

# **Trip Report: A Reconnaissance Assessment of White-tailed Deer Impacts in East Hampton Town Conservation Lands**

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*A lone fawn at the 500-acre Grace Estate.*

## ***Background:***

I was invited by Andy Gaites to help assess white-tailed deer impacts in conservation lands in East Hampton Town, New York. Andy works for the Department of Land Acquisition and Management. He and Planning Director Marguerite Wolffsohn were instrumental in preparing the town's deer management plan, which was adopted in 2013(<http://www.town.east-hampton.ny.us/DocumentsPDF/DeerManagement/NewDocuments/DeerManagementPlanFinal2013.pdf>).

The plan was the culmination of three years of structured community deliberation on the subject, orchestrated by the town's Deer Management Working Group (DMWG). According to the DMWG, the deer population in town has reached an emergency level. The goal of the plan is to restore balance and sustainability to the town's natural environment. The plan is thoughtful, comprehensive and compassionate. It addresses options and actions intended to mitigate the negative impacts of white-tailed deer overabundance over the next five years.

Andy expressed to me that he was glad that the town had moved beyond the "talking" stage, and into the "action" stage of deer management. My visit would help with a specific action item in the plan, i.e., item 3.f. - *Inventory and Monitor the Impact of the Deer Population on Native Vegetation*. This is my area of expertise within the U.S. Forest Service.

We set out at 8:30 AM. Our group consisted of Andy, Marguerite, East Hampton resident Julie Sakelleriadis, The Nature Conservancy's Amanda Stasiewicz and myself.

### ***Grace Estate:***

We drove through the 500-acre Grace Estate on a narrow dirt road. We saw jaw-dropping deer impacts – a missing shrub-sapling layer, an understory dominated by Pennsylvania sedge and black huckleberry (low-preference plant species) and gaps in the canopy from tree-fall that remained open. The only tree species that might survive the current level of deer impact was white pine, another low-preference species. We saw quite a few white pine saplings in one area. Elsewhere, we saw pine saplings heavily browsed by deer.

One thing that I tell people is that deer impacts in forests are never uniform. As a general rule, forest interiors tend to be more impacted than forest edges. Along the forest edges, the deer tend to be more skittish. They spend less time feeding in those areas, being frightened by traffic, barking dogs, people etc.

We stopped at a semi-forested sandy area. It is where I photographed the fawn shown above. Deer impacts here were shocking, even to me. What once was a forest was now a semi-forested woodland. We were witnessing deer-induced forest disintegration (Figures 1). Any tree that toppled over or otherwise died was not being replaced. Without tree regeneration, the forest at the Grace Estate will continue to disintegrate. Disturbance events such as blow-down, damaging insect outbreaks, tree diseases and fire will only hasten forest disintegration – an entire ecosystem being radically altered by a keystone species, the white-tailed deer. In much of the area, the understory was dominated by unpalatable sedges and grasses (Figure 2). Elsewhere, there were patches of bayberry, which the deer avoid.



**Figure 1.** Deer-induced forest disintegration at the Grace Estate. Unless the deer population can be brought into balance, this forest will continue to disintegrate.



**Figure 2.** A shockingly sparse understory dominated by unpalatable sedges and grasses at the Grace Estate.

We paused for a group photograph (Figure 3). I positioned Julie, with her tick-whites, behind some blunt-leaved milkweed plants. Those milkweeds possess chemical defenses that protect them from deer browsing. We had a disgusting number of lone star ticks on our pants after walking through this area.



**Figure 3.** From left to right, Marguerite Wolffsohn, Julie Sakelleriadis, Andy Gaites and Amanda Stasiewicz at the Grace Estate.

Lest there be any question that the deer were responsible for the poor condition of the vegetation, Andy brought us to a deer fence that bordered the town land. I would guess that the fence had been up for about five or six years (Figure 4).

The understory vegetation inside the fence was truly lush! Highly preferred plants such as Virginia creeper, poison ivy, summer grape, Allegheny blackberry, black-cap raspberry, Asiatic bittersweet, arrow-wood, winged sumac and whorled loosestrife grew only within the fence. Other species thriving within the fence, but heavily browsed outside the fence, were rough goldenrod, black cherry, pignut hickory, eastern red-cedar, common greenbrier, sassafras and early sweet lowbush blueberry.

Andy did indicate that the Grace Estate was open to deer hunting, as presently regulated by the town and state. Such hunting appears to be having little beneficial effect on forest health. A far more aggressive deer management program is needed here, in my opinion, if the goal is to restore this forest.



