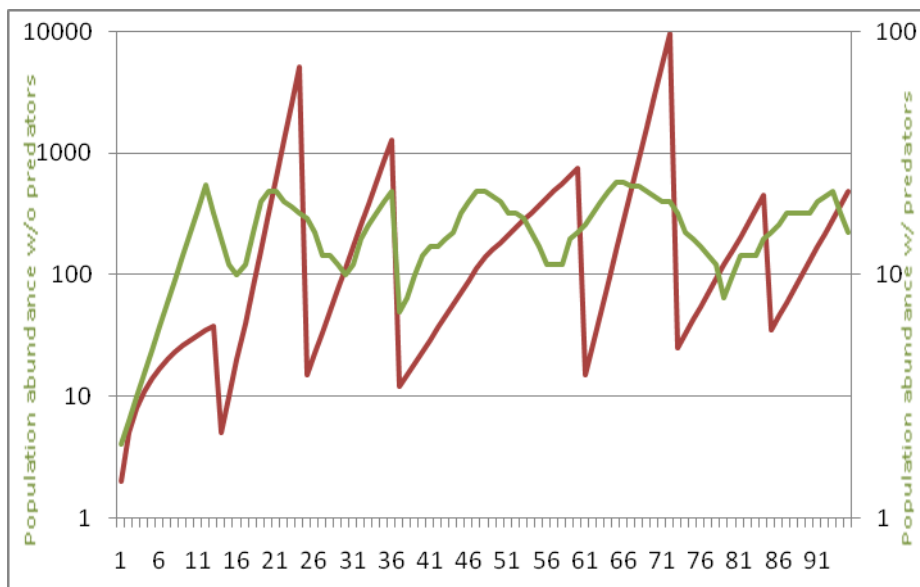


The Paradox of the Predator

By Suzanne E. Dorsey

Bald Head Island has experienced a rabies epidemic primarily in her fox and raccoon populations this winter. The result is that both populations are crashing and this summer you won't likely see very many foxes on the road or scampering around turtle nests. We are seeing a recurring pattern on BHI. First, Raccoons and foxes become overpopulated and wipe out our mice and reptile populations. Then a disease, rabies this time but distemper last time, takes the mammal populations down to a very low level. The first population to recover will be our rodents (start mouse proofing your home now). Hopefully by the end of the summer we'll see more of our snakes return and begin to control the mice. After a couple of years we will once again see foxes and raccoons taking advantage of abundant snake and rodent prey.



This **fictional** graph contrasts a population without predators (red line), which grows rapidly and crashes catastrophically with a predator controlled population that has lower amplitude cycles. The bottom axis is time, whereas the left axis displays the population abundance without predators (red), and the left axis shows predator abundance with predators (green). High population levels often result in disease and steep population declines. The presence of predators keeps populations lower and epidemics less frequent.

This cycle perfectly illustrates a new ecological theory put forth by Duke researcher, John Terborgh; first outlined in his 2001 Science paper¹. He challenged the accepted theory called *island biogeography*, which explains species abundance based on the size and quality of habitat (bigger places - more animals). Conservationists

therefore, use preservation of habitat as a primary tool to protect populations. Dr. Terborgh looked at even big landscapes and saw distortion. He didn't only blame a lack of habitat he blamed a lack of predators.

Terborgh claimed that nature is out of wack in most parts of the world because we no longer have top predators. In a summary of his paper Dr. Terborgh² implores, "look at the overgrazed grasslands of the American Southwest, giving way to prickly scrub and thorn; or to the forests of the eastern U.S. being swallowed by white-tailed deer. Look at the nationwide plague of opossums and raccoons and foxes and feral housecats—those mid-sized predators that used to be prey—now consuming birds and small mammals by the billions." With no top predators we are altering nature and transforming ecosystems. Terborgh further states that for conservationists preserving land is no longer the only tool that must be applied. "If you know there is a biological mechanism operating, and you know who the actors of that mechanism are then management interventions become possible."

I share this point of view because I believe the BHI is at yet another environmental crossroads. Our raccoon and fox populations will continue to cycle in this "altered state" unless the community imposes a management regime on them. The Conservancy has already started discussions about fox management and the first order of business was to obtain population estimates. Now that the populations are being decimated by rabies we will need to start fresh in considering a management plan. It is an opportunity to step back, look at the broader issue of our populations and ask ourselves how to best take care of our altered landscape.

Please share your concerns about BHI's midsize predator populations and your ideas about how we should be involved in managing them. The Conservancy will once again convene Public Forums to discuss these issues but for those of you who are not able to attend please email your ideas to email@bhic.org. We also have a Facebook group page: Bald Head Island Conservancy. Additionally, we started a dialogue on Twitter: <http://twitter.com/BHIC>. We'll continue to share ideas on our web page and in the Conservator as we develop consensus around a plan.

¹Terborgh, J. et al. 2001. Ecological meltdown in predator-free forest fragments. *Science* 294(5548) 1923-1926.

²Stolzenburg, W. 2008. Ecosystems Unraveling, Pull predators out of the mix and a once lush green world turns into an ecological shop of horrors. *Conservation Magazine*. Vol. 9 No. 1. Jan-March.