



Outreach

Warnell School of Forestry & Natural Resources

UNIVERSITY OF GEORGIA

Doing Nothing Costs You!

The Blight of Unmanaged Forest Stands

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Some forest stands in Georgia suffer from poor management, if they are managed at all. Planting trees and then forgetting them is neither prudent nor careful management -- lost income dollars and forest values are the penalty. How many spare acres are not living up to their potential?

There are many reasons for proper forest management. Water, wildlife, aesthetics, recreation, estate planning, development, heritage and other forest generated values make forest land valuable. To meet owner goals over many years, appropriate planning and actions are required. Professional foresters can help you set and reach management needs. Productive combinations using all of the land's resources and values can pay large rewards.

Trees Can Not Care For Themselves !

For economic returns on investment and land ownership, there are few opportunities that bare such great potential at a relatively low risk as pine timber. Growing pine efficiently does not require great management input, but does require some specific knowledge and timely application of treatments. Trees can not take care of themselves if you are trying to maximize dollars at harvest sale.

Pine management involves manipulating tree crowns, which are the leaves and supporting branches. Light, water, essential element, and growth regulators must reach leaves in appropriate amounts for tree growth. Without a healthy crown to make food, there can be no tree trunk (the wood product you sell). Good forest management always concerns crown management of pines.

Tree Food = Tree Wood

Trees make food by capturing sunlight in their leaves. Energy from sunlight is used along with air, soil and water to produce carbohydrates and other materials. Trees which cannot capture enough sunlight decline and die. Foresters manage tree food production to make wood. The more food produced, the more wood produced.

Every site where trees grow receives about the same amount of sunlight, but only a certain amount of the sun's energy is available for conversion into tree food. Species of tree, leaf

form, soil problems, water problems, pest and damage problems and competition for resources from other plants all prevent a tree from fully converting available light energy into food.

Pick Crop Trees

Since there is a limited amount of sunlight and other resources available for tree growth on a site, you need to decide which trees should be favored. Favoring trees with rapid, high-quality growth, few risks and a great market potential will be profitable. Allowing poor trees with no economic value to survive prevents good trees from using available energy and other resources to grow.

To maximize economic returns, trees must grow as big as they can in the shortest amount of time with good quality. Concentrate any energy captured, and other site resources, onto a few “crop” trees, and eliminate or hold back the rest of the trees. Energy and site resources can be divided over thousands of trees, or concentrated onto a few crop trees which will produce a salable product. Ensure crop trees fatten their trunks with wood by keeping their crowns large, healthy, and by controlling interference from other trees and plants.

Stand Neglect

To understand values of forest management, look at what happens in unmanaged stands. Unmanaged stands are naturally seeded or regenerated with 0 to 2500 (or more) pine seedlings per acre, or planted and forgotten. Every other species of tree, shrub, vine and other perennial present on a site or near-by, will also reproduce on the site. When planted, a site may have looked open and clear with pines free to grow. In areas where pines were allowed to seed-in naturally, the first year may have shown hundreds of seedlings, especially along roadways where light and mineral soil were abundant.

How do you gauge forest success? Can you now walk away and come back when you are ready to cash-out? What will the stand look like and how much will it be worth at harvest time?

Struggle To Survive

When a stand was newly established, it was healthy. As trees grow, problems developed. Each tree fights for its place in the sun with neighboring trees. Each tree must also compete with woody (hardwood) and herbaceous weeds. Competition for limited resources of a site is intense.

Tree crowns expand and grow, and trees with the tallest and biggest crowns collect more site resources and grow taller still. The tallest trees may be pines or hardwoods. As taller, bigger trees continue to capture more site resources, smaller trees get less resources and begin to decline and die. Successful trees have a greater chance of continuing to be successful.

Tree crowns soon deeply overlap each other and shade their own lower branches. When one branch cannot make enough food for itself, it is sealed off and dies in a process known as self-pruning. Heavy crown competition eliminates many lower branches.

Live Crown Measures

The unmanaged forest becomes thick with many pine, hardwood trees, and shrubs. As trees lose many of their lower limbs, height and volume of living crown shrinks. Live crown ratio is the length of the main trunk where all the living branches are connected, divided by the total height of a tree.

For example, a tree 100 feet tall with a living crown length (from tree top to crown bottom) of 40 feet would have a live crown ratio of 40 percent. Live crown ratio is a measure used to determine intensity of competition and tree reaction potential to change and stress. The larger a tree's living crown, the more food a tree can make and the bigger it can grow. Tree mortality accelerates when live crown ratios drops below 15-20 percent.

Declining Trees = Declining Dollars

With interference from other trees and plants, many crop trees make only enough food to grow slowly, and are quickly overtopped by neighboring weed trees. Overtopped trees make even less food and decline further. Death of overtopped trees is the common result of site interference.

Trees which are completely overtopped and no longer growing are "suppressed" trees. Suppressed trees survive for a time, but usually die eventually. When a suppressed tree dies, all the resources used to make its food, and to grow its wood, are lost from harvesting. Those same resources could have been used to help a crop tree get bigger. Instead, the wasted resources become termite food with potential income dollars rotting on the forest floor.

The Many Or The Few?

Surviving trees in unmanaged forest continue to grow at some rate. The forest site now carries its maximum amount of tree crown area. There are few places where an extra leaf could be placed and survive. Every tree is using a lot of food to maintain itself and to compete with its neighbors. There are many stems, each with a small live crown. Each tree's potential growth is limited by the resources it can capture and control. The total resources of the site are divided to keep thousands of stems alive.

Some trees are more successful than others at competing for resources. As a few trees capture more of the limited resources, smaller trees begin to decline and die at a faster rate. This rate is the natural mortality of a stand. Remaining trees develop smaller and smaller crowns that produce less food. These poor reacting, slow growing trees are more prone to environmental stress and pest attacks. Pests such as Southern pine beetles remove interference-weakened trees, sometimes a whole stand at a time.

In an unmanaged stand of trees, a majority of the site resources are wasted upon trees that die before their value can be harvested. If your objective is dollar production, unmanaged stands are not productive.

Doing Nothing?

When stands are unmanaged or managed stands are allowed to go "wild," significant value and productivity can be lost. Doing nothing in a forest stand is always an option, but often is the least cost-effective and highest risk option available. Active management can be used to minimize problems and maximize returns. Active forest management is required to fully meet stand objective changes over time.

If the objective for management is monetary value production, all management activities must meet the following criterion: "The cost of treatment must be less than its benefit at harvest, adjusted for time's effect on money." In other words, a treatment must generate product value greater than its cost, plus interest, carried over the rest of the rotation period.

Conclusion

Taking care-of your trees and forest can actually minimize your management risks and can maximize your returns, regardless of objectives. Do not neglect, ignore, or forget your timbered acres. The productivity of the land and trees can be translated into many values. Dollars can grow on trees, but only on well-managed trees!



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