



Forestry, Wildlife & Fisheries Update Newsletter

Department of Forestry, Wildlife and Fisheries
George Hopper, Department Head

September 2004
Website: <http://fwf.ag.utk.edu>

Calendar of Events

- Sept 23** Forestry Association Meeting
Morgan County (Forest*A*Syst)
- Oct 2-6** Society of American Foresters
Annual Mtg. Alberta, Canada
- Oct 5** Forestry Association Meeting
Benton County (Forest*A*Syst)
- Oct. 22-23** 40th Anniversary Celebration
Forestry, Wildlife & Fisheries
- Oct 26** Timber Tax Workshop
Cedar Bluff Holiday Inn, Knoxville
- Oct 26** Forestry Assoc. Organizational Dinner
Marion County
- Oct 27** Timber Tax Workshop
Ellington Ag. Center, Nashville
- Oct 28** Forestry Association Meeting
Montgomery County (Forest*A*Syst)
- Oct 28** Timber Tax Workshop
West TN Experiment Station, Jackson
- Nov 1** Forestry Association Meeting
Maury/Lawrence/Giles County
(Forest*A*Syst)
- Nov 4** Forestry Assn. Organizational Dinner
Sequatchie County

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Notes From the Web

Samuel Jackson, Web Coordinator

Chainsaw safety is always a concern when working with some firewood in the backyard or with some trees in your woodlot. No matter how big the job you plan to tackle with the saw, it is important to practice good safety at all times. The Lowe's Corporation has some great chainsaw safety tips on their website at <http://www.lowes.com>. Click on "How To" at the top and then choose "Safety" from the list. Chainsaw safety should be the first choice.

The site describes features every saw should have to provide the operator with safety, from the chain brake to the hand guard. It also details safety equipment like hard hats, chaps, and gloves that everyone should use. The site goes into some basic operating suggestions and provides a long list of "do's and don'ts" that everyone should be aware of.

Another aspect of chainsaw safety is proper maintenance of the saw over time. At the bottom of the chainsaw safety page, there is a link to "Maintaining Your Chainsaw." This informative article tells you how to do several basic maintenance functions on your saw. The detail presented will show you where and how to lubricate your saw, tighten the chain tension, and even replace the fuel filter.

This website is a great primer for those who are new to using a chainsaw and for those that have lots of experience. It is always a good thing to refresh your safety knowledge before going to the woods. Better safe than sorry any day!

Discussion of a particular retailer or brand does not indicate a University of Tennessee endorsement. Information is provided as a review and for your benefit only.

For more information contact: Sam Jackson at (865) 974-2946 or samjackson@utk.edu

Timber Tax Workshop

Larry Tankersley, Extension Specialist, Forest Management

Please spread the word. This is a good opportunity for a comprehensive coverage of the subject. The workshops are on the following dates and locations:

October 26, Holiday Inn at Cedar Bluff and I-40, in Knoxville

October 27 Jones Auditorium, at the Ellington Ag Center in Nashville

October 28, West Tennessee Experiment Station in Jackson.

The workshops will be from 8:00 a.m. - 4:30 p.m. There is a \$125 registration fee which includes breaks, lunch and instructional materials. Pre-register by contacting Larry Tankersley in Knoxville at (865) 974-7977 or Candace Dinwiddie at the TN Forestry Association in Nashville at (615) 883-3831. Call me, I look forward to hearing from you!

For more information contact: *Larry Tankersley at 865-974-7346*
latankersley@utk.edu

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Master Wildlifer Shortcourse - Coordinate Sites Needed, Call Me

Larry Tankersley, Extension Specialist, Forest Management

Our friends at Clemson are moving ahead with plans to produce the live shortcourse from their studios in South Carolina. If you have the capacity to “pick-up” a live satellite feed, you should consider getting a group together and viewing these seminars. The short course is seven (7) nights over seven weeks in February and March, 2005. Managing wildlife will be thoroughly discussed during the 21 hours of viewing time. Experts from around the south are the instructors.

