piping Plover/Least Tern Project, please contact us at Maine Audubon Society, P.O. Box 6009, Falmouth, ME 04105, (207)781-2330.

Illustrations by Bob Hooper.

WHAT YOU CAN DO TO PROTECT MAINE'S PIPING PLOVERS AND LEAST TERNS

- Stay away from fenced and posted areas to avoid forcing birds off their nests or crushing hard-to-see chicks or eggs. If you want to observe these birds, do so from a distance using binoculars.
- If you see chicks on the beach, do not follow or chase them. Leave them plenty of space to feed.
- Keep pets off the beach during the breeding season (April 15-September 15). Roaming dogs and cats have injured and destroyed the eggs and chicks of piping plovers and least terns.
- Take your trash home with you; it attracts predators even when buried.
- Don't fly kites over posted areas. They resemble hawks and may keep birds away from their nests.
- Call the Maine Audubon Society or Maine Department of Inland Fisheries and Wildlife to report harrassment of birds, or disturbance of protective fencing or posts.
- Become a volunteer on this project by calling Maine Audubon at (207) 781-2330 and talking to our

Brought to you by Maine Audubon Society and the Maine Department of Inland Fisheries and Wildlife.
Printed on recycled paper.