

Red wolf comeback in N.C. helps other animals thrive

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Good news for a wolf is good news for a turkey. At least it is in Eastern North Carolina, where red wolves are making a comeback and helping other animal species along the way.

Since the wolves were reintroduced in 1987, biologists have watched them rattle all the links in the food chain.

"We've certainly seen turkey come back. We've seen quail populations increase," said David Rabon, coordinator of the Red Wolf Recovery Program.

Wolves' role in helping these ground-nesting birds is well known, Rabon said. Raccoons eat the birds' eggs, and red wolves prey on raccoons. More wolves mean fewer raccoons, and fewer raccoons mean more quail and turkey. Connecting the dots, more wolves mean more birds.

Effects like this aren't unique to Eastern North Carolina. Research from around the globe, compiled in an article in the journal *Science* last month, shows just how deeply large predators like wolves and cougars are connected to the ecosystems where they live.

If predators vanish or reappear, even plants and soil might feel the effects. Predators play a crucial role in shaping the landscape.

Red wolves' western cousins, gray wolves, have had a dramatic impact on their environment. Like red wolves in the east, gray wolves were killed off by human settlers by the early 20th century.

Trees vanish

After the wolves were gone from the Rocky Mountains, the trees disappeared, and soil eroded near streams, said Bill Ripple, a professor of forest ecosystems and society at Oregon State University. Elk had eaten nearly all of the young tree sprouts. "If you lose the wolf, there's nothing to keep the elk in check," Ripple said.

But when the wolves were reintroduced in Yellowstone National Park in 1995, the balance shifted back. "It's amazing to see how resilient nature is," said Ripple. The trees have started to return in some places, but it will take a long time to bring back eroded soil, he said.

On the East Coast, red wolves are part of a similar system. They hunt and kill white-tailed deer, Rabon said, which play a role similar to elk.

But that's where the similarities end.

The landscape here is much wetter and much more populated. Unlike their western cousins, red wolves must compete directly with humans for control of the landscape and haven't made any visible impact on the soil or plant life in the region, Rabon said.

Only about 30 percent to 40 percent of the wolves' territory is public land, he estimated, and even that isn't free of the human hand. "All of it is managed to some degree," he said.

There are three national wildlife refuges in the red wolves' territory: Alligator River, Pocosin Lakes, and Lake Mattamuskeet. The refuge managers work to create habitat for red wolves and other animals, including waterfowl, bears and alligators.

Other public lands in the area are managed as state game lands, where managers create habitat for species such as turkey, quail, and deer instead of wolves.

Creating a habitat for one animal doesn't necessarily make it harder for another, Rabon stressed. "The higher you go in the food chain, usually the larger the umbrella is for how many other species you also benefit."

But in the years since they've been reintroduced, the red wolves have expanded well beyond public land, into places where their impact is even less visible.

Living on farmland

Much of the territory the wolves occupy is privately owned farmland. That land must be drained for farming, Rabon said, so it's already a very different landscape from the one the wolves might have originally inhabited. Because it's actively maintained for farming, any effect the wolves might have is constantly erased.

Even in the wilderness, it's hard to say whether there will ever be enough wolves to make a mark, said James Estes, a professor of ecology at the University of California-Santa Cruz and the lead author of the article in *Science*.

"Are little pieces of land going to work, or do we need to reconnect nature on a large enough scale so that the wolves can survive and be there in sufficient numbers to do their thing?" Estes said.

Rabon speculated that the wolves might already be losing out because their habitat is so fragmented. The red wolf population seems to have leveled off at about 110 to 130 wild animals over the last several years.

He suggested that coyotes, a smaller, non-native carnivore that first appeared in the region in the 1990s, might be better adapted to developed land than the wolves, and the competition could be limiting the wolves' population growth.

"When you have more wolves you see less coyotes," Rabon said, but "there's kind of a tipping point. If you don't have enough wolves you tend to get both."

The red wolf reintroduction was always designed as an experiment, Rabon said. Nobody knew what was going to happen with the wolves, other species or the landscape.