**Figure 4.** A deer fence on the border of the Grace Estate that showed dramatic contrast within.

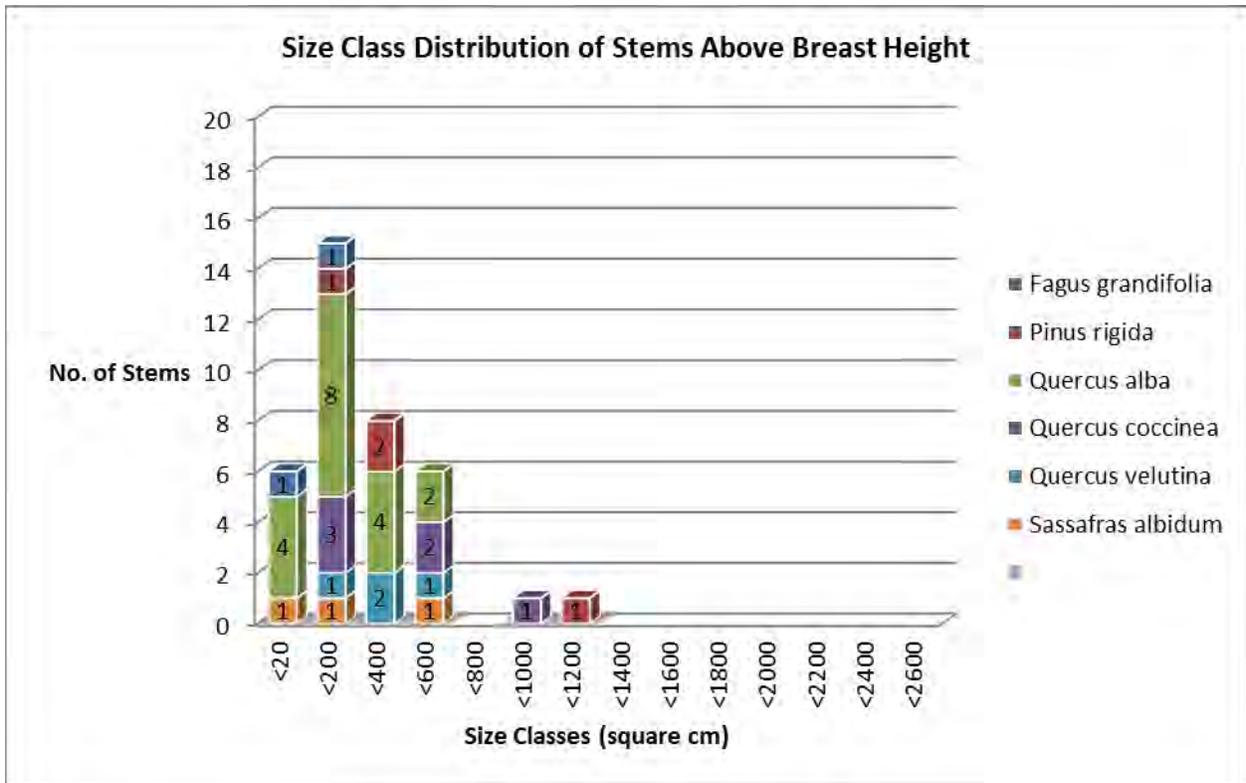
### ***High Point Preserve – Peconic Land Trust***

At the 50-acre High Point Preserve we first collected data on the tree size class distribution. We measured all woody plant stems at breast-height in three contiguous 100 square meter circular plots, at 40.99428 degrees latitude, -72.15929 degrees longitude. Figure 5 is a photograph of the forest stand that we sampled. Figure 6 is the graph of our data. The X-axis shows the basal area classes, i.e., <20 equated to stems less than 2 inches in diameter, <200 were stems between 2 and 6.28 inches diameter, <400 were stems between 6.28 and 8.88 inches, <600 were stems between 8.88 and 10.88 inches, <800 were stems between 10.88 and 12.56 inches, <1000 were stems between 12.56 and 14.05 inches, and <1200 were stems between 14.04 and 15.39 inches diameter.

It was apparent that white-tailed deer had, over the years, suppressed tree regeneration in this forest. The data in Figure 6 confirmed this. In a healthy forest lacking significant deer impact, a tree size class distribution graph would usually show a negative exponential curve, with most stems in the smallest size class, i.e., <20 square cm basal area, or < 2 inches in diameter. Our data suggest, or perhaps confirm, that a tree reproduction bottleneck caused by deer exists in this forest. Only six of the 37 tree stems measured were less than two inches in diameter. The calculated stand basal area for the forest was 27.1 square meters per ha, or 118 square feet per acre.



**Figure 5.** Photograph of the forest sampled for tree size class distribution analysis at High Point Preserve.



**Figure 6.** Size class distribution of woody plant stems above breast height in three contiguous 100 square meter circular plots at High Point Preserve.