Let me know if I can provide you additional details about this program. I am prepared to coordinate any sites that we can support here in Tennessee. There is a modest fee returned to Clemson for the studio and educational materials.

For more information contact: *Larry Tankersley at 865-974-7346*
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Annual Fall Colors to Arrive in October

Wayne K. Clatterbuck, Associate Professor, Forest Management and Silviculture

It seems that Tennessee’s leaves are changing colors a little early this year, but peak colors are still expected in October. University of Tennessee Forestry specialist, Dr. Wayne Clatterbuck, says there are many factors influencing leaf color.

Some trees have a natural progression that is running a week or two ahead of schedule this year, Clatterbuck says. The abnormally cool evenings in mid-August probably caused some trees to initiate the leaf color process earlier. Fall color usually starts developing on some species in September. As the days get shorter, biochemical processes in the leaf initiate changing leaf color, he says.

Other factors include cooler temperatures, less moisture, the amount of sunlight and

changing levels of leaf pigments. These vary from year to year, making the prediction of autumn color unreliable.

Trees that lose their leaves early in the season, exhibiting little leaf color change, include sycamore, black walnut and cottonwood. Trees with leaves that turn red, such as blackgum, dogwood, sumac and sourwood, are those that tend to turn color earlier in the year.

Clatterbuck says the fact that leaves are beginning to change early does not mean the color will not be good in October. In Tennessee, autumn color begins first at the higher elevations. He predicts peak color for the third or fourth week of October, unless there is an early frost or too much rain.

The expert's favorite place to view fall color is on the Cherohala Skyway in the Cherokee National Forest and North Carolina's Nantahala National Forest. The Cherohala Skyway is Tennessee state highway 165 and North Carolina state highway 143.

Clatterbuck suggests planning for fall color in landscapes. Two trees recommended for a wide variety of leaf color are sugar maple and sweetgum. Sugar maples turn yellow then orange and sweetgum color can vary among individual trees from yellow to red to purple.

For more information on how leaves change color, refer to the University of Tennessee Extension publication SP529 (<http://www.extension.utk.edu/publications/spfiles/sp529.pdf>)

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Tricks of Making Tree Seeds Grow

David Mercker, Extension Assistant, Forest Management

It is interesting and even comical to watch squirrels and other wild things in your yard during the fall and early winter. There seems to be a clear focus, envious to most of us, as they go about their work. It's with a tone of surety that each nut or acorn is lifted, examined, stuffed, stored, buried or if deemed a bad nut, "thrown to the birds."

They seem to be picky too. Did you ever stop to wonder why? After all, a seed is a seed. Or is it? Have you ever taken on the project of collecting tree seeds with the intent of starting your own seedlings, only to have none of them survive? "Nothing to it," you'd think, "after all, each spring new trees seem to pop up everywhere in the yard. Surely if squirrels and birds can do it, then I can too."

Wildlife are experts at this subject, and somewhat reluctant to share their knowledge. They know that many seeds that drop to the ground, indeed most, are not viable, healthy or sound. In some cases, up to 90% of the seeds could be rejects. That's because throughout the growing season, opportunistic insects have feasted, boring small holes through the seed coat leaving a cavity inside. Through quick examination, wildlife can tell by the weight and smell whether their valuable time should be spent on this or another nut. In addition, prolonged droughts can make seeds useless by causing them to abort early, crack or develop improperly.

Assuming that you desire to start some trees from scratch and that you have the nose and

touch to ascertain which seeds still contain life, there's still more science that you'll need to be schooled on. Understand that in order to germinate, seeds need these three: moisture, oxygen and temperature. Many seeds, because of their thick or rigid seed coat, will not easily allow water and oxygen to reach inside them. Others may have adapted to require a "pre-treatment" to break their dormancy and begin growth.

