

Champions of a Town Forest

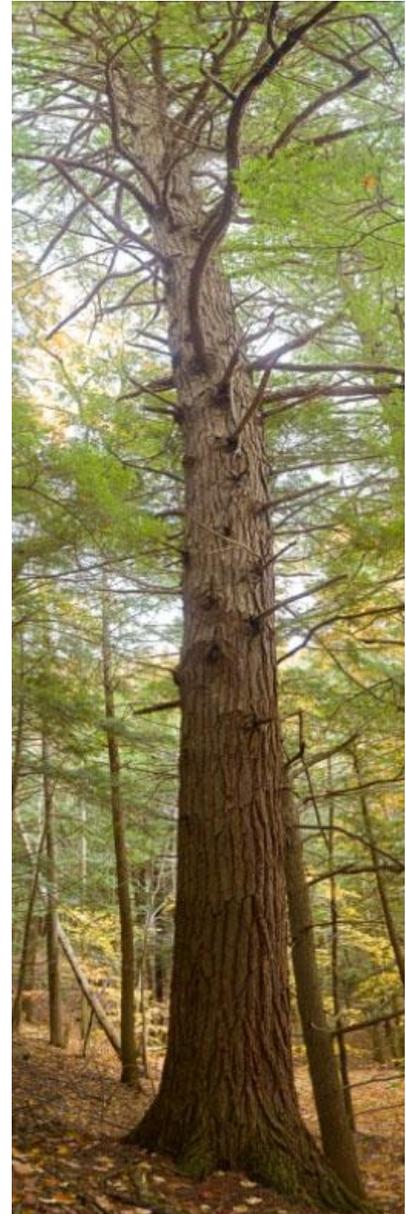
Christopher L. Fastie

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My town in Vermont is celebrating its 250th anniversary in 2011. The laudable event in 1761 was the signing of a charter by the Colonial Governor of New Hampshire granting to several dozen Connecticut investors control over the wilderness real estate that would become Salisbury, Vermont. The original charter is preserved today in the Salisbury town vault, but this may not be the greatest relict of the town's earliest days.

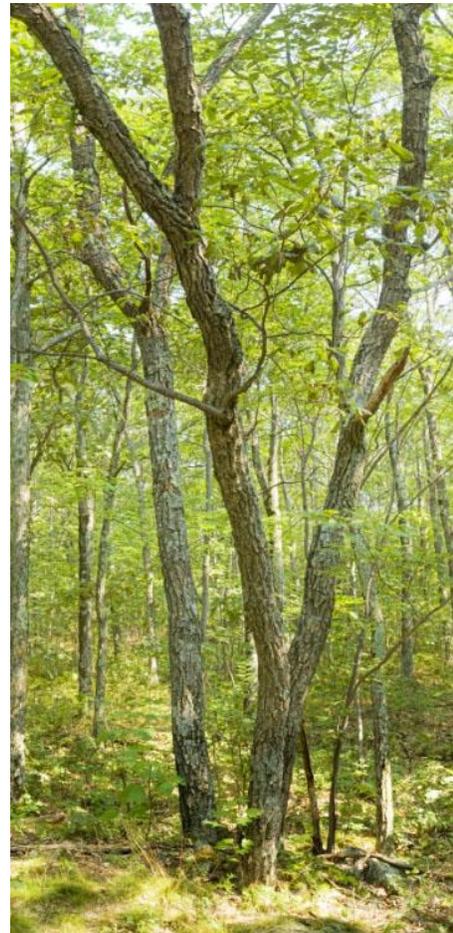
In the far reaches of the town's municipal forest is a grove of eastern hemlock trees (view a [Gigapan](#)). The canopy of this forest is so dense that little light reaches the ground, and little underbrush can grow there to block your path among the trunks. Many of the trees are about two centuries old, almost as old as the town. But five of the trees are bigger. Five of the hemlocks have thickly furrowed bark and massive trunks almost three feet in diameter (view a [Gigapan](#)). I extracted pencil thin cores with an increment borer to learn from the growth rings that these trees are almost 300 years old. They were small trees when the governor signed the charter, and they were the only living things in Salisbury in 1761 that are still alive today.

