UT Extension

Renewable Natural Resources
Timely Tips

Volume 18, No. 2 **Landowners** Spring 2008

How Much Planning Do You Need?

You need enough to:

- identify, discuss, and confirm what you want from your forest land
- know the capabilities of your land
- think long-term when you act
- decide how to accomplish what you want
- realize "trade-offs" between conflicting desires
- efficiently and effectively schedule what needs to be done
- use as a basis for marketing decisions

Planning is fundamentally three sequentially linked activities. First is *collection and analysis* of information about conditions and opportunities to change or improve the use of your forest. Second is the *decision-making* phase where you decide which alternative for managing your land to use and implement on the ground. The third phase actually becomes the "plan" – a schedule of *what kind, when and where activities will take place* on the ground to create the conditions and outcomes you want.

Forests are unique enterprises. Compared to business, agriculture and human life spans, forests take a long time to grow and develop. We need to make sure that we have (or plant) species that will be desired by future timber markets and/or are useful for wildlife for the decades to come. While changes in a forest may be slow, we do need a plan to monitor our forests should problems or opportunities emerge that need attention.

A plan documents your goals and aspirations, current conditions in your forest, including road development, schedules for regular and periodic activities and provides for the general operation of forest business for fun and profit.

There are many specific and practical reasons to plan. Its importance varies with the forest owner and the forest's size, conditions and location. Consider your forest management plans today!

(Adapted from, "Forest Management," 4th edition, 2001, Lawrence S. Davis et. al., McGraw-Hill series in Forest Resources)

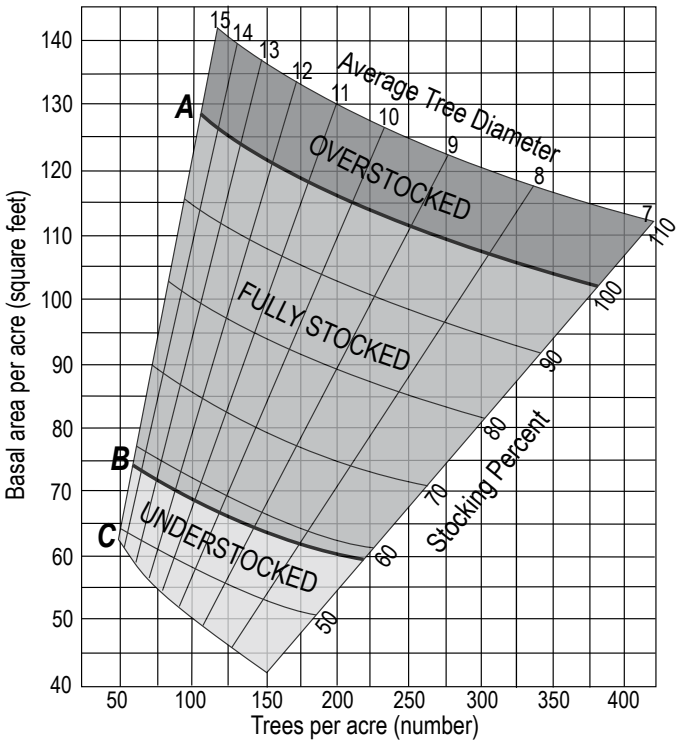
Larry Tankersley
Extension Forester

The Assessment of Stand Stocking

Stand stocking is a measure of site occupancy, the degree to which a given site is utilized by the vegetation occupying it. Stocking is a *subjective* indication using relative terminology such as understocked (trees are not fully utilizing the site, less than 60 percent stocking in upland hardwood stands), fully stocked (trees fully utilizing the site, 60 to 100 percent stocking) and overstocked (too many trees for the site, greater than 100 percent stocking). The factors that influence stocking are numbers, sizes and spatial distribution of the trees in the stand. **Stand density** is the quantitative measure of tree stocking based on *absolute* measures such as number of trees, volume, basal area or some other measurement on a per unit basis. Stand density measures do not give any indication of growing space.

Stocking is often a problem in hardwood stands in Tennessee. Most hardwood stands are remnants of earlier stands following years of high-grading or diameter limit cutting, fires and grazing. The stocking in these stands is often inadequate (understocked) and does not reflect the true potential of the site for best growth and management. The decision for most landowners and managers is whether to rehabilitate or to regenerate the stand. Often the best management alternative is to harvest what remains of the stand and regenerate it. However, if the stand contains acceptable and adequate growing stock – enough trees of favorable species, age and quality potential for future growth and development, then other management alternatives are available such as crop tree release, thinnings and timber stand improvement.

