

High deer population may benefit forest creatures

By Jessica Marshall



updated 10/24/2008 6:52:30 PM ET



Two adult deer are backlit with morning light in the Grand Teton National Park. New, surprising research showed that areas with higher deer populations also host larger populations of reptiles, amphibians and insects.

Growing populations of deer are often blamed for damaging forest habitats by overgrazing on tender plants. But new research suggests that they may be helping certain forest critters, including salamanders, snakes and invertebrates like slugs and ground-dwelling insects. Researchers found fewer numbers of crawlies in areas where deer were excluded than where they roamed. It was not what they were expecting.

"We were really surprised by the direction of the relationship," said Katherine Greenwald of

Ohio State University in Columbus, who led the study, published in the *Journal of Wildlife Management*.

"I would have expected that, especially, the gastropods [snails and slugs] and salamanders would have had the opposite response to deer grazing," agreed Otso Suominen, of Finland's University of Turku, who was not involved in the study.

White-tailed deer populations have expanded in recent years in the eastern United States. Deer thrive along the edges of forests, and there are more and more edges as forests become increasingly fragmented. With top predators like wolves and cougars largely absent, there is little to keep populations in check.

Earlier studies have shown that deer have negative effects on vulnerable plants.

"The impact is almost always that they're completely wiped out where there are these high deer densities," Greenwald said.

Other work found that mammals and birds also suffer from high deer populations.

So, why did the new study show the opposite? One possibility is that high deer populations enrich the soil with their droppings, creating a cascading effect where insects and other invertebrates multiply in richer soil, attracting salamanders, which attract snakes.

Suominen's work in Finland has shown that reindeer grazing on tree saplings can enhance soil moisture. A similar effect could be at play here, he said.

But, the study is preliminary, Greenwald cautions, and there may be other explanations.

"I'm hesitant to say, 'Deer are great for salamanders,'" Greenwald said.

The salamanders that she observed in the study are red-backed salamanders, which are hardy and pretty abundant. "It could be that the species that are sensitive to grazing just aren't there anymore."

It may also be that in heavily grazed areas, there are fewer places for salamanders, snakes and invertebrates to hide, so they prefer to lurk under the planks Greenwald placed in the plots to count the critters underneath. In areas without deer, these planks may see less use because they are only one of many places to hide, creating the artificial impression that there are fewer animals around.

Still, the findings may have implications for managing deer populations. "There are a lot of initiatives to reduce deer numbers and I think that overall that's probably a good thing, when you consider the impact on ecosystems as a whole and the lack of predators," Greenwald said. Nonetheless, her study shows "there could be some unpredictable responses."

Suominen points out that this type of study compares high deer populations with no deer.

"One cannot predict using this kind of setup what would be the impact of reduced deer density," he said.

"What is considered overabundance depends largely on our own human perspective and varies a lot at each situation," he adds. "However, in many cases, some intermediate herbivore density would be optimal."

© 2012 Discovery Channel

Original article available from: <http://www.nbcnews.com/id/27366401/#.UvUX1UjdVzE>