

## Part ONE

### Signs of Local Deer Overabundance

At the edge of a field in Hanover, a young 12-foot tall white pine tree been browsed of foliage to height of about 4 feet off the ground.



Deer have browsed this shadbush sapling, so that only the topmost branch has leaves.



*Some common plants are disappearing.* White wood aster should be common in nearby dry forest sites.



Here, only one white wood aster was in bloom, but several plants with flower stalks cut off suggest heavy browse. Without flowers and their seeds, these plants cannot re-generate.



*A browseline tells the story.* Deer have removed all the lower leaves and branches of the young maple trees in this understory. Notice that the forest floor has few plants – neither tree seedlings nor herbaceous plants.





*Tree stumps can also show evidence of excessive deer browse.* A photo from August 2014, this red oak stump has one older dark leaf but many new bright green leaves from the stump's second attempt at re-leaving. Notice how many sprouts are quite bare; excessive browse keeps these re-sprouts at a low height. In a healthy forest, deer would only eat a few of the sprouts.

*Large beds of ferns: a sign of too many deer.* Deer don't like ferns, and certain ferns (such as hay-scented and New York fern) will form massive beds if deer eat the other vegetation nearby. This photo is an example of a massive fern bed; we haven't reached this point yet in Hanover, but some fern beds now exceed 2000 sq feet.



TNC-Matt Miller



*Certain plants are preferred by deer, such as orchids, members of the lily and trillium families.* These plants provide an 'early warning' that there are too many deer. Here, in another Hanover site considered a 'biodiversity hotspot' for key woodland plants, a bluebead lily (*Clintonia borealis*) colony has been completely browsed and has re-sprouted fresh new leaves. The plant spreads slowly, and takes twelve years of growth to reach the flowering stage. This colony once covered about 15 sq ft, but has been greatly reduced in size. The new leaves here are only 3" long, whereas the plant's leaves are normally about 6" long. This colony once had flowers and set seed, and is now prevented by deer.

*Is deer management needed here?* It is difficult to estimate the actual density of a deer herd. But, with vegetation impacts such as those illustrated in these photos, there is a serious problem. Some estimate that a threshold density is when there are more than 5 deer / km<sup>2</sup> (>

12 deer / mi<sup>2</sup>). The vegetation damage at these sites suggests that deer management is needed, and that management should have happened a while ago. The threat to regeneration of common plants and to overall diversity of the plants and animals they support is reason enough to reduce the deer herd.

*Excessive deer browse can accelerate the spread of certain invasive plants.* Research has documented that deer browse can cause a decrease in native plants in a forest's herbaceous layer, thus allowing invasive plants to advance in forested land at a great pace. Some of the invasive plants adapted to fill openings in forest shade are Japanese barberry, shrub honeysuckle, garlic mustard and burning bush. See [Part SIX](#) of this website for references.

### **For More Information about Evaluating the Level of Deer Browse**

- [White-tailed Deer in Northeastern Forests: Understanding and Assessing Impacts](#) Tom Rawinski 2014. A useful guide for assessing sign of deer browse, lists of plants preferred by deer, and determining level of damage.
- [VT report to Legislature on deer damage \(2012\)](#) Appendix A of this report has an excellent chart of plants susceptible to deer browse and associated increasing levels of damage, from minor to extreme.
- [Caring for Deer and Forests](#) A resource center for Eastern North America. Check out the excellent [Habitat Interactive Tutorial](#) that illustrates various levels of browse.

*If these links don't work, check links in Part SIX (references).*