

Sustainability . . . the resource

More Than Pulpwood?

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Several weeks ago, a gentleman called asking for information about aspen ("popple" to some!) regeneration. He was concerned about an area that had been harvested and was not coming back as well as expected.

We talked about some of the things that can affect aspen reproduction and other aspects of aspen management. At the end of our chat, he commented: "Well maybe it's okay that aspen isn't coming back very well because it's only good for pulpwood anyway." I hung up and went about what I was doing—but his last statement has rung in my ears ever since. Is aspen only good for pulpwood, or more generally to become chips that are then reconstituted into some type of paper or glue saturated board?

Let's look at some numbers for Minnesota from the 1990 forest survey report. More aspen is harvested than any other tree species. Of the total aspen harvest, about 85% of the logs take a one-way trip to the "chipper". Minnesota was tops among the three northern Lake States in the amount of aspen harvested. Across these three states, aspen makes up close to 50% of the wood that goes into production of these reconstituted products. If we look north to Canada, we see a similar situation; aspen is the heart and soul of the pulp and paper industry, particularly in Alberta.

For Minnesota, at least, it seems that the answer is "Yes, aspen is only good for chips!" Case closed! Move on

to the next picture? Whoa—not so fast! Let's think about this for a minute. It is possible to make solid wood products out of any tree, aspen included. This is certainly happening in Minnesota. The 15% of the logs not destined for a one-way ticket to the chipper mostly become lumber and some veneer. Could more be made into solid wood products? This would likely mean a higher value end product and should bring a higher return to landowners for the aspen harvested from their land.

In this issue of **Better FORESTS**, other uses of aspen are pictured and described: log homes, lumber for paneling and woodworking, stretchers for fine art, and even use of the bark. If we turn back time, we find that the search for uses for aspen has been an important topic. In the 1940s, there was not a well-developed paper industry. Foresters, wood technologists, loggers, and landowners were looking for a way to use this tree that covered so much of the forested area. An interesting publication from the 1940's explored the properties, uses, and management of aspen. The 16 separate papers in this publication describe the use of aspen for log homes, chemicals, packing material, boxes, and crates. Although many of the things aspen wood was used for a half century or more ago are no longer important, the lesson to be learned from this broader perspective of aspen use is important.

Why isn't more aspen used for other purposes? I suppose what it comes down to is economics of supply and demand. However, I suggest that the wood-using public, in general, does not know about the various alternative uses of aspen. Markets are not really well-developed. All the public hears about is "pulpwood".

Aside from this, let's face it—every aspen tree is not suitable for these

"higher" uses. But it is possible to "sort out" the best logs and trees from a stand and make sure they get to the sawmill rather than the chip mill. This is actually done in some logging operations.

Can aspen be managed for products other than pulpwood? Sure! Foresters and ecologists have been studying aspen for more than 60 years. There is abundant information about how it regenerates, how it responds to thinning, what insects and diseases affect it, and its role in providing wildlife habitat.

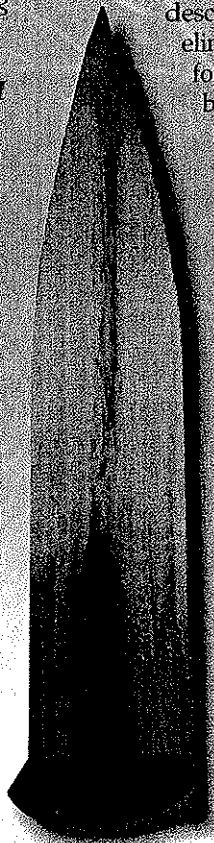
Thinning aspen has been a hot topic in recent years. "Thinning" reduces the density of trees and concentrates the growth on fewer trees. The anticipated result is bigger trees in less time. In addition, the thinned trees that might die before the stand is fully mature are harvested and used, thus increasing the usable wood from that stand.

Blandin Paper Company and Boise Cascade Corporation have been leaders in this concept, along with folks at the Natural Resources Research Institute in Duluth who are studying how trees grow in the thinned stands.

