Beach Predator Management
Frequently Asked Questions

Why do we protect piping plovers and other beach-nesting birds?

The U.S. Fish and Wildlife Service (Service) is the federal agency with primary responsibility for conserving our nation's wildlife and the New Jersey Division of Fish and Wildlife (NJDFW) is the State agency with primary responsibility for conserving New Jersey's wildlife. Our biologists work with many partners to protect and manage migratory birds, threatened and endangered species, fish and other native wildlife.

The Endangered Species Act (Act) is one of the most important Federal laws guiding our work. We are legally responsible for managing animals and plants protected under the Act – including the Atlantic Coast piping plover, a migratory shorebird that has been listed as a threatened species since 1986. Piping plovers are also a State-listed species under the New Jersey Endangered and Nongame Species Conservation Act (ENSCA). The ENSCA is the State equivalent of the Act and provides complementary support to the purposes of the Act. The ENSCA also affords protection to species that are on the New Jersey threatened/endangered species list, but not on the Federal list. This includes beach-nesting birds such as least tern and black skimmer, both listed by the State as endangered. These designations mean that without intensive protection efforts, the species are likely to become extinct in the foreseeable future.

Why are beaches important for these birds?

Nesting and migrating shorebirds depend on beaches for survival and it is important that we continue to work on the development of long-term strategies to share our beaches, or we risk allowing this whole group of species to become extinct. Piping plovers, for example, can only live on beaches with very specific features that the birds need to feed, lay their eggs, and raise chicks. Historically, plovers could find these beaches up and down the Atlantic coastline; now, only a limited amount of Atlantic Coast beaches provide suitable nesting habitat, and even those are impacted by human activities. Young chicks face an especially critical period of survival while nesting on our beaches. They need to eat and build up their muscles because they have a long journey ahead of them to reach wintering areas as far away as the Bahamas. Beaches are the only place that many species of shorebirds, like piping plovers can raise their young.

Notwithstanding these challenges, due to State and Federal agency conservation efforts, piping plovers and other native shorebirds are recovering from declines that occurred over the past 70

years as a result of expanding development and recreation. However, our conservation work is not done and this is especially true in New Jersey. Climate change, sea-level rise, and increased storm intensity are changing the already human-modified beaches. This has left people and wildlife sharing a shrinking coastline. New Jersey has one of the most extensively developed coastlines in the Northeast. The sandy beach habitat on the Atlantic Ocean coast of New Jersey has been significantly modified by anthropogenic activities. Nearly two-thirds of the beachfront has been developed, and 62 percent of the beachfront is armored with hard shoreline stabilization structures that are incompatible with piping plover habitat. More than three-quarters of our beaches have been or are proposed to be modified by beach nourishment. At least 20 percent of the beaches were scraped or graded in the three years following Hurricane Sandy. And nearly half of the sandy beaches were modified by sand fencing between 2012 and 2015. In addition to all these physical changes, beach-nesting birds are also impacted by very high levels of recreation and tourism at the famous "Jersey Shore." About 25 million people live within 50 miles of the Jersey shore. In 2017, over 100 million people visited New Jersey, with about half of the State's tourism revenues generated in shore counties. Due to this combination of factors, New Jersey's piping plover population is lagging behind other states in progressing toward recovery, despite intensive effort by conservation agencies and our partners.

How do predators impact beach-nesting birds?

In New Jersey, predators are the top cause of mortality on breeding piping plovers (and other beach-nesting birds) causing loss of eggs, chicks, and adults. Many populations of predators have increased due to their ability to take advantage of human-provided shelter and foods, such as garbage, road-kill, and bird feeders. The availability of trash at summer beaches increases populations of crows, skunk, raccoons, foxes, and coyotes, among others. Human manipulation of the physical beach environment, such as steep engineered dunes and bridges that connect islands to the mainland, also allow predator populations to grow. There are now too many predators on many beaches for predator/prey interactions to function naturally. It's not "nature taking its course" that is favoring these predators; it is introduced human activity and alteration of the landscape that are favoring them.