For these types of seeds, processes called stratification or scarification must occur. **Stratification**, also called "chilling," is exposing the seeds for a time to temperatures close to freezing. Wrapping seeds in moist paper towels, placing in an unsealed zip lock bag in the refrigerator through the winter is an example of chilling seeds. Some common tree seeds that need chilled include: walnut, hickory, red oak and ash.

Scarification, is a scratching or breakdown of the protective seed coat that allows moisture and gasses to permeate the coat and continue growing. In the environment, this is done either by the seeds falling on rocks and being carried by wind and water across abrasive surfaces, or by being swallowed whole by animals, whose stomach acids break the seed coat down, preparing it for germination upon passing. You can scarify a seed coat by scratching the surface with a finger nail file. Some trees requiring scarification include: locust, cedar, redbud and baldcypress. Many species require both chilling and scarification.

For technical details on how to properly collect, store, treat and plant seeds, refer to the book [Seeds of Woody Plants in the United States](#), U.S. Forest Service. Or, if you prefer, find a naive squirrel willing to surrender his tricks of the trade!

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Causes of Forest Herbicide Failure

David Mercker, Extension Assistant, Forest Management

Private landowners and forest contractors regularly use herbicides to accomplish silvicultural objectives, including site preparation, seedling and sapling release, thinning and cull tree removal. The result of herbicide applications is normally satisfactory, provided the manufacturer's directions are properly followed. Sometimes, however, the results are disappointing, even with experienced applicators.

There are a number explanations why herbicides sometimes fail to perform as intended, and they are summarized here:

1. **Soil Texture** – Herbicides act more slowly on finely textures soils (clay) than on coarse soils (sand). Often it is necessary to slightly increase application rate on finely textured soils and soils with high mineral and organic matter, and slightly lower the application rate on coarse soils.
2. **pH of the Water** – herbicides mixed with highly acidic water will be less effective than with water having a more neutral pH. Don't use surface water for mixing herbicides and always test the pH before mixing.

3. **Air temperature** – most herbicides that are translocated through plants will give best results with warmer air temperatures. During cool or even cloudy weather, plants are not actively growing. Herbicides will not translocate readily and favorable results will be slow, if at all.
4. **Volatility** – rapid evaporation can cause some herbicides to function poorly. Soil incorporation may be necessary.
5. **Sap Flow** – when applying herbicides to the girdles or frills of certain trees (e.g. maple) in early spring, sap flow can be so aggressive that herbicides are immediately “pushed” back out, never to reach the phloem.
6. **Solubility** – herbicides designed to work as a solution are more mobile than those designed to work as suspensions. Solutions can sometimes move off-target with precipitation.
7. **Precipitation** – whether in excess or too sparse, precipitation is a major factor in success with herbicides and one that the applicator has no control (other than in timing of application).
8. **Improper application** – poor site preparation, improper mixing, faulty spray equipment, too much variation in ground speed, etc. all contribute to inconsistency or failure.

Landowners who are inexperienced with herbicide application should first seek professional assistance, starting with the local County Extension Office or Division of Forestry Area Forester. Remember too that restricted use herbicides applied commercially require a pesticide applicator’s license.

For more information contact: *David Mercker at 713-425-4703*
dcmercker@utk.edu

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Timber Marketing

Larry Tankersley, Extension Specialist, Forest Management

A first step in marketing is producing what the market demands. Plan for the future, “Don’t cut yourself out of business” thoughtful silviculture is important!! **Quality sawlogs** are the most valuable. These are the best species, red oak, white oak, yellow-poplar, with minimal defects. Defects are knots, and other wood qualities that reduce demand.

Quality sawlogs are produced in trees that grew/grow in dense stands which encourages natural pruning. The density of these stands is managed to encourage pruning while maintaining space for the trees to grow. Forests will develop this way if they are protected for a long time up to 80 years. With thoughtful tending this time can be reduced.

