

Clemson researchers work to understand impact of coyotes on deer population

Coyotes have a nasty reputation among deer hunters in South Carolina and Clemson University researchers are working to determine just how much of that notoriety they deserve.

Deer are a prominent game species in the state, both economically and culturally, and populations are rapidly falling — down 30 percent since 2002, according to the S.C. Department of Natural Resources — while coyote populations are on the rise.

In collaboration with the Department of Natural Resources and the U.S. Forest Service, Clemson assistant professor David Jachowski is leading a research team to better understand how coyotes are affecting deer in South Carolina's Piedmont region and inform management practices to conserve the state's deer population for future generations of hunters.

"There's this very strong hatred of coyotes in South Carolina for a variety of reasons," Jachowski said. "People view them as an invasive species that recently arrived and don't belong here. And the big thing is that deer hunters blame coyotes for killing fawns and not having enough deer to shoot."

While coyotes aren't native to South Carolina and are a relatively recent addition to the wildlife community of the Southeast as a whole, their populations continue to grow in the state despite hunters and trappers harvesting approximately 30,000 per year, according to the Department of Natural Resources. To further compound the problem, coyotes average five to seven pups per litter, compared to only an estimated one and a half fawns per deer litter.

"The first record for a coyote was in 1978, and by the mid-1990s they were in the entire state," said Alex Jensen, a Clemson Ph.D. student who is heading up the coyote portion of the study. "Since then, they've been increasing in number and are now in every county in South Carolina, even the islands."

"Anytime a new animal shows up somewhere, we want to know how it will affect the wildlife that are already there, especially if that animal is a relatively large predator," Jensen said.

For the next five years, Clemson's scientists will work to learn what proportion of deer fawns are taken by coyotes in the Piedmont region, how that compares to other places in the Southeast, why coyotes find some deer fawns and not others and whether humans can influence those factors.

"For instance, do older doe select fawn bed sites (hidden spots) that better allow fawns to avoid coyote predation and are fawns that spend more time with their mothers more or less susceptible to coyote predation?" said Mike Muthersbaugh, a Clemson Ph.D. student who is heading up the deer portion of the study.

The research also seeks to determine how often coyotes kill adult deer or scavenge deer carcasses, how coyotes are affecting other native predators, such as bobcats and foxes, and whether deer feeders attract coyotes and increase the risk of coyote predation on deer.

The study builds on past research conducted by John Kilgo, research wildlife biologist for the Forest Service at the Savannah River Site in Aiken County, which led to several others in the Southeast. All of those have found significant predation by coyotes on fawns.

"The work my team did at the Savannah River Site from 2006-12 identified the important role that coyotes can play in limiting southeastern deer populations, but we still don't have a clear understanding of how much predation rates vary across the state," Kilgo said. "In addition, new technology, in the form of GPS transmitters small enough for fawns to carry, will allow us to get at more detailed aspects of how and where predation actually occurs, which will hopefully lead us to ways we can influence that process."

Department of Natural Resources Furbearer Project leader Jay Butfiloski said the research project had several fascinating facets aiming to

provide a clear picture of what happens when coyotes interact with deer.

"Certainly, coyotes and deer are often in roughly the same location at the same time, but that doesn't always create a predation event," Butfiloski said. "By having deer and coyotes with GPS collars in the same place at the same time, we may be able to better understand predation. Maybe there are even certain habitat features that reduce or, conversely, increase predation risks that can be found so that land managers can work to lessen some of these risks."

While similar studies have been performed in the Southeast, Clemson's research team is adding several novel aspects to the research. For

example, the study will have concurrent GPS collars on coyote, does and their fawns to allow for insight into how they move relative to each other, making it one of few concurrent predator-prey GPS collar studies globally.

"We will detect when a fawn mortality occurs and may even be able to identify the individual coyote responsible for the mortality. This could offer insight into how individual coyote may predate deer differently," Muthersbaugh said.

Clemson researchers began trapping and fitting coyotes with GPS collars in December 2018 and are currently fitting does with GPS collars and birthing transmitters. While the researchers emphasized there is no penalty for killing

a study animal, the researchers ask hunters in McCormick County to consider not shooting a GPS-collared coyote if they see one, unless it is actively endangering livestock or causing other immediate problems. They urge hunters who do shoot a collared or ear-tagged coyote to call the number on the ear tag or collar.

"We have our contact information on the ear tags and on the GPS collars," Jachowski said. "We only want to collect that data point (the location of death) as it is potentially very important to our research."

Being conducted on private land in McCormick County, the focus of the study will shift in the spring and summer of this year to fitting deer fawns with GPS collars, verifying deer mortalities and tracking movements in relation to collared coyotes. In 2020 and 2021, the study will

continue with repeat trapping and collaring of new animals and monitoring coyote-deer interactions.

"The ultimate goal of this study is to benefit South Carolina's deer population by taking a fine-scale look at the

behavior of coyotes and deer, particularly around when the fawns are born, which could allow us to understand if there are any ways that we as managers can help limit the contact potential between fawns and coyotes," Jachowski said.



Photo courtesy of Clemson University

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