

Coyotes on the Move: What a New Study Means for Protecting Coastal Wildlife

[Cape Hatteras National Seashore](#), [Cape Lookout National Seashore](#)



Cape Lookout National Seashore

Along North Carolina's barrier islands, a coyote slips into the surf and begins to swim. By morning, it may be on a different island entirely—miles from where it started. For park managers working to protect nesting shorebirds and sea turtles, that kind of movement changes everything.

Park staff at Cape Hatteras and Cape Lookout National Seashores have seen increasing losses of nests to predators. Vulnerable species like piping plovers, American oystercatchers, least terns, black skimmers, and loggerhead sea turtles depend on these beaches during breeding season.

Coyotes, which arrived on these islands within the past two decades, are now part of that story. But until recently, the parks lacked a clear picture of their numbers, movement, and impacts.



Federally protected loggerhead sea turtles and federally threatened piping plovers nest directly on Outer Banks beaches, making eggs and young vulnerable to predators and disturbance.

Cape Lookout National Seashore

To fill that gap, Cape Hatteras and Cape Lookout National Seashores partnered with North Carolina State University researchers and USDA Wildlife Services to launch a study across seven areas in the parks. The goal was to better understand coyote behavior and population dynamics so park staff could make more informed management decisions.

A Multi-Method Approach



North Carolina State University researcher Daniel Sossover conducting coyote scat surveys at Cape Lookout National Seashore.

Photo courtesy of Roland Kays

Studying a wide-ranging, mostly nocturnal animal is not easy, especially in remote, shifting coastal environments. Researchers used a combination of approaches to piece together the puzzle.

First, they collected coyote scat across beaches, trails, and roads. DNA from the samples allowed researchers to identify individual coyotes. Repeated detections of the same animals fed into models used to estimate population size and movement among islands.

Researchers also worked with USDA Wildlife Services to safely capture and fit a small number of coyotes with GPS collars at Cape Lookout. These collars recorded locations as often as every three minutes when animals were active, providing detailed movement data that helped researchers understand how coyotes used the islands and moved between them.

Coyotes Move Across the Islands and Don't All Behave the Same

The study found that coyotes are now established across the Outer Banks, though numbers varied widely across the study sites. Areas connected to the mainland or with more human activity generally supported higher numbers. Most island populations had coyote densities similar to or lower than nearby mainland areas.



An adult male coyote fitted with a GPS collar at Cape Lookout National Seashore. Researchers had to get within 100–200 meters of collared coyotes to download movement data.

One of the most important findings was just how mobile these animals are. While most coyotes stayed on a single island, researchers documented multiple cases of individuals moving between islands. Previous studies have documented coyotes reaching islands, but this study is the first to show individuals repeatedly swimming between them. Many crossings occurred at night and near low tide, when travel between islands was easier. In one striking example from the tracking data, a coyote traveled 33 miles in 12 hours.

This level of connectivity means the islands cannot be treated as isolated systems. Even if coyotes are removed from one area, others can move in to take their place.

The study also revealed differences in how individual coyotes interact with nesting areas. Overall, coyotes used beach habitats regularly, but most did not appear to actively target nests. However, a subset of individuals—roughly one-third—may specialize in preying on nests. These “problem” coyotes can have outsized impacts, even when overall coyote numbers are relatively low.



A coyote dug up and preyed upon this sea turtle nest at Cape Hatteras National Seashore.

Cape Hatteras National Seashore

Why Removing Coyotes Isn't Enough

For years, management has focused on removing coyotes, especially near nesting hotspots. While this approach can reduce immediate threats, it does not reliably reduce overall population size. New coyotes may move in, and the remaining coyotes may have larger litters, filling the gap left by removals. In one area, researchers estimated that coyote

numbers returned to about the same level just a couple of months after nearly a dozen animals were removed.

As a result, long-term population suppression or eradication on these islands is unlikely. Instead, management may be most effective when targeted removals are combined with approaches that discourage coyotes from entering sensitive nesting areas.

Testing a New Approach: Fladry

One deterrent tool being tested is fladry—a line of flags that creates a visual barrier. Fladry can help discourage coyotes from entering sensitive areas.

In this study, fladry reduced crossings into a protected nesting area by about 83% for a frequently visiting individual. However, results have been mixed in practice. Coyotes are persistent and may habituate to the barrier over time or find ways around it. Park staff are continuing to refine how and where fladry is used.



Coyote tracks trace the edge of a fladry barrier at Cape Hatteras National Seashore, showing how coyotes investigate and move along the deterrent.

Cape Hatteras National Seashore

What This Means for Management

Coyotes are now a permanent part of this ecosystem. They move between islands, recolonize quickly, and are difficult to eliminate. But that does not mean there are no management options.

Instead of broad population control, parks are focusing on targeted management approaches during the nesting season, when vulnerable species are most at risk. These include removing specific problem coyotes near nesting areas, expanding the use of

predator exclosures to protect nests, optimizing fledgling setup, and identifying high-risk areas where management efforts can have the greatest impact.

This coordinated approach should help parks respond more strategically to coyote activity around sensitive nesting areas. The findings may also help inform predator management at other coastal parks with vulnerable beach-nesting wildlife.

How Visitors and Locals Can Help

Visitors and local residents also play an important role in protecting wildlife on these beaches. Simple actions can make a difference:

- Pack in, pack out to avoid attracting predators
- Follow posted closures around nesting areas
- Keep pets on a leash for their safety and the safety of wildlife
- If a coyote approaches, make loud noises or throw a small object near it to reinforce its natural fear of humans
- Consider [volunteering](#) to monitor and protect nests

Looking Ahead

The study provides a clearer picture of how coyotes use North Carolina's barrier islands and why managing them is so complex. It also offers a path forward, grounded in both science and practical experience.

Coyotes are adaptable, mobile, and here to stay. But with the right tools and strategies, parks can still reduce their impacts and give shore-nesting birds and sea turtles a better chance to thrive.

Learn More

Read the [full report](#) for more details about this study. Learn more about living alongside coyotes on the [Cape Hatteras](#) and [Cape Lookout](#) National Seashore coyote webpages.