Maturity is defined by the product we are growing. A simple definition is when value is being added slower than the value a new stand would be adding. Another answer is when the trees are

big enough. A grade one log has a 13 inch diameter inside the bark at the top of the first log. That is 17 feet up. Smaller diameters also contain less “number 1” wood commanding less money than if we waited a few more years.

Finding the right buyer is most important in good timber marketing.. Local markets as we mentioned may be limited requiring us to consider a bigger pool. Timber buyers with the capacity to merchandise your wood are preferable to folks who can only sell one product or deliver only to one location. A lot of bad forestry is the result of picking over the woods as market opportunities fluctuate. If you only remove the white oak logs in a sale, all you have left may be the lower valued products which may never be marketable and they are taking up space where you might grow some more white oak. With a buyer who can use all of your trees you make more money, those tops get used, there is less “waste”, and the forest is poised to grow a new crop of high quality trees for the wood market of the future.

Knowing the volume of the timber for sale is important for ensuring that you get full value. A stand and stock table showing the species, number of trees by size, and volume is important information for you and the buyer. Marking the trees for sale ensures that only the ones you mean to sell are cut. Also marking allows you to “measure” and grade the trees so that you know what you are selling.

A **sale contract** or other bill of sale is required by Tennessee law. A contract is very helpful in conducting the sale. Everyone should be award of what the contract says.

Important provisions:

Responsible parties, who are the buyer and seller.

Consideration, payment, 631(b), lump sum.

What is sold? Designated trees.

Duration of the contract.

Written and signed., witnessed, Notarized, recorded?

Special provisions:

BMP compliance, performance bond, tops, wet weather, hunting season, damaged trees, other.

Selling timber. The transaction can be a 50/50 split cutting contract with a logger who cuts and delivers the logs and brings you your split, to a silent auction using sealed bids. Timber of modest value can be treated more casually, but high valued timber should be handled like any valuable real estate, prepared and exposed to as wide an array of buyers as possible. Employing a consulting forester to work on your behalf is highly recommended.

For more information contact: *Larry Tankersley at 865-974-7346*
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Bacterial Wetwood Disease of Trees

Wayne K. Clatterbuck, Associate Professor, Forest Management and Silviculture

Wetwood disease is a water-soaked condition of wood in the trunk and branches of trees. This condition has been attributed to bacterial infection of the wood. Many species of trees are affected, but oak, maple, ash and yellow-poplar tend to have higher frequency of occurrence.

The most common evidence of wetwood is bleeding or “fluxing” of sap. Often this fluxing is associated with a wound. Bacteria associated with wetwood are common in soil and water and probably enter the tree through root wounds. The flux of the sap may be the result of insects boring, animal rubbing or mechanical injuries to the tree such as frost crack or pruning. During drought periods, the condition has been noticed at the base of larger, older trees, particularly oak.

Bacterial fermentation of the sap during warm weather produces gases causing pressure in the affected wood. The pressure forces the sap out of the tree by the path of least resistance. This is why the fluxing is usually found near wounds and opening in the bark. The exuding sap will run down the side of the tree soaking a large area of the bark. Once exposed to the air, the sap will become contaminated with other bacteria, yeast and fungi, resulting in a foul-smelling, slimy foamy substance. Fluxing of the sap is sometimes referred to a slime flux.

There is no control for wetwood disease. Wetwood rarely causes tree death, but may lead to secondary pathogens that combine for continued tree decline and eventual death. Preventing damage and stress to tree roots and stem, is probably the best way to avoid a problem. Drought conditions tend to increase wetwood problems, so it is important that the tree receives adequate water during the growing season.

A previously recommended practice of installing drain tubes in the wetwood affected area to relieve sap pressure and remove lateral liquids has been challenged by researchers in recent years. Research has found that the benefits of tube installation are offset by the injury the installation causes.

For trees which have wetwood disease, wash the slime flux from the surface and apply insecticidal spray to protect the tree from insect infestations. Cutting or scraping the fluxing area is not recommended. Wetwood will cause only a small amount of injury in healthy trees if they are allowed to compartmentalize the diseased area.