Emotions about aspen forests cover a range. At one end, there are those who want to see more aspen to keep industry well-supplied and maintain the well-paying jobs. At the other end are those who want to see aspen replaced with more "desirable" pines and hardwoods.

Regardless of one's view, aspen trees and forests are remarkable and interesting features of the northwoods. (There are two species often referred to—trembling aspen and bigtooth aspen. Although similar, they also have interesting differences. That's a topic for another article!) There are a number of characteristics that really make aspen stand out...and account at least in part for its tenacity in our northwoods environment. The following top my personal list of neat things about aspens.

In Egyptian mythology, the Phoenix, a beautiful bird symbolized



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immortality. Aspen has been called the "phoenix tree" because of its unparalleled ability to regenerate after harvesting, fire and windstorms; it virtually springs from the ground following these disturbances. Every inch of the root system can produce several new trees (frequently more than 50,000 new aspen trees per acre spring from the roots of the 100-200 mature trees that were harvested).

Sprouting from the roots or stump is often referred to as "vegetative reproduction."

Boon or bane? That depends on your view of aspen. If you want to see more aspen, this form of regeneration is one of the best characteristics a tree can have. Instant, automatic and free(!) regeneration is the answer to most foresters prayers! However, be aware of poor harvesting practices that severely disturb or compact the soil. Such practices can bring this "phoenix" crashing. Bane for sure if one's interest is to replace aspen forests. This rapid and prolific response virtually eliminates other less fortunate trees, particularly those that depend solely on seeds to produce a new tree. (This means white spruce, white pine and red pine which are particularly susceptible early in life.)

This huge capacity to sprout from its far reaching root system results in the formation of clones; that is, areas as large as several acres having the same genetic make-up. This winter, find a hillside covered with aspen and follow it through the seasons, or even hike through the area at different times of the year.

Clones differ in such things as the time leaves appear in the spring, time when leaves change color in the fall, tree form, and bark color and texture. Remember, there are two tree species that fall under the general name of aspen. These species also differ greatly in these characteristics. One readily observed difference is appearance of leaves in the spring (trembling aspen leaves appear much earlier than big-tooth aspen).

Although aspen seems to rely little on seeds for regeneration, they are produced in the millions by mature trees. Embedded in their cottony chariots these tiny seeds can fly for miles before landing. Alas, however, if their point of landing is not just right they die within a few weeks and the seedling never

sees the light of day.

Aspen clones are usually either male or female. This means that you may have a big patch with hundreds of female trees next to a big patch of all male trees, or they may be more mixed up. In other northwoods tree species it is more common to have male and female flowers on the same tree.

Although the question "is aspen really an evergreen" sounds absurd, it brings me to my last neat thing about aspen. When researching the subject of aspen on the internet, I found that nearly all descriptions of the tree refer to the "gray or gray-green bark" as a distinguishing feature. I then typed the words "populus tremuloides bark photosynthesis" into the search engine and up popped a dozen or so references to the well-documented observation that aspen bark has a significant amount of chlorophyll in some of its cells.

You know chlorophyll as the molecule responsible for the greatest alchemy of all—the process of photosynthesis that turns carbon dioxide and water, in the presence of the sun's energy, into edible and usable stuff. The process is responsible for all the food animals consume and the wood

we use. The presence of chlorophyll in aspen bark is proven.

What role it plays in the vigor of the tree is less certain, but it likely benefits the tree particularly in the spring before the leaves are able to harvest the sun's energy. Perhaps calling aspen an evergreen is a stretch, but just remember it doesn't have to have leaves to do some amount of photosynthesis.

Trees are amazing. Stuck in place for life and unable to search far and wide for necessary resources, they have developed many ways of coping in their often-hostile environment. We humans with the ability to search far and wide over the globe often develop a narrow view of what acceptable resources are for a given need. We often have

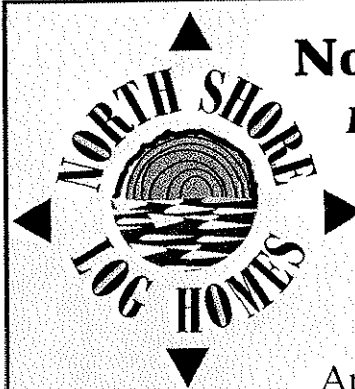
resources in our own backyard that are underutilized or ignored. Aspen is but one example. Although chips

from aspen are the

basis for a dominant sector of the local economy, aspen forests, purely from the standpoint of use of wood, have other uses and a great potential for returns to the private landowner.