Generally, the number of trees per unit area declines with increasing tree diameter. As trees grow larger, they need more growing space. Stocking above the A-line is considered overstocked and below the B-line is understocked. Stands should be maintained in the fully-stocked condition (between the A- and B-lines for best growth and development. Once stocking is near or over the A-line (90 percent or more stocking), plans should be made to partially harvest the



USDA, Forest Service Ag. handbook 355

stand to allow more space and sunlight for the remaining trees to become larger, reduce stocking to above the B-line (60 to 70 percent stocking) or to conduct a regeneration cut to start the stand again. Often, as stands become overstocked, the trees become stressed because resources (sunlight, water and space) are more limited. Growth rates decline and trees struggle to maintain themselves. Overstocked conditions eventually lead to unhealthy trees in the stand, usually making them more susceptible to insects and disease.

Wayne K. Clatterbuck, Professor
Forestry, Wildlife & Fisheries

Carbon Credits and Cutting Timber

There is widespread and growing concern about the release of greenhouse gases and the associated global climate change. Carbon dioxide (CO_2) is the main greenhouse gas and the burning of coal, oil and natural gas is the reason that the concentration of CO_2 in the atmosphere is increasing rapidly.

In response to this situation, some people are suggesting the implementation of a carbon 'cap-and-trade' system. This would be based on the technique used in the northeast United States to reduce the sulfur emissions responsible for acid rain. Under that program, sulfur emissions were capped at existing levels and the companies responsible were assigned an emissions allowance for their share of the pollution. The emissions allowance was then lowered every year to meet the eventual target. To meet the reduced emissions allowances over time, individuals companies could either reduce their own emissions to meet the new 'cap' or 'trade' (buy) emissions permits from other companies that had more allowances than they needed. In this way, the companies that could reduce their emissions most easily were rewarded for lowering their pollution below the targets for their company. The result was that overall emissions were lowered to the target level but at less cost to the industry than if each company had to reduce their emissions by the same amount.

A carbon (CO_2) cap-and-trade system might be different. In addition to capping the pollutant and allowing companies to trade any excess allowance they might have, in the carbon system it has been suggested that 'credits' be given for activities that remove CO_2 from the atmosphere. CO_2 is absorbed by plants (including trees) when they photosynthesize, so the wood in a tree can be considered to be 'sequestering' CO_2. As long as the wood is intact, the CO_2 is trapped and not contributing to the greenhouse effect. One specific proposal is to pay landowners for the carbon in the trees on their forest land, because by sequestering carbon, they provide 'negative CO_2 pollution' that could offset the CO_2 being released by the burning of fossil fuels.

Some groups are establishing programs for determining the carbon credit that a landowner could claim, based on the inventory and projected growth rate of their trees. The Chicago Climate Exchange has been set up as a venue for selling these carbon credits to those responsible for releases of CO_2. These programs will require inventorying the forest and following a management plan. Currently, a landowner could expect payments of about $5 per acre from such a system, depending on the stand. If trees are harvested from the stand, carbon credits would be reduced and a new inventory may be required. Carbon trading is a relatively new system and no regulations capping emissions currently exist in the United States. Any participation in carbon trading and carbon credits is voluntary at this time.

Economists generally agree that a simple tax on CO_2 release would be easier to implement and monitor than a CO_2 cap-and-trade program. However, new taxes have little political support.

A more important problem with the proposed carbon cap-and-trade concept is that providing for a 'carbon credit' assumes that trapping CO_2 through photosynthesis offsets the effects of burning fossil fuels. This is short-sighted. All trees eventually die and when the wood burns or rots, the CO_2 is returned to the atmosphere. This is a natural and inevitable part of the 'carbon cycle.' Thus, a tree will usually sequester carbon for only a few decades. The fossil fuel-derived CO_2 that is causing climate change is adding carbon to the carbon cycle that has been stored for hundreds of millions of years. Short-term (geologi-

cally speaking) storage of CO_2 in trees does nothing to address the inputs of new (fossil) carbon to the carbon cycle.

There are many good reasons to encourage the continued growth and development of our forests. In the face of pressures to convert forest lands for residential and commercial development, it would be good if society could provide landowners with increased incentives to retain their forested acres. However, a 'carbon credit' payment to landowners to reduce tree cutting will do nothing to mitigate the problem of climate change.

Adam Taylor, Extension Forest Products Specialist
Forestry, Wildlife and Fisheries

Do Timber Harvesting Practices Cause Soil Erosion and Pollution of Streams and Lakes?