Having secured their charter, the first thing the Connecticut grantees invested in was a surveyor. In 1762, by following a compass bearing and pulling a chain through old growth forest, the surveyor marked 70 narrow lots, most a mile long and a sixth of a mile wide. These "home lots" were intended for settlement by farming families, and the soil was deep under some of them. But the eastern rank of lots reached into the foothills of the Green Mountains where stony and gravelly soil would make farming a challenge. A decade later the first settlers in Salisbury homesteaded miles from these hardscrabble lots. Of the original lots, one of the steeper, more gravelly ones was later designated as the "School Lot," to be used in support of education in the new town. A one room schoolhouse was built on this lot early in the 19th century (view a [Gigapan](#)), and education was later supported by cutting timber or leasing all or part of the lot. In 1958, encouraged by a state effort to establish town forests, Salisbury designated its school lot as the Salisbury Municipal Forest. Today, this is the only property in Salisbury whose boundaries survive from the 1762 survey.



A 300 year old hemlock tree in the Salisbury Municipal Forest. See the entire Gigapan [here](#).

Most of this forest is not as mature or as majestic as the old hemlock grove. I like to lead hikes up to the big hemlock trees and then emerge from the shade into a bright stand of oaks and maples (view a [Gigapan](#)). The soil is so thin under these trees that they are stunted and widely spaced among a sea of grasses and herbs. The crooked trunks of red oaks, white oaks, and chestnut oaks are barely more than a century old, and probably started growth after heavy logging around the turn of the twentieth century. This is the more typical history of the school lot, in the light of which it is remarkable that the lives of five hemlock trees have spanned its entire 250 years. This lot has always been the town's largest municipal property -- its largest commons. As is true throughout New England, the fate of the commons has rested on the tendency of its many owners to maximize their individual returns from it. On this marginal land, that meant cutting trees. Outside of that small stand of hemlocks, there may be no trees in the Salisbury Municipal Forest older than 150 years. These are handsome oaks, maples, beeches, and pines, but those species can live for 300 to 500 years. These are fine young forests, like the forests all New Englanders have grown up with. But these are nothing like the forests that once surrounded those old hemlocks.



Trunks of chestnut oak in the Dry Oak Forest. See the entire Gigapan [here](#).

Down the hill from the stunted oak forest, the soil suddenly deepens where a huge river once flowed between the hill and a receding glacier. On a gravelly kame terrace, oaks and maples grow three times taller than on the bedrock ridge above. This is a Northern Hardwood Forest, but one where warm, coarse soil allows red and white oaks to replace the more typical sugar maple (view a [Gigapan](#)). At a third of their potential age, these trees are large enough to have some monetary value, but the stand has yet to develop the deep organic soils or multistoried canopy structure of a mature forest. There are few standing dead trees or fallen trunks to harbor the diverse wildlife, invertebrates, and microorganisms typical of old growth forests. This ecosystem does not hold as much water, nutrients, or carbon as it would after a century or two of additional development. Although the youthfulness of such forests is overlooked by



Dense shrubs and saplings in the Mesic Red Oak-Northern Hardwood Forest on a kame terrace. See the entire Gigapan [here](#).

most of us, it is a primary goal of timber management. By regularly removing the largest trees, natural tree decline and death are minimized as long-term timber production is maximized. This management practice is euphemistically considered to maintain “forest health.” Although it is a common belief, the argument that young forests are better than old, and that killing the oldest trees improves the health of a forest are scientifically hollow. No one would arrive at such conclusions without having been influenced, however indirectly, by the timber industry. Instead, one could argue that these forests won’t provide us with the full suite of ecosystem services, and won’t be truly healthy until they have been allowed to grow for another century or two. Those of us weaned on New England’s youthful 20th century forests can hardly imagine what these stands might eventually look like, but a good starting point is to lose the thicket that clogs the understory, and then triple the diameter of the trees. Unless we work hard to imagine not only what such forests would look like but what they might offer, it may be irresponsible to make decisions which prevent additional generations from finding out.