Even coastal parks and wildlife refuges no longer provide natural conditions due to decades of intensive human activity. Elevated predator populations and their impact at nesting areas have been documented through visual observations and through wildlife cameras employed at nests and in breeding habitat. For example at one New Jersey beach, plover reproductive success increased 198 percent over two years after selected predators, including fox, raccoon, and skunk, were removed, which allowed much better chick survival. A single lone predator can be devastating to beach-nesting shorebirds. For example, researchers found 3.4 pounds of tern chicks in the stomach of a coyote removed from a shorebird colony in Massachusetts in 2010. This weight is estimated to represent between 50 and 100 chicks killed on a single night by this one coyote.

What about non-lethal methods to protect beach-nesting birds?

The Service and the NJDFW currently employ:

- "Area Closed Signs" around nesting areas to limit human access

- Wire cages (known as exclosures) around many piping plover nests to keep predators from eating eggs
- Electric fencing to keep predators away from nests
- Increased staff and volunteer presence on beaches to monitor birds and nesting activity
- Infrared wildlife cameras to detect predator activity near nests and in nesting areas
- Anti-perching devices to reduce perches for avian predators like crows
- Increased outreach and public education efforts
- Coordination with local beach managers to strategically place trash cans away from nesting areas
- Harassment of individual predators away as they are trying to hunt beach-nesting birds.

What can I do to help protect plovers and other beach wildlife?

You have the power to help protect piping plovers and other shorebirds! You can help by keeping dogs away from nesting areas, keeping dogs leashed when/where they are allowed on the beach, respecting wildlife protection cages and signs, walking around nesting or resting wildlife, and treading lightly on beach habitat. You can also help to restore the balance between threatened species and predators by not feeding wildlife, removing all food scraps and other trash from the beach, and ensuring household waste is kept in wildlife-proof containers. Additionally keeping cats indoors and not feeding stray or feral cats are key things you can do to help shorebirds and other wildlife. People involved with cat colonies (i.e., trap-neuter-release) can check with their towns to make sure the colonies are in compliance with a local Beach Management Plan. Reducing the number and size of cat colonies helps protect wildlife, and making sure any colonies are away from the beaches is essential to protecting shorebirds.

How does the Service and NJDFW decide when selective predator removal is necessary?

The Service and the NJDFW are dedicated to conserving wildlife and it is our mission to protect them. We support removing predators only when sound science indicates it is the best option for recovering the endangered species such as piping plovers and other rare beach-nesting birds at any specific location. Selective predator removal is necessary to remove an individual predator in order to save or recover the population of an imperiled species, usually to restore the natural predator-prey balance that has been upset by human actions. Some non-lethal predator management methods can be effective. However, predators continue to be a significant cause of plover egg and chick loss (in some years greater than 50 percent of the mortality in New Jersey). Field observations suggest that most eggs and chicks are preyed upon by a small number of individual animals that have discovered and then keyed in on nesting areas. Mammalian predator removal efforts are limited in scope and scale to coincide with the arrival and nesting activity of endangered shorebirds. Lethal predator removal strategies are only implemented in limited areas with recent shorebird nesting activity. These activities have been demonstrated to be crucial in helping limit the decline in endangered species populations and over time will promote the recovery of the species.

What about avian predators?

Avian predators, such as crows and hawks, are managed by exclosures (aka cages) of active shorebird nests and by anti-perching devices on posts near shorebird nest sites. Non-lethal management of avian predators is challenging, because many traditional methods, such as auditory or visual deterrents, would also impact the shorebirds. Limited lethal control has been used to discourage crows that exhibit signs of targeting plover eggs and chicks. No effective non-lethal methods are currently available to keep certain avian predators away from plover chicks. Crow effigies (artificial crows placed in a way so as to appear dead in an effort to scare off live ones) are ineffective. Other methods that attempt to frighten crows or other avian predators away also frighten and disturb the nesting plovers.

What evidence is there to show that predators are the problem?

