

Conservation Matters

A monthly column focused on conservation education, as the result of collaboration among several area conservation commissions and organizations. If your town's commission or conservation organization would like to contribute articles, please contact Jessica Tabolt Halm jesshalm78@gmail.com

Title: What will NH's Forest look like 50 years from now?

Written By: Larry Spencer, Holderness Conservation Commission

Most of us in Grafton County live in, or not too far from, a forest. Forests provide innumerable benefits for my family and all residents of the county. We, like many residents, heat our home with cordwood. Rule of thumb says that ten acres can sustainably supply five cords a year. Since I have ten acres in current use, I could supply all my firewood from my own plot. Actually, I only burn three cord of wood a year, in a woodstove with a catalytic convertor. Because most of my trees are downhill from the house, I appreciate friends who call me when they have a fallen tree on their property. It's not fun fighting gravity.

Forests around us moderate our local climates, which are cooler in the summer because of the shade and perhaps less windy because the trees lessen the wind velocity. Flowering trees provide a beautiful landscape. Who has not admired the blooming magnolias on the Plymouth Town Common? Although I haven't done so, some have even harvested trees on their property and had them milled for use in building their homes or outbuildings. Trees in the forest, through their evapotranspiration, have an effect on the water balance of the soil. The classic anecdote is of a 19th century farmer who thought he had a nice dry forest and cut down all the trees and ended up with a swamp. The evapotranspiration of the trees was keeping that forest in hydraulic equilibrium. Yes, trees provide a number of services for us, but what about the future?

Will our forests be the same, fifty years from now? I would say no, and here's why: First, there are a number of pests attacking our trees. Slowly, but surely, the Hemlock wooly adelgid has been moving northward through hemlock stands and has reached our forests. This tiny creature weakens the tree by piercing and sucking sap from its needles, and injecting toxic materials, resulting in dead needles and an inability to produce new growth. The creatures lay their eggs on the leaves, producing snowy white material on the undersurfaces of hemlock needles. In their native location, predators control adelgids, but we don't have those predators in NH. Recent work has shown that we could introduce a beetle to control the adelgid, but that practice would require lots of resources to produce and distribute those beetles and who knows, they could themselves become a problem.

Who hasn't at some time swung at a ball with a bat made from ash? Although our ash trees aren't typically used in the bat making process, they are under siege by the Emerald Ash Borer, an invasive species from Asia. Mating takes place soon after emergence from the host ash trees; the females lay 40-70 eggs in bark crevasses. Then, larvae burrow under the bark and create galleries that prevent normal functioning of tree tissues. It takes 3-5 years for an infestation to kill a tree. The telltale sign of an infestation is a D-shaped hole where the beetles emerged from the tree. First seen in southern NH, they have now been found in Grafton and Belknap counties.

Because much of central NH was once farmed, our pre-farm forests were converted to fields or pastures. Once the farmers left for better conditions in the mid-West after the Civil War, those fields/pastures grew back into forests, and one of the prominent trees to inhabit those locations was White Pine. In Holderness, we recently harvested diseased White Pine trees from the Pilote Forest. These trees were nearing the end of their life span, and infected by White Pine Blister Rust. This fungal disease causes needle loss. The life cycle of the infectious fungus is often associated with current and gooseberry bushes.

American beech trees produce a bountiful harvest of beechnuts that many wildlife species depend upon. Have you examined your beech trees recently? If you have, you would noticed condition of the bark is not the nice smooth surface one often associates with the trees, but a gnarly black surface. This disease is caused by a scale insect, whose actions lead to fungal infections in the bark, with the outcome of lesions that eventually girdle and kill the tree.

I' ve only listed *some* problems that insects and fungi cause in our NH woods. For more details, go to www.NHbugs.org, and have a hanky nearby - the future is bleak.

Beyond insect and fungal infestations, as our climate changes, tree species slowly migrate northward. The US Forest Service has examined these possible changes in great detail in a 2012 publication titled "Changing Climate, Changing Forests: The Impacts of Climate Change on Forests of the Northeastern United States and Eastern Canada". In fifty years or so, our forest will more closely resemble that of North Carolina, rather than our current species composition of sugar maples, oaks, and hemlocks. Not only will the composition of the forests be different, we may also have a whole new collection of diseases that could affect those tree stands.

It has been said that variety is the spice of life, but when we depend upon our forests for so many reasons, perhaps we shouldn't wish upon ourselves the variety brought about by the many problems heretofore mentioned. Luckily, our forests are resilient and able to resist human and non-human caused insults. Remember, at one time almost 40% of NH had been cut, while current forest cover is around 78%. Thoughtful and carefully applying sound forest management techniques will enable us to continue to reap the benefits of our forests.



Photo Caption: The gorge at Livermore Falls, with birch and hemlock on the right side and white pine on the far left side.