We also collected data that suggested that this forest was beginning to recover from levels of deer impact that were much higher in the recent past. This recovery was most apparent in the height and health of American beech sprouts. Twenty-five beech sprouts were measured within the three plots. The mean height was 20.36 inches, the minimum height was six inches and the maximum height was 40 inches. There was very little evidence of recent browse damage to the beech leaves.

About 100 meters from the three plots, I demonstrated to the group how my town-wide deer impact monitoring protocol might work in East Hampton. We temporarily marked a 100 square meter circular plot and measured the ten tallest beech sprouts within (Figure 7). The mean height was 26.4 inches, the minimum height (of the ten tallest stems measured) was 20.5 inches and the maximum height was 38 inches. Returning to these plots each year, and repeating the measurements, would show changes in stem height attributed, in all likelihood, to changing deer densities. I mentioned that in addition to monitoring beech sprouts, sassafras, maple-leaf viburnum and other species could be monitored as well.



**Figure 7.** Relatively healthy American beech sprouts that were measured at High Point Preserve.

How do we know that the deer impact in this forest was much higher about three years ago? Of course, there may be anecdotal evidence via people who know this property well. And then there is the small beech tree shown in Figure 8. Up until about three years ago, it had a distinct browse line on its lower branches. But in recent years, it had sprouted branches near its base.

The beech sprouts at High Point Preserve are remarkably similar in height to those at Mashomack Preserve. At both areas, deer damage permit culling in the vicinity appears to be responsible for the improved growth of beech sprouts. Elsewhere in Eastern Long Island, beech sprouts remain very short and heavily browsed, even in forests open to traditional recreational deer hunting.



**Figure 8.** A small beech tree that once showed a distinct browse line now has new growth near its base.

Marguerite and Julie left the group at noon to attend to other commitments. Andy drove Amanda and me past a ca. 25-acre field within which we counted 22 deer!

### ***Hither Woods***

Hither Woods is a 2,000-acre area that is open to hunting. We drove some distance along a dirt road and stopped for a quick look at the forest vegetation (Figure 9). Soils were quite poor. Oaks dominated over a largely ericaceous understory. Old fire scars on some of the oaks confirmed that this area had burned in the past.

The lack of a browse line on mountain laurel suggested that the deer impact was not at an extreme level, perhaps because of the hunting. And yet, the browse pressure was enough to prevent oak sprouts and shadbush sprouts from growing above the reach of deer.



**Figure 9.** Oak forest at Hither Woods showing an open understory attributed to chronic browse pressure. The many small-diameter oaks originated after a fire about 20 years ago, when deer densities were considerably lower.

### ***Culloden Point***

Culloden Point is a 174-acre property currently open to bow-hunting. Andy indicated that it might also be opened for the January firearm season.

Relatively fertile soils prevailed here, with a much greater floristic diversity (Figure 10). We saw some deer-preferred species such as wild sarsaparilla, bluestem goldenrod, whorled loosestrife and white-topped aster – they all showed browse damage. Two other preferred species, Virginia creeper and Canada mayflower, existed in sparse numbers, because of chronic browse pressure, I'm sure. Near the edge of a wetland, the sweet pepperbush stems were scarcely ten inches tall – very much suppressed by deer browsing.

Andy pointed out the only witch hazel plant on the property. Its basal sprouts were being kept suppressed by the deer. We did see a few witch hazel seedlings in the vicinity of the mother plant, but there is little chance that they will be able to grow above the reach of deer, given the current high deer density.



**Figure 10.** The heavily deer-impacted forest at Culloden Point.

### ***Concluding Thoughts***

We packed a lot into one day! I offered to come back to East Hampton.

My most vivid memory will remain the lone fawn, searching desperately for a morsel of palatable forage at the deer-ravaged Grace Estate. Empathy is what drives many of us in the conservation field - empathy for the under-sized deer that populate this area - empathy for the disintegrating forest ecosystem – empathy for the people who love these beautiful animals and don't want to see them killed – empathy for deer hunters who derive sustenance for their families from these animals – empathy for people who contract tick-borne diseases, who are involved in collisions with deer or who see their agricultural or horticultural enterprises damaged by deer. It's complex. It's our socio-ecological system. All I can do is plagiarize myself:

*“To place the wellbeing of fellow citizens and Nature above personal wants, for the sake of the greater good, speaks highly of a culture that is socially and environmentally responsible.”*

My heart soars to think that the East Hampton community is now on a path to bring harmony to this socio-ecological system, by whatever means necessary. In my mind, it's all about the greater good.