Source: *University of Tennessee Extension Publication SP277Z*

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What is the Future of Oaks in Tennessee?

Wayne K. Clatterbuck, Associate Professor, Forest Management and Silviculture

Tennessee is known for its hardwood forests, particularly oak species. Oaks filled the niche formerly held by American chestnut at the turn of the century when the chestnut blight decimated many hardwood forests. Oaks regenerated under an environment of frequent disturbance: fires, grazing and harvesting. However, since the 1960's that environment has changed and the historic disturbance regime has been altered. Fire is now more controlled, not nearly as frequent or completely absent from the landscape; open range laws have been suspended and fencing is the norm; and harvesting is less frequent and probably more intense. The result is less oak regeneration and environmental conditions that favor other species rather than oaks, primarily yellow-poplar, red maple and sugar maple.

Evidence is mounting that the composition of Tennessee's hardwood forests is slowly shifting from oaks to other species. The USDA Forest Service Forest Inventory and Analysis unit has been monitoring the growth, utilization and composition of the forest in Tennessee since 1950. Their data show a decrease in the amount (both volume and number) of oaks statewide. The red oaks, with their shorter life spans when compared to white oak, have less presence in the forest. Analysis of forest harvests for the past 30 years have indicated that forests that were predominantly oak are not regenerating back to oak but changing to a composition with more yellow-poplar and maple. Studies at the UT Forestry Experiment Station at Oak Ridge have revealed that forest composition is shifting from a high component of oak to more mixed species stands following disturbances from tornados and harvesting. The amount of oak is decreasing in Great Smoky Mountain National Park because of the lack of disturbance.

Researchers have recognized that securing oak regeneration is a difficult proposition with the decreased frequency of disturbance. Oaks are "advance regeneration dependent" meaning that oak seedlings must be established in advance before the disturbance or harvest to have a chance to compete with other vegetation and succeed in becoming an overstory tree. Oak seedlings grow too slowly to compete with a faster growing species, such as yellow-poplar or maple, after a disturbance. Thus, with an advanced start on other vegetation, oaks have a greater probability of keeping up with these faster-growing species.

However, conditions to secure this advanced regeneration of oak must occur well before the harvest or disturbance, sometimes 6 to 12 years. Some type of minor disturbance is needed to create the light conditions that will allow the oak to prosper while inhibiting faster-growing, more light-demanding species. Most hardwood stands are now disturbed so infrequently that this advance regeneration is not present. Thus, when most stands are harvested, the oak advance regeneration is not present, shifting the future species composition to other species. Most landowners are not willing to wait 6 to 12 years to develop the oak advance regeneration when they desire to harvest the stand and secure income today.

The answer to the question of how to ensure adequate oak regeneration in hardwood stands is not the development of some radically new method of cutting, but recognition that all cutting operations in the stand, from the very first should have as an objective creation of an environment, primarily light conditions, favorable to oak regeneration. Furthermore, ensure that cuttings occur frequently enough to maintain growth of oak regeneration. At this time, the forests are not disturbed enough to ensure that oak component.

Most practitioners believe that creating the environment that favored oak regeneration at the turn of century is not forthcoming. Chestnut blight, frequent fire, grazing, and other disturbances probably cannot be replicated in today's world. Research is investigating different procedures to enhance oak regeneration such as alleviating the long time period to secure advanced seedling growth, primarily through planting seedlings and intensive vegetation control of competing vegetation.

Even with the decline in the amount of oak in Tennessee's forests, oak will continue to dominate the species composition for years to come. However, the window of opportunity to make sure that oaks remain as a major species in the future is shortening. Either forest disturbance, whether natural or man-made, must increase in frequency to create conditions favorable for oak regeneration and development or different techniques such as planting and vegetation control must be used to enhance oaks and discourage other species.

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