Timber harvesting practices are often accused of generating soil erosion and contributing to water pollution. Often, harvested areas are viewed as unattractive and disruptive. These attributes are perceived as causing site degradation. However, research has repeatedly shown that cutting trees does not cause soil erosion, regardless of the cutting practice employed, if best management practices (BMPs) are implemented.

Erosion occurs in areas where leaves and other organic debris, which cover the forest floor, have been pushed back, scraped or incorporated into the soil and where the soil itself has been disturbed or loosened. Areas where the organic litter remains undisturbed are protected from raindrop erosion. The energy of falling rain is absorbed by the litter layer preventing detachment of soil particles.

The greatest potential for erosion in forestry is from activities related to removing the timber from the forest, such as construction of haul roads, log landings and skid trails. Erosion may occur when the protective litter layer is removed and when the soil is loosened during road construction and use. Soil compaction may also occur on log landings and roads, which will prevent infiltration of water into the soil and lead to erosion caused by water running across the soil surface.

Soil erosion and water pollution may be prevented or minimized through the use of BMPs. Proper location and construction of logging roads, log decks and skid trails will minimize soil movement. Water control structures on roads and skid trails such as broad-based dips, out-sloping, water bars, water turnouts and culverts, as well as revegetating disturbed surfaces, are all practices to manage potential water and sediment runoff. Use of streamside management zones (SMZs) will protect stream channels and banks to ensure that streams and lakes remain free from sediment.

Although water pollution from forestry operations contributes less than one percent of the total water pollution in Tennessee (2006 305(b) Report, *The Status of Water Quality in Tennessee*), any sediment entering waterways from forestry operations is unacceptable. If soil disturbance is minimized and ground cover is maintained during harvesting operations, soil movement and water pollution can be prevented through the conscientious use of forestry BMPs. Consider hiring a Master Logger who has been trained in the use of BMPs and SMZs when harvesting timber.

Wayne K. Clatterbuck

Hardwood Analysis and Trends (HAT)

HAT tracks #1 common 4/4 lumber. This is "average" quality lumber that measures one-inch thick. Further this is lumber, not logs, nor standing trees. The direction of lumber price normally precedes the direction of log and standing tree price. Disappointingly, lumber prices have not improved over the course of the past few months. Already in 2008, the following changes have occurred in the species tracked by HAT: black cherry (- 9%); sugar maple, yellow poplar, black walnut, and hickory (all -3%); red and white oak, ash and soft maple (no change). Presently there are a number of concerns for the hardwood industry. But these are mainly related to the lack of demand. Demand will return. Rather than focus on such concerns, with this issue, HAT will highlight some positives. Consider the following:

Over a 49-year span, the volume of US hardwood growing stocks has increased 98 percent even with losses from fire, mortality and urban sprawl and after supplying wood for the world's use! **Is there any other natural resource that has enjoyed a net increase of 98 percent in the last 49 years?** Good news is that supply is NOT an issue; we have championed the science of growing trees.

Consumption of rail ties is near record level. This provides much needed market for low-quality hardwood trees – trees that otherwise might remain in the woods. Lately military spending has driven the tie market.

1. US forest lands are primarily owned by private families rather than controlled by governments. This is largely unique to the world.
2. The US dollar value is trending downward and this should spur exports.
3. Emerging trends in biofuels, biomass, carbon sequestration, and ecosystem services could all bring opportunities for landowners and the industry.
4. A well-developed infrastructure, highly educated professional foresters, savvy landowners and a strong conservation ethic will continue to position the US favorably in the world timber market.

5. Landowners should seek the assistance of professional foresters, have a management plan developed that reflects their ownership objectives, consider forest certification where economical and participate in county forestry association educational programs to stay in sync with current events. Trees are remarkably renewable, and will continue to provide the products and services needed in the coming centuries.

(Summarized with permission of the Hardwood Market Report, Memphis, TN.)

David Mercker, Extension Forester
Forestry, Wildlife & Fisheries

Upcoming Healthy Hardwood Field Days

May 17 Tully State Forest (Lauderdale Co.)
May 24 Prentice Cooper State Forest (Marion Co.)

For details and additional information, contact David Mercker at 731-425-4703

If you do not want to continue to receive this publication, please let us know.

Extension Specialist
Forestry, Wildlife and Fisheries
(865) 974-7977

Natural Resources Timely Tips — Landowners

From:

Leader/Agent

Visit the UT Extension Web site at
http://www.utextension.utk.edu/

THE UNIVERSITY of TENNESSEE

4.7M E12-4915-00-002-08 08-0168