

Trip Report:

Reconnaissance Assessment of White-tailed Deer Impacts in the Forests of Southold, New York

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Thomas J. Rawinski

Botanist
Northeastern Area State and Private Forestry
USDA Forest Service
Durham, New Hampshire
(trawinski@fs.fed.us)



A white-tailed deer at Tall Pines, where the undergrowth has become sparse and anemic.

Across much of the Northeast communities are grappling with the issue of white-tailed deer overabundance – an issue with serious ecological, economic, and human health and safety dimensions. Overabundance can be defined as too much of a good thing. In the context of deer, it is a consensus determination that negative impacts of the white-tailed deer outweigh positive.

People of good will and civic responsibility are striving in their communities to achieve a healthy balance with deer. They hope to maximize the positive values of deer, while minimizing the negative impacts. That, quite simply, has been the goal.

The problem arose in recent decades largely because humans unintentionally created ideal habitat for the deer. Top predators had been eliminated centuries earlier. Human predation of deer, i.e., hunting, had been banned in many areas, or restricted. As a prolific prey species, deer populations can double in as little as two or three years in the absence of predation.

It has been my great pleasure to meet many fine people involved in this conservation arena. What may seem to be an intractable “wicked problem”, can be mitigated, but it requires tremendous effort from a community of people united in their resolve. Much of the problem-solving involves people embracing the natural role of humans as predators. Lest we forget, for thousands of years Native Americans preyed heavily on the white-tailed deer. Humans were among the most effective predators of the white-tailed deer in North America. Humans remain so today in many regions.

On September 5, 2013, New York State Botanist Dr. Stephen Young, The Nature Conservancy’s Mike Scheibel and I were invited by Southold residents John Rasweiler, Jeff Standish, and John Sep to tour the town’s forests. We were asked to help assess the browse impacts. We visited the Ruth Oliva Preserve, the Reese Property, Tall Pines, and a forest on Nassau Point. What we observed came as no surprise to our hosts – the forests have been severely damaged by deer, to the point where trees can no longer replace themselves. There are simply too many deer devouring the tree seedlings and saplings. Native wildflowers such as the beloved pink lady’s slipper (*Cypripedium acaule*) are now largely gone, and with them the nectar sources that once nourished native insects. Unpalatable invasive plants such wineberry (*Rubus phoenicolasius*), mile-a-minute vine (*Persicaria perfoliata*) and Japanese barberry (*Berberis thunbergii*) have now exploited the niches left vacant by the decimated native plants. Native fruit-bearing shrubs such as lowbush blueberry (*Vaccinium pallidum*) are now too stunted to bear the sweet fruit that would otherwise nourish songbirds and people alike (Figure 1). Over many acres, an understory layer of shrubs and saplings is missing. The forests have become open and park-like (Figure 2). Bird species that once nested in or otherwise utilized the forest understory have declined dramatically in Southold - Jeff cited the Eastern Towhee as an example.

It was the great ecologist Frank Egler, from Connecticut, who wrote in 1977:

“Ecosystems are not only more complex than we think, they are more complex than we *can* think.”

We can’t possibly perceive all of the ecosystem-level impacts from overabundant white-tailed deer. Consider, for example, that there is now little plant life in the forest understory to bind the soil and to take up nutrients. Have these nutrients become more mobile, and entered our coastal waters, affecting water quality and perhaps exacerbating the brown tide situation? Establishing this connection via rigorous science may be very difficult, but it is a plausible hypothesis nevertheless that should give us pause - deer impacting much more than just the forests.



Figure 1. Heavily browsed lowbush blueberry at Tall Pines. Such plants are now too small to bear fruit.



Figure 2. Open, park-like understory in the forest at the Ruth Oliva Preserve.

A forest is so much more than its trees. It is an interconnected web of interdependent life forms. That one species – the white-tailed deer – can so radically alter that web of life is difficult to fathom. But it is happening, to be sure. These are the cascading ecological effects that send shock waves through the ecosystem, affecting myriad species.

It is also amazing to realize how quickly this damage has occurred. Each of our hosts recalled the days when Southold's forests were healthy and vibrant – before the deer population exploded about two decades ago.

Many people may have difficulty perceiving what this all means for the forests. After all, people still see and enjoy a multitude of trees in these forests. What they may not perceive is that those forests are *doomed* unless young trees can be recruited into the canopy, to replace the ones that die or topple over, as they invariably will do. At Tall Pines, we saw white pines killed by the salt spray from Super-storm Sandy, as well as oaks toppled over by its strong winds (Figure 3). Our hosts raised the specter of these forests being leveled by the next hurricane to hit Long Island. It is not a question of *if* this will occur, but *when*. They recognize the imperative to restore these forests back to health before such a disaster strikes.



Figure 3. One of many oak trees blown over during Super-storm Sandy at Tall Pines. Deer are preventing the regeneration of all tree species in this forest.

I could go on and on, writing at length about my observations – seeing otherwise common woodland wildflowers such as Canada mayflower (*Maianthemum canadense*) and false solomon’s seal (*Maianthemum racemosum*) reduced to tiny, isolated individuals; not seeing the otherwise ubiquitous wild sarsaparilla (*Aralia nudicaulis*) because the deer had already wiped it out; seeing sweet pepperbush (*Clethra alnifolia*) stems and American beech (*Fagus grandifolia*) sprouts reduced to less than knee-high stature; seeing the proliferation of browse-resistant grasses and sedges in the forest understories; and seeing browse damage to hay-scented fern (*Dennstaedtia punctilobula*), a plant species fed upon by deer only in extreme situations. Yes, I could go on and on.

As discouraging as this may sound, this is, at its core, an uplifting story, about a community striving to achieve a balance that restores health and vitality to forests and people alike.