Plover, and other beach-nesting bird, nests are intensively monitored by agency staff, volunteers and partners, who have been trained to identify and report evidence of predators such as scat and tracks. Predator presence and impacts at nesting areas are documented through visual observations of predators and their tracks; the remains of shorebird eggs, chicks, and adults; and through wildlife cameras deployed at nests the breeding season.

Why are there too many predators?

The beach and upland ecosystems of New Jersey no longer represent natural conditions or processes. Our coast has been altered by 350+ years of human activity and the numbers of people, pets, vehicles, and predators present on beaches are a reflection of these alterations as well as ongoing human actions. Many populations of predators have increased due to their ability to take advantage of human-provided foods (e.g., garbage, food scraps, hand-feeding, road-kill, and bird feeders). Populations of these "human-subsidized predators" exert unnaturally high predation pressure on beach-nesting birds because these predators live at densities much higher than they could live in natural settings. Human manipulations of the physical beach environment, such as steep engineered dunes and bridges that connect islands to the mainland, also allow predator populations to grow. In addition, there are some predators that are not even native to the beach ecosystem that have been introduced by humans and have an unnatural advantage. It's not evolution that is favoring these species; it's human activity, the availability of human-derived food sources, and alteration of the landscape that are favoring them.

How is predator removal accomplished?

Non-lethal traps such as cable restraints, foot encapsulating traps, and box traps are used to capture the target species. The Service and NJDFW use their own staff and specialists from the U.S. Department of Agriculture-Animal Plant Health Inspection Service - Wildlife Services program assist with predator removal. Permits for this work are issued by the Service and NJDFW. The New Jersey State regulations appropriately prohibit relocating mammalian predators (to prevent the spread of diseases and parasites among other reasons). Additionally, although it can sound counterintuitive, live-trapping and relocating wildlife is considered an inhumane practice by wildlife biologists. Relocation involves removing an animal from their

home range, where it is familiar with threats, food sources, and areas of protection and then moving it to another type of habitat and in another animal's home territory where it would have decreased survival. All trapped animals are humanely euthanized in accordance with the American Veterinary Medical Association's "Guidelines for the Euthanasia of Animals." All traps and techniques used to capture and dispatch mammals meet the Association of Fish and Wildlife Agencies' Best Management Practices for Trapping.

Are you poisoning fox? Are animals being trapped in steel-jawed leg hold and other body-snaring traps?

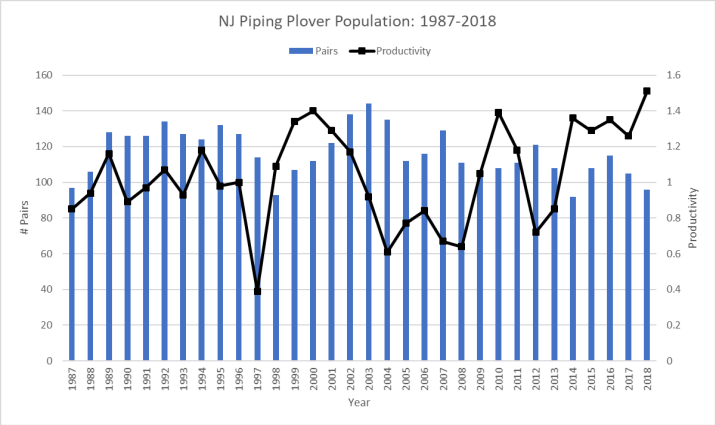
No. Oral poisoning fox has never been conducted by State or Federal agencies (or their contractors) for the benefit of beach-nesting birds. Steel-jawed leg hold and body gripping traps are illegal in New Jersey for these species and are never deployed by State or Federal agencies (or their contractors) in New Jersey.

How is the safety of the public and pets being taken into account? What if cats or dogs are caught during the trapping process?