As the glacier shrank, the river running along its side left three step-like kame terraces in the municipal forest. Below the level of the third terrace the river entered a glacial lake and its sandy sediment built a massive delta (view a [Gigapan](#)). The forest on this level surface is the most unusual one in town.



Stratified deltaic sands deposited 13,500 years ago by a glacial river where it entered Lake Vermont. See the entire Gigapan [here](#).

The excessively well-drained soil supports a forest in which pitch pines grow with a mix of century-old hardwood trees (view a [Gigapan](#)). There is only one other place in Vermont where similar sandplain forests are found. Ecologists from the state, county, and Middlebury College have been documenting this forest and considering its future. Pitch pines do not replace themselves in closed forests; their seeds need open areas and bare soil to establish. So if this forest is left undisturbed, the pitch pines will disappear. If we intervene, we could perpetuate the pitch pines, but we might then have an arboretum instead of a forest. I can imagine two futures for the sandplain forest, one after two centuries of manipulation to maintain the special pines, and an alternate future after two centuries of undisturbed development which would probably eliminate the pines. If a wizard offered me a choice to walk through one of these forests in the year 2200, I would quickly choose the latter. I would want to see what forest succession had done with two centuries. It is something few people have seen in New England.



Flagged pitch pines in a study plot in the Pine-Oak-Heath Sandplain Forest. See the entire Gigapan [here](#).

It is not reasonable to expect that very much of Salisbury will ever support forests which have been undisturbed for two centuries. Wood and fiber products must come from somewhere, and sustainably harvested forests provide important benefits. But harvest does not have to be done everywhere. Market forces will ensure that most of Salisbury's forests continue to supply logs. When trees get big enough, landowners can rarely afford not to cash them in. And most private forest acreage in Salisbury is enrolled in Vermont's Use Value Appraisal Program which requires periodic harvesting in exchange for a substantial break on local property taxes. This program is instrumental in maintaining Vermont's rural character by allowing a working landscape to be an economically viable alternative to real estate development. But it makes private land a dangerous place if you are a big tree.

So if a forested stand in Salisbury will be allowed to mature, it will most likely be on land managed by a conservation group or on public land. However, like other private landowners in Vermont, conservation organizations are rewarded with tax breaks if their forested land is managed for timber production, so only a few small parcels have been protected from logging. The Green Mountain National Forest, which owns 20% of the town of Salisbury, has set aside thousands of acres in wilderness areas which will never be logged. But almost all of these acres are at high elevations (and none in Salisbury) on land that the US Forest Service has classified as "unsuitable" for timber production. For example, there is spruce, fir, and birch, but no oak in these mountainous wilderness areas. Nowhere in Vermont are there old growth examples of the forests on the kame terraces and deltaic plains of Salisbury. Nor are there young examples of these forests where future logging has been banned. This type of old forest seems to have no steward.



The cellar hole of an early 19th century schoolhouse on the municipal forest property. See the entire Gigapan [here](#).

In addition to the big anniversary, 2011 is the year for Salisbury to update its town plan, the document that guides decisions about municipal operations. For the first time, the plan will include a substantial section on management of its municipal forest. So the time has come for the town to consider the best ways to take advantage of the economic, scientific, educational, and recreational resources offered by this land. A Vermont township is not burdened with the US Forest Service's economic mission, or lured by tax incentives (the town pays no property tax on its own land) and therefore is freer than other entities to adopt ecologically sound management guidelines. The people of Salisbury will be faced with a very straightforward decision about getting the most out of these forests. Unlike many towns which have hundreds or thousands of forested acres to manage, Salisbury's 100 acres of forest -- some productive, some less so -- cannot provide a substantial income from timber harvest. Compromising the

ecological integrity of the forest may not be worth the annual tax break of about a dollar that an average property owner might enjoy from logging revenues. Instead, those acres could produce something far more valuable to Salisbury residents. It is possible that 250 years from now, people will walk among the same trees that are growing in our forest today. Those people will know that we did the right thing. ■

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