THE PIPER'S PROGRESS

by Scott Hecker

> *The voice of these little birds, as they move along the sand, is soft and musical, consisting of a single plaintive note occasionally repeated. As you approach near their nests, they seem to court your attention, and the moment they think you observe them, they spread out their wings and tail, dragging themselves along and imitating the squeaking of young birds; if you turn from them they immediately resume their proper posture, until they have again caught your eye; when they display the same attempts to deception as before.*

When Alexander Wilson recorded these observations on a summer's day in 1810 along a New Jersey beach, he believed he was observing the Semipalmated Plover in a lighter summer plumage. Later he realized he had observed a different, previously undescribed species. He then corrected his error and pointed out the difference between the two and their times of occurrence in New Jersey. In 1924 his friend George Ord gave the bird the name it still bears, the Piping Plover *(Charadrius melodius)*.

For most of the nineteenth century, the Piping Plover was abundant and a common nester on dry sandy beaches from the Carolinas to the mouth of the Saint Lawrence River. Through their observations, ornithologists learned much about the Piping Plover's nesting season, which begins in April and ends in August.

In April the plover's nest, a shallow depression in sand or pebbles, is excavated by the male, tucked neatly in the beach grass or completely exposed between the toe of the dune and the high-tide line. In May the male and female plovers share in the responsibility of keeping the eggs warm, switching about every hour so that one parent can feed in the nearby wrackline or tidal flats. During incubation, it is not uncommon for the clutch of eggs to be washed away by a storm tide or discovered and consumed by a predator. When the plovers lose their eggs, they often renest in a nearby location.

If all goes well, by June most of the plover young hatch. While they gain their strength for the first day outside the shell, the hatchlings lie unmoving in the nest. Adults keep close watch at this critical time; if a predator comes, they feign a broken wing as a distraction and move away from the nest. Although the young are well camouflaged, they are highly susceptible to a long list of predators, including mammals that walk the shore and small hawks that approach from the air.

During the second day of life, the young plovers begin moving about on their own. They appear to search randomly for tiny invertebrate food, pecking at the ground and wandering independently not far from the nest site. If one of the

adults sounds an alarm call, the chicks quickly return to seek cover under a parent or the shelter of a plant. When the chicks are capable of keeping up, the parents lead them to better foraging areas along the high-tide line and out onto the tidal flats, sometimes a quarter-mile from the original nest site.

By late June the young have grown from delicate downy hatchlings to sturdy sand-colored adults. They begin to test their wings, and soon make short flights to salt marsh tidal creeks. By July and early August plover families move farther and farther from the original nest site, visiting feeding areas on the beach and its environs. In late August, as the days shorten, the number of plovers thins as family groups depart southward along the Atlantic coast.

Prior to its discovery by ornithologists, the Piping Plover had summered in this way on the New England coast for countless generations. *Charadrius*, the genus that includes the Piping Plover, is one of the oldest known genera of shorebirds. Fossils showing the bones of *Charadrius* species date from sixty-five million years ago. It is sad that in the short time since its discovery in the early 1800s, the Piping Plover has twice nearly been driven to extinction—first at the turn of the last century by market gunners and sportsmen and now, again, by coastal development and unrestricted recreational activities.

In the late 1800s curlews and plovers were favorites with the hunters due to their initial abundance, good taste, and unsuspicious behavior. The larger of the plover species were the first to decline, but the smaller species, including the Piping Plover, followed. By 1908, Edward Howe Forbush was convinced that the Piping Plover was near extinction. In one of his monthly reports to the National Association of Audubon Societies, Forbush stated, "The entire number seen on the Massachusetts coast in July did not exceed twenty birds." This count included a well-guarded group of five pairs at Katama Bay in Martha's Vineyard.