Traps are only placed in areas used by the target species, often within fenced areas or other areas with low/no human traffic (i.e., where [according to site regulations] people and pets should not be). Trappers identify well-used game trails and look for tracks and dens to increase success, decrease the time needed for trap deployment, and reduce risk to non-target species, whether a pet or other wild animal. Only non-lethal traps such as dog-proof foot hold traps are used, which minimizes risk of inadvertent entrapment. In the unlikely event a pet were caught, the animal would be unharmed by the trap, discovered within 24 hours as the traps are checked daily, and then released. Past experience suggests that rates of non-focal species being trapped are extraordinarily low, hovering near zero.

Has predator removal been utilized in the past?

Predator removal programs to assist in the recovery of piping plover and other beach-nesting species productivity have been implemented in New Jersey for over 20 years with varying degrees of effort. Since 2015, when more comprehensive efforts were implemented statewide, plover productivity has increased and been sustained at record rates (see chart below). Plover productivity is contingent on many factors, but the role of reduced depredation is certainly a big part of the reason for these increases.



How is the effect of predator removal being measured?

Trapping success will be measured by the number of animals removed, monitoring the presence/absence of tracks in beach nesting areas, and the numbers of egg and chick loss from predators. Monitors can readily observe whether predator tracks are seen on the beaches and if they are near nests and in nesting areas. In addition, wildlife cameras are used at some locations to document predator activity.

Why is New Jersey important for nesting and migrating shorebirds?

Protecting our beach ecosystem provides these birds with habitat for breeding, feeding, and sheltering, all of which are critical for their survival. Historically, piping plover were so common in this area that Thoreau, visiting in the 1850s, considered their call to be the beach sound he most remembered. Piping plover and the other species of native shorebirds suffered dramatic population declines as a result of unregulated hunting in the late 19th and early 20th century. By the mid-20th century many populations had largely recovered, due to State and Federal protections, but accelerating coastal development and recreation following World War II brought about a new era of population declines. With nearly 130 miles of Atlantic coastal shoreline, New Jersey is essential to the survival of beach dependent species and plays an important role along the Atlantic Coast Flyway. The Service's Piping Plover Recovery Plan recognizes that this species requires sufficient geographic distribution to recover and survive into the future. The Recovery Plan sets separate population targets for four separate Recovery Units. The New York-New Jersey Recovery Unit faces particularly high levels of threats and currently lags behind the others in terms of progress toward the established recovery goals. Located right in the middle of the species' range, loss of the piping plover from the New York-New Jersey Recovery Unit would create a hole in the distribution that could imperil the birds coast-wide.

How is predator management related to the Endangered Species Act?

The New Jersey/New York piping plover recovery unit is **not** meeting its recovery objectives. As such we must employ strategies for protection by implementing new or additional methods. The purpose of the ESA is "…to provide a means to conserve ecosystems upon which endangered

and threatened species depend." It is the policy of the U.S. Government that "All Federal departments and agencies shall seek to conserve endangered and threatened species and shall utilize their authorities in furtherances of the purposes of [the Endangered Species] Act." Listed species… must be considered in every discretionary action of a Federal agency. The recovery of a species is accomplished by eliminating, reducing, or mitigating those factors that caused its decline. In the case of piping plovers, these negative impacts include habitat loss, human disturbance, and unnatural levels of predators.

What about other factors affecting beach-nesting birds?

Climate change, sea-level rise, and increased storm frequency and intensity are changing the beach ecosystem and have left humans and wildlife sharing a shrinking coastline. The climate is changing, with increased heavy precipitation events and more intense storms. Natural background sea-level rise is 4 mm/yr and over the last 100 years, the area's Atlantic Coast is eroding 3 ft/yr on average. In recent decades, sea level rise has accelerated a little faster each year due to human-caused climate change. Nesting piping plovers, terns, black skimmers, and American oystercatchers are coastal species and use low-lying coastal habitats for nesting, roosting, and staging. This makes them vulnerable to effects of climate change, particularly sea level rise. In addition, the stabilization efforts meant to combat shoreline retreat and protect human property and infrastructure has prevented truly natural processes (such as overwash and island migration) from occurring By preventing nature from taking its course, humans have dramatically decreased the suitability of beach habitat for nesting birds. The effects of human-subsidized predators on these species only serves to amplify the impacts of these other factors.