

# Facts on Piping Plovers and Selective Predator Management at Cape Cod National Seashore

U.S. Department of the Interior  
National Park Service



- A primary mission of the National Park Service (NPS) is to preserve and protect natural populations of native species and natural ecosystem processes. The NPS also has an affirmative responsibility under the Federal Endangered Species Act to promote the conservation of all federally-listed species and their critical habitat. Another critical element of the NPS mission is to provide for public enjoyment of national park areas “in such ways and by such means as will leave them unimpaired for the enjoyment of future generations.”
- Piping plovers are small, sandy-colored shorebirds that were once abundant on Cape Cod beaches and throughout their range. The adults, eggs and chicks blend into the pale background of open, sandy habitat on outer beaches where they feed and nest. Their call is a melodic “peep - lo”.



The federally-threatened piping plover's nesting grounds include Cape Cod National Seashore

Jim Fenton ©

- By the early 20<sup>th</sup> century, uncontrolled hunting and egg collection had greatly reduced the population of piping plover. Later in the 20th century, several additional factors contributed to further decline in the population size of piping plovers on the Atlantic Coast. These factors include habitat loss to development, increased human recreation on beaches, and unnaturally-high predator populations. Many of these factors continue to operate today.
- The Atlantic coast population of piping plover was listed by the U.S. Fish and Wildlife Service as a Federally-Threatened Species in 1986, with an estimated size of 800 pairs. Although management actions in recent decades have begun to reverse the piping plover's population decline, the Atlantic coast population still numbers fewer than 1900 pairs, below the recovery criteria for the Atlantic Coast. Massachusetts is home to roughly 1/3 of this population (~575 pairs) and Cape Cod National Seashore (Seashore) provides nesting, feeding and roosting habitat for approximately 15% of the Massachusetts population.
- The number of nesting piping plovers at the Seashore has recovered from 18 pairs in 1985 to 87 pairs in 2009. This recovery can be attributed to intense management and protection efforts, particularly reducing human disturbance and limiting the impacts of predators on nesting plovers, eggs, and chicks.
- The main factor affecting nest failure was predation (44% of failed nests). Predators, especially crows and coyotes have a significant impact on the reproductive success of piping plovers, least terns, and other shorebirds nesting at the national seashore. Many populations of predators have increased due to their ability to take advantage of human-provided foods. This has resulted in unnaturally-high predation pressure to nests, chicks, and adults.
- Other factors affecting nest loss include overwash (34%) and nest abandonment after being exclosed (20%). Exclosures are metal “cages” surrounding nests to protect eggs from predators. Causes for abandonment vary, but are primarily due to birds not “accepting” the exclosure, disturbance by predators that recognize that there is prey in the exclosures, and undocumented adult mortality.
- Beach and upland ecosystems of the outer Cape Cod no longer represent natural conditions or processes. They have been altered by 350+ years of human activity and the numbers of people, vehicles, and predators present on beaches are a reflection of these alterations.

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## Predator Control Efforts at Cape Cod National Seashore

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- Among exclosed nests at the national seashore, abandonment and adult mortality accounted for 41% of unsuccessful nests over the past ten years. Since 2002, there have been at least fifteen adult plover mortalities associated with exclosures. This is troubling because survival of breeding adults is critical for the recovery of the plover population.
- Although not using exclosures would reduce risks to adults and chicks, it is clear that if the national seashore stops using exclosures, nesting success will decline dramatically unless there is a simultaneous reduction of predator populations, which would be difficult and impractical to achieve. Another approach is to combine use of exclosures with selective predator removal, targeting individual predators observed entering specific nesting areas and exclosures. This would provide the greatest degree of protection to nests, and also reduce risks to adults and chicks.. Therefore, selectively removing individual “smart” predators responsible for the majority of nest abandonment and adult mortality may be the optimal solution.

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## How Cape Cod National Seashore Proposes to Manage Predators in the Future

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- To protect plover nests from avian predators and reduce exclosure-related mortality and abandonment, the national seashore is planning a small-scale pilot program to remove crows on seashore property at Duck Harbor/Bound Brook in Wellfleet, beginning in spring of 2010.
- The national seashore will contract with the U.S. Department of Agriculture, Wildlife Services to administer the chemical product DRC 1339. This avicide is fully metabolized and highly toxic to crows, but non-toxic to other birds and mammals. The avicide will be applied to chicken eggs in artificial nests within metal exclosures. This will prevent mammals from eating them. These “mock” nests will be contained inside closed areas that have signage and fencing. This strategy will target individual crows that are actively searching for and consuming eggs within plover nesting habitat. Crow mortality will occur within 12 – 72 hours. Any unconsumed bait will be collected daily. Bait will be applied on several days from March – May.
- With this targeted method of control, we anticipate that a small number of crows will be removed. Based on results from other areas where this control method has been used, crows will generally die in a secluded location away from human activity within 12 – 72 hours.

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## Why Target Crows?

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- Unlike the piping plover that have very specialized habitat and food requirements, crows are opportunistic and able to adapt and benefit from human activities. This program will not affect current crow populations, but rather specifically targets selected individuals that forage in plover exclosures.
- Due to their ability to take advantage of human-provided foods, crow populations continue to increase and thus cause unnaturally high predator pressure. People can help reverse this trend by removing all food trash when they leave the beach, and by not intentionally feeding birds
- Over the past 10 years, crows have been the leading cause of piping plover egg loss (35%). Crows also eat small chicks and may consume adults, which is more difficult to document and quantify because of the mobility of these life stages.



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## Benefits to Selective Predator Management

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- The proposed action will only remove the “smart” predators that are negatively impacting nesting shorebirds.
- In total, only a handful of animals are likely to be removed from the project area. Success of the program will be monitored in the number of avicide treated eggs taken and the number of crow carcasses encountered.
- We anticipate that by removing these individual predators, birds will be more successful in their first nesting attempts of the season, adult mortality and nest abandonment will be reduced, and there will be an overall increase in productivity.
- Other evaluation metrics that will be compared include: number of days to fledge, number of chicks fledged, etc. These metrics will be compared between the project area and other similar habitats within the seashore as well as comparison of these metrics from previous years at the same site.

Selective predator management programs have been implemented for several years in most coastal national park areas in the northeast that support nesting shorebirds. These programs are credited with significantly increasing piping plover nest success and chick survival.

*NPS Sites where similar programs have been implemented include:*

- Cape Hatteras National Seashore, North Carolina
- Assateague Island National Seashore, Maryland
- Cape Lookout National Seashore, North Carolina
- Gateway National Recreation Area - Sandy Hook, New Jersey and Breezy Point Unit, New York

*Additional program sites in Massachusetts include:*

- Crane’s Beach, Ispwich (Trustees of Reservations)
- Sandy Point State Reservation on Plum Island, Ispwich (MA Dept. of Conservation)
- Plymouth Long Beach (The Goldenrod Foundation)
- Monomoy National Wildlife Refuge (USFWS)

**For additional information please contact Cape Cod National Seashore Division of Natural Resource Management.**

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