John Manthei, Alaska woodworker, has known for a long time the aspen is "more than pulpwood," as exemplified by his woodworking creations with the species.



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we invite you to join as stewards of
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MINNESOTA
BetterFORESTS

*"The small landowners
are the chosen people."*

Theodore Roosevelt

BetterFORESTS
Editorial Mission

- ▲ To inspire a stewardship ethic in private forest landowners by increasing their awareness of natural history, ecology of the land, and the principles of regeneration and sustainability
- ▲ To encourage timber harvesters, the gatherers of special forest products, forest land managers, and the purchasers of raw natural resources, to continually strive to improve the standards by which they utilize the forest's resources
- ▲ To raise the level of knowledge about, and provide a forum for, the discussion of environmental and natural resource issues

From the Editor

by Kathleen Preece, publisher

My father recently gave me 2-1/2 acres of land. The southeast border of that ground runs a gentle soft curve along a lake that is frequented by only a very few fishermen. The soils of the land are sandy and grow mainly jack pine, with the added bonus of a corner of oak/savannah grassland just holding its own and reaching a few fingers into one corner of the property.

My first reaction to this gift was, admittedly, one of "shock." That is not an appropriate response from someone who has just been gifted clear title to 2-1/2 acres of woodlands and a few hundred feet of lakeshore.

But that's not the whole picture. You see, for 30-plus years I have wandered those 2-1/2 acres—and many many more, including the 300-plus acres of forests and fields of my father's land that surround "my" 2-1/2. Name any one of Minnesota's many seasons and I can tell you where the sun first touches the field in the morning, and which trees are the last to cradle its light at dusk.

I know where the otters cross the spit of land between the two bays of the lake, and which trail the white-tails use to come to this woodland sanctuary in November. I even know the kingfisher's favorite willow overhang and the very perch he uses to celebrate a successful dive.

The deed that was handed to me for those 2-1/2 had delineations . . . it drew a line between the jack pine with the bent trunk and the gnarled oak that stands on the beach near the shore—just north of that kingfisher sentinel. The apple tree is "in," the plum tree is "out." I had never noticed boundary lines until I became this 2-1/2-acre property owner. To say that one side of that line is "mine," and the other is "not," doesn't feel right. A *line* across this land?

Now, mind you, I don't take lightly the red boundary flags marking the borders of my acres, nor the stakes driven into the ground that say "property line." My sense of both pride and humility in private land ownership overwhelms me.

In fact, it wasn't until those red flags were placed in the ground that I even noticed the solitary white pine seedling shaded and smothered under the grove of conifers huddled on the slope next to the lake. I pruned those jack pine branches, allowing more sunlight to pass through to that little tree. I did it because I felt as if that white pine were "mine" now. I walk those 2-1/2 acres with a new step, a more observant eye, and a more caring heart. I find that my sense of ownership carries with it a sense of guardianship.

I suggest that when you draw the boundaries of your land, draw them in pencil. Learn the green and the growing there; become familiar with the soils and listen for the songbirds between those pencil lines.

And then boldly redraw them—surround your neighbor's yard and your neighbor's neighbor. Draw in pencil so you can erase those lines and re-draw them—even more broadly next time, encompassing your school yard and enveloping the boulevards and parks of your community.

You might begin to take ownership. You might walk with a new step, watch with a more observant eye—care with a more caring heart. You will probably become more than just a visitor to the woodlands across the land.

This issue of **Better FORESTS** is about sustainability—caring and respecting what we have today so there is a 'tomorrow' for those resources we cherish. Perhaps the most important message we can start and end with is this: Sustainability begins in your own back yard—be it 2-1/2 acres or a landscape.

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