Fortunately, in 1909, after a long and difficult battle, a bill submitted by the Massachusetts Audubon Society passed, prohibiting shooting of the Piping Plover and Killdeer and providing a seven-month closed season on the other species of migratory plovers. Despite continued attempts by sportsmen to repeal this law, it survived, and its beneficiaries began a recovery. Within the next ten years, other state and federal legislation, particularly the Migratory Bird Act, contributed to the steady comeback of the Piping Plover and other shorebirds.

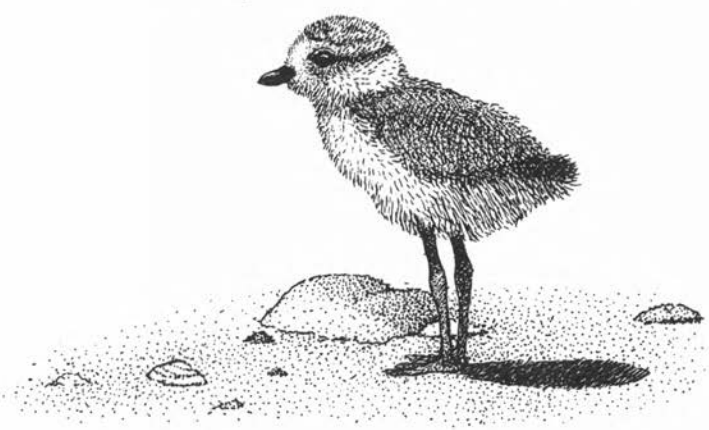
In 1937 Joseph A. Hagar, the ornithologist for the Massachusetts Division of Fisheries and Wildlife, conducted a survey of the Piping Plovers along much of the Massachusetts coastline and estimated 180 pairs. The northeastern population for the plover showed major increases in Rhode Island and New York in the years immediately following the Great Hurricane of 1938, which flattened dunes and destroyed coastal development along much of the southern New England shore. Between 1939 and 1945 the Atlantic coast population of the Piping Plover probably reached its highest twentieth-century numbers.

Shortly after World War II the species was once again reported to be showing signs of decline as an era of coastline development and shoreline stabilization practices began. For example, between 1939 and 1985, the number of Piping Plover pairs on Long Island plummeted from 500 to 114. Population estimates throughout its range mirrored this trend.

The Canadians were the first to take legal steps to protect the Piping Plover by listing it as threatened in 1978. For the next seven years, the bird continued to disappear from Canada's beaches, and its status was changed to endangered in 1985. In January 1986 the U.S. Fish and Wildlife Service followed Canada's lead and listed the Piping Plover as threatened and endangered with extinction. That summer a cooperative effort established a thorough census of the Piping Plover's entire breeding population on the Atlantic coast. The count was 790 pairs—550 in the United States and 240 in Canada. Of the United States Atlantic coast population, the highest number was in Massachusetts: 139 pairs, or twenty-five percent of the United States population.

Given the Piping Plover's new status, wildlife conservationists had to make a plan for the bird's protection, first examining the serious threats to the species and then focusing on management of the bird's nesting habitat to save it from extinction. According to the Atlantic Coast Piping Plover Recovery Plan (1988), "Habitat loss and degradation, disturbance by humans and domestic animals, and increased predation" are the "important causes of the current downward trend." Much of the habitat loss is due to shoreline armoring, construction of beach parking lots, and building of vacation homes, condominiums, and hotels—which are all, for the most part, irreversible impacts. In Massachusetts, nearly half of the Piping Plover's barrier beach habitat is already written off to these uses.

On the remaining undeveloped stretches of barrier beach in Massachusetts, the Piping Plover continues to be threatened by a long list of other human-



induced problems, which wildlife conservationists hope to control to prevent the disappearance of plovers and other coastal species. The greatest threats that we can and should change are the impacts by off-road vehicles, unnecessary "dune-conservation" practices, and unrestricted dog walking. Even the most remote Piping Plover breeding areas are affected by these activities.

