



Forestry, Wildlife & Fisheries Update Newsletter

Department of Forestry, Wildlife and Fisheries
Larry Wilson, Interim Department Head

November 2005
Website: <http://fwf.ag.utk.edu>

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Dates to Remember

January 11-13 Lumber Grading Short Course Cookeville, TN
For more information, contact Adam Taylor - 865-946-1125
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Notes From the Web - Pond Management

Samuel Jackson, Web Coordinator, Extension Forestry

This month's focus is on pond management. Throughout the year, calls come in to county offices across the state wanting information about pond construction, pond management, and problem solving. When providing information to landowners, keep in mind that there is a good, web-based resource for pond information.

NC State University has developed a pond management website as part of their Fisheries Extension program (<http://www.ces.ncsu.edu/nreos/wild/fisheries/>). One of the features available on the site is a pond management manual guide that covers everything from site selection and construction, to chapters on solving problems with weeds, fish parasites, etc. The entire guide is available online. The site also offers a pond management video that landowners can view free of charge. It's a 23-minute video covering the basics of ponds.

There is also information about aquatic weed management, lists of fish suppliers, and other pond management topics. Though developed for North Carolina, the site offers a literal "boat" load of information for Tennessean's interested in ponds! Check it out today!

WebSite - Christmas Tree Selection

The Tennessee Department of Agriculture provides a great web-based resource for homeowner's each winter to help find and select the best Christmas tree. Found on their website at <http://picktnproducts.org/trees/cmastrees.html>, the main feature is a directory of all the Christmas tree farms in Tennessee. Organized by county, the list provides the address of each tree farm, a map, the species of tree available, and hours of operation. The list will also indicate the type of tree available: cut and/or balled and burlapped.

Also on the site is a guide that will aid in the selection of a cut Christmas tree. There is also a guide to the care of balled and burlapped trees. This is a great resource that will make finding the perfect tree much easier for you and your family.

For more information contact: *Sam Jackson at (865) 974-2946 or*
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Note from Sam Jackson

As a side note, this will be the final "Notes from the Web" article I'll be writing for the Update. I am moving to a new position with the Agricultural Experiment Station here on campus and will no longer be a part of Forestry, Wildlife, and Fisheries Extension. My three years here has been a tremendous experience for which I will forever be grateful. I've learned a lot and have had the opportunity to work with a great bunch of folks. I appreciate all the friendships and good times we have shared. Keep up the good work! (*Sam Jackson will be working on the new Sun Grant Initiative, see following article*).

Sun Grant Initiative

The University of Tennessee Agricultural Experiment Station (UTAES) is one of five proposed regional centers in the new Sun Grant Initiative. Legislation is supporting the initiative which is intended to reduce the United States' reliance on foreign oil and nonrenewable sources of energy. The initiative will also enhance the nation's rural economies through the production and processing of farm commodities for non-food uses and value-added products, or products that are discovered to have new uses. UTAES will conduct bio-based energy research and create extension programs for bio-based technologies. "Thomas Klindt, Associate Dean of the UTAES said, "I think it speaks well for our research community at UT. We have done great research, especially by our collaborations with Oak Ridge. It's an honor to be considered in biomass, bio-energy and bio-product research, and I am happy that UT is a part of this legislation. UT is already involved in bio-fuel, bio-plastic and textile research. The Sun Grant Initiative will invest in the continued and new research into alternative uses for agricultural commodities. Independent farm families and their rural communities will benefit from the results of this research." UT is the southeastern regional center which will serve Alabama, Florida, Georgia, Kentucky, Mississippi, North Carolina, and Virginia.

Wildlife Management Calendar For December

Craig Harper, Associate Professor, Wildlife Management

Habitat Management

Disc firebreaks around fields and woods (if it's not too wet) before the ground freezes

- discing now will stimulate forbs next spring

Native warm-season grasses can be planted during the dormant season

- don't plant too deep – no more than ¼ inch!
- don't forget pre-emergence weed control next April/May; it is critical!

Continue to strip-mow or silage chop dove fields to provide seed and hunting opportunities

- don't mow it all – leave some for January/February
- strips can be disced and top-sown with winter wheat (2 bushels per acre) to provide additional forage opportunities
- migrating doves appreciate your efforts and the late dove seasons can offer great shooting

Spray perennial forage food plots for weed control if necessary

- refer to *Growing and Managing Successful Food Plots for Wildlife in the Mid-South*, PB 1743, for specific information

Fertilize winter forage plots containing oats, wheat, and/or rye

- 30 pounds of N per acre

Soil test now for spring plots

- applications of lime require about 6 months before full effect on pH is realized

Plant trees/shrubs for wildlife

- establish hedgerows across fields with soft-mast bearing trees and shrubs
- hedgerows can be used to break up fields into sections
- also plant trees/shrubs in blocks at end of fields or in “odd” areas
- crabapple, persimmon, wild plum and others are good choices
- refer to *Improving Your Backyard Wildlife Habitat*, PB 1633, for a list of other trees and shrubs to consider

