

In Praise of Aspen

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Foresters have been unsuccessfully searching since the dawn of modern forestry practices, if not longer, for methods to economically regenerate oak in second growth or mature hardwood forests. The long-term goal is to permanently maintain a forest in oak succession. The key word here is “economically.” With a great deal of effort, manpower and usually investment of money one can achieve a fair amount of success regenerating individual oak trees, but each healthy tree usually means a great deal of personalized attention and care. Who can predict whether that investment in money, labor and love devoted to that particular tree will pay off in the fifty to one-hundred years it may take to reach harvest size.

Nature has designed each forest species to survive and flourish under certain growing conditions and in certain environments that each is best suited to and every forest species we have today is testament to the effectiveness of that natural design. One is destined for failure or a hard won victory if natural design is overlooked in managing the woodlot and forest. I have found through trial and error that observing, understanding and then harnessing the natural processes of forest succession have worked very effectively and economically for me in encouraging the regrowth of valuable hardwood trees on my property.

The large areas of oak forest that are common throughout many areas of the state at this moment in time are a snapshot of forest succession. Most of us probably take these oak forests for granted and expect that these forests will remain basically unchanged over time. These forests probably won't visibly change that much in our lifetime, especially to the untrained eye, but a careful look at the seedlings growing in the leaf litter and understory will reveal the future make-up of the forest which most likely will consist of a beech/maple climax forest, unless the hand of the forester intervenes to retard this steady course.

Most of the oak forests that we see today owe their existence to the demise of their kin, the chestnut. With the extensive die-off of the American chestnut at the turn of the century, the stunted shaded seedlings of oak in the understory were released and allowed to take their place in the canopy. The other factor that played a role in the stands of oak today is the abandonment of large acreages of marginal farm land. This abandoned land was ideal for the process of natural succession to prepare the way for each successive wave of plant community which eventually led to the mature forests of oak, ash, maple, beech and cherry that surround us today.

I often pondered how these stands of oak, cherry, maple and hickory grew to timber size with straight clear trunks with out the help of a forest owner or silviculturist to nurture them along by planting, pruning and thinning, and why one tree would grow arrow straight and another tree would show the rotting stubs from long dead branches. The wolf trees that grew in the hedgerows and old pastures with their broad spreading crowns, large massive branches and numerous exposed decaying knots are readily discernible amongst the younger towering straight trunked hardwoods. What conditions were present that allowed these younger trees to develop with clear butt logs, few branches and narrow crowns?

Why do some trees show numerous large overgrown knots beneath their bark and others have smooth clear trunks for thirty to forty feet? Why do some trees have forked trunks ten feet off the ground and others have a single trunk their entire height with hardly a stray branch to mar their perfect growth? The answer to these questions are numerous and varied. Part of the answer is inheritable traits or the tree's genetic characteristics that predisposes a particular tree species or individual tree to a certain growth pattern and branching habit. But I believe the greatest factor affecting individual tree growth and branching pattern is its surrounding environment and this is where the landowner or forester can have the greatest impact on the growth of the tree with the least investment of time and effort.

I can usually read the evolution of a forest by the branching pattern of the individual trees in that forest. The size, shape and branching pattern of the trees can tell rather clearly which trees grew first, how the trees developed, their density, rate of growth and species composition. A group of even-aged oak saplings growing in the open will show relatively large two to four year old branches that grow vigorously for the first few years and then quickly decline and die when overgrown by other branches. These branches can reach a relatively large diameter and require a couple of decades or more of annual growth to heal and cover over the knot created by the dead branch. Trees growing in this environment are also prone to trunk forking and short intervals between branches. As any good forester knows these defects can have a long term negative impact on the economic value of the logs that come from that tree. If the defects are numerous and severe enough the devaluing impact on the log may be permanent or require so many years of growth to cover over the defect that retaining that tree in the stand is unrealistic.

Now enters the hero of this story, the white knight of the forest or maybe the white tree of the forest, the Aspen. Whaaat! Aspen! Ugh! Aspen! That can't be right. I am going to suggest that the best way to grow a good stand of veneer grade hardwoods on open land with minimal effort and cost is to plant or encourage Aspen. Don't take my word for it, go out into your woodlot or your neighbor's and look for yourself. By observing the growth of trees in different habitats and environments, I have found that the best type of environment for growing sun-loving hardwood species is a young to medium age stand of pioneer tree species. The pioneer stand creates an ideal environment in which the hardwood seedlings and saplings can germinate and grow, straight up through the pioneer species.

Aspen are the pioneers of the forest both in time and space. Aspen lead the way in the advance of the forest from herbaceous plants and brush to trees and also lead the trees in their rush towards the sun. Aspen are notorious for their invasion of open spaces and their rapid colonization of these areas which makes them invaluable in competing with the grasses and other plants which compete very effectively with the other tree seedlings that you want to encourage. Aspen grow tall and straight and are relatively short lived, so they generally die just as the highly valued species are ready to take their place in the forest canopy.

It seems that the majority of valuable hardwood species require planting sites with moderate to full sunlight exposure to effectively survive, grow and compete with the surrounding vegetation. White oak, Red oak, Black cherry, Walnut, Basswood, Tulip tree, Hickory and Ash all require at least moderate amounts of sunshine for their seedlings to survive and all do great under a canopy of Aspen. Aspen trees filter out enough sunlight to effectively inhibit the growth of more sun-loving plants like the grasses and forbs but allow enough sunlight to reach the ground for the seed of hardwood species to germinate and grow.

It is the way that hardwood seedlings grow in this environment that make for valuable saw logs in the distant future. The seedlings growing beneath Aspen are forced to reach for the sunlight. The tree to conserve energy and maximize sunlight collection continually reallocates its energy into new vigorous terminal growth to reach for the sunlight that it needs for its survival. Whatever the mechanism within the plant that makes this happen it is a matter of survival for the tree. If it fails to compete for the light and win it will eventually die.

Lateral branches that do develop along the trunk of the tree are very small and as the tree's leader continues to grow taller, energy to these lateral branches is terminated by mechanisms within the tree. As these branches die they become brittle and quickly decay allowing them to easily break off from wind, snow or neighboring trees.

This pattern of seedling growth creates a slender straight trunk with no branches or knots for many feet up from the base of the tree. The new wood added to the tree's diameter each year will be clear from any defect and will bring the highest price when it comes time for harvest. Your investment in time and money to achieve this is almost nil. I usually spend a little time breaking off the dead lateral branches by hand or cutting out an occasional double leader.

One question remains, is this process best left completely up to nature or can good stewardship speed up this natural process? Two benefits of Aspen are that they are ubiquitous and easy to transplant and grow. You need not buy seedlings but simply dig them up from somewhere and transplant them, or create a patch of bare ground near a stand of Aspen that will quickly sprout numerous seedlings. So stop breaking your back and put nature to work for you.