On a busy day in summer, off-road vehicles can fill a barrier spit like a parking lot, exceeding five hundred vehicles at one time and driving over every square inch of habitat between the toe of the dune and the water line. The vehicles crush plover chicks and eggs, leave ruts that trap young, and destroy the wrackline—the plover's primary feeding area.

Piping Plovers thrive on flat, bare sections of beach with little vegetation, a brief successional stage created by coastal storms. The common practice of planting beach grass immediately following a storm robs the plovers of their nesting sites, as do related dune-building activities. The goal of these "erosion-control" activities is to fight Mother Nature's tendency to rearrange the beach. Over and over again these activities have proved to be futile and a waste of money.

To address the various threats to the species, wildlife biologists and conservationists have joined forces in the field and in the legal arena to aid this charming, inconspicuous beach nester in its recovery. By the time the Piping Plover was federally listed, it was clear that the posting of signs to protect Piping Plovers and their nests was not going to save them from extinction. Experiments placing welded wire garden fence around individual plover nests were first conducted in 1986 in Massachusetts. These ten-foot-wide, four-foot-high enclosures effectively protect nests from mammalian predators and dogs while allowing the small plover adults to come and go through the wire mesh to their four-egg nests on the open beach. This protection method has proved highly successful and has since been carried out on a much larger scale along the Atlantic coast. In Massachusetts, over two-thirds of the annual number of plover nests are protected with these "predator exclosures," and this has contributed to a sixfold increase in hatching success at some sites.

One of the most difficult problems was how to protect the vulnerable young plovers when they leave the fenced areas to accompany the adults in search of food along the wrackline and on the tidal flats. The young were highly susceptible to disturbance by beachgoers and a variety of recreational activities. Of greatest concern was the fact that much of the best Piping Plover nesting habitat was under recreational use by large numbers of off-road vehicles (300 to 1000 per day).

In 1990 a resident of Orleans, concerned with the effects these vehicles were having on Piping Plovers and other barrier beach natural resources, filed a request for determination under the Massachusetts Wetland Protection Act with the Orleans Conservation Commission to decide whether vehicles should be

regulated under the act. After a tie vote at the local level, a precedent-setting decision was issued by the Massachusetts Department of Environmental Protection and the Massachusetts Division of Fisheries and Wildlife, which ruled that vehicles were having both short-and long-term impacts on the barrier beach, particularly with regard to Piping Plover habitat. This forced the town's parks department, which wished to continue to allow vehicles on the beach, to file a Notice of Intent outlining how they would do so without violating the act. The plan hammered out by wildlife conservationists and town officials, with compromise on both sides, led to improved standards in the protection of Piping Plover habitat after the young hatched and up to their point of fledging, a thirty-five-day period.

Vehicles were first restricted from plover habitat on Nauset Spit during the summer of 1991, and results were immediate. In the 1.2-mile section of beach where in prior years only three to five pairs of Piping Plovers nested, the number of pairs increased to seven. In 1992 the number of pairs doubled to fourteen. After similar restrictions went into effect in former vehicle use corridors on Sandy Neck, Barnstable, Race Point, Cape Cod National Seashore, and North Beach, Chatham, the number of plover pairs doubled from seventeen in 1991 to thirty-five in 1992.

Another factor that contributes to the recovery of Piping Plovers is the unprecedented involvement of local citizens as volunteers and supporters for the protection of Piping Plovers. Interested citizens are locating new nesting sites, patrolling beaches to watch over plover families, attending public hearings, and funding protection efforts. They also fight and support the local political battles necessary to protect the vulnerable nests of plovers from the ever-increasing recreational pressures encroaching on what little space is left for the birds along the Massachusetts coastline.

Management efforts must continue, of course, until the Piping Plover population is fully restored throughout its range and until practices that continue to degrade our precious barrier beach ecosystems are curtailed. But the success story of Piping Plovers in Massachusetts has already proved that people and endangered species can share habitat without threatening the activities of either species.

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