Fertilize/prune trees/shrubs for increased soft mast production

- this is for trees out in the open, not those in woods
- fertilizing oaks in woods is a waste of time and money; to increase mast potential for trees in the woods, refer to TSI activities

Continue Timber Stand Improvement activities

- stimulate growth among oaks, beech, cherry, persimmon, and other mast producers by killing surrounding competitors
- girdle unwanted trees and spray wound with a mixture of Garlon and Arsenal AC
- use 1 quart Garlon 3A and 6 ounces Arsenal AC filled to 1 gallon of water

Build brushpiles from thinned trees and pruned limbs

- put large stems on bottom, small stems on top

Erect boxes for wood ducks and bluebirds

- 1 box per 100 yards of shoreline is adequate for wood ducks
- clean out old wood duck boxes and put in fresh wood shavings (about 4 – 6 inches)
- screech owls and squirrels may use the boxes through winter
- repair/install predator shields if necessary
- bluebird boxes should be no closer than 80 yards apart
- up to 9 or more bluebirds may roost in a single box on cold nights

Put out bird feeders and keep them full

- it's not too early
- refer to *Improving Your Backyard Wildlife Habitat*, PB 1633, for information on specific feeders and seed for birds

Flood waterfowl impoundments

- a depth of 8 – 12 inches is ideal for dabbling ducks

Duck numbers should be rising – watch the weather!

Wildlife Damage/Population Management

Close crawl spaces under the house and check for openings in the attic

- helps keep snakes, skunks, and squirrels from getting into places where they are not welcome
- rodents are beginning to cache food for the coming winter; take action now to keep them out of your house
- glueboards are very effective in trapping mice, snakes, and lizards looking for a warm place inside your basement or garage

Blackbirds and starlings have gathered into large winter flocks

- don't allow them to roost in your trees; if they start, they'll form a habit
- repel them with noise makers (shotguns, firecrackers, banging metal pans together)
- be persistent

How to Germinate Seeds of Woody Plants

David Mercker, Extension Specialist. Forest Management I

Periodically Extension employees and professional foresters receive calls from homeowners that have collected fruit and seeds of favorite trees wanting to know how to “make them grow.” This is common in the fall of the year, when most mast (seeds) matures and become available.

The following text is an outstanding resource that outlines steps in collection, storage, stratification (cold chilling), scarification (breaking down the seed coat), sewing, germinating, and other planting instructions for woody plants:

Schopmeyer, C.S. 1974. *Seeds of Woody Plants in the United States*. Agricultural Handbook No. 450. Forest Service, U. S. Department of Agriculture, Washington D. C.

I have a copy of this book. Feel free to call with inquiries.

Choosing a Cut Christmas Tree

Larry Tankersley, Extension Assistant, Forest Management

Considering a “real” tree this year? With the right knowledge about tree selection and hydration, maintaining a real tree is much easier than you think.

Regardless of whether you prefer cut trees, potted trees or balled trees, size is the first thing you should consider. Homeowners should measure the spot where the tree will be placed, including width and ceiling height. Keep in mind that for cut trees, that the stand may add some height once the tree is in place.

Checking the tree for freshness is also necessary. The tree should be green and have a good, strong fragrance. Needles should be supple, not brittle. Try these two methods to test freshness. Lift the stump about an inch off the ground and then drop it. If a pile of needles lands on the ground, then the tree is dry. Next bend the needles with your fingers. If they snap, the tree is dry. In either case, consider purchasing another tree.

Once a tree has been selected and brought home, trim about an inch of material off the bottom of the tree to freshen it and aid in water absorption. Place the base of the tree in a container of tap water with no additives. Sprinkling or misting the branches and needles will also help retain freshness and prevent the tree from drying out. Submerge the base of the tree in water at all times so it will stay fresh throughout the holiday season.

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Choose Tennessee Trees This Holiday Season

Larry Tankersley, Extension Assistant, Forest Management

Picture your family strolling over through a grove, the smell of pine or spruce permeating the air. This idyllic scene can be yours if you take the time to visit your local Christmas-tree grower. Tennesseans have numerous options if they wish to choose a locally grown tree.

Tree farms are located all across the state. Some allow the customer to choose and cut their own tree, or they will cut it for you. Others offer trees with balled roots that can be planted after the holidays are over. The Tennessee Department of Agriculture features a Web site that lists the state’s Christmas tree farms. To visit the site go online to <http://www.picktnproducts.org/trees/cmastrees.html>.

Fresh Christmas trees that are locally grown are more likely to retain a healthy appearance and to endure the warm temperatures in our homes. Plus by supporting local growers, consumers are contributing to responsible use of agricultural land and the preservation of local open spaces.

Call the farm in advance to check on its location and hours of operation as well as the availability of the desired type of tree.

For more information contact: *Larry Tankersley at (865)974-7977 or*
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Ownership of Forest Land in Tennessee, It's a Changing

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

The last published forest survey in Tennessee in 1999 indicated that 55% of the land or about 14.4 million acres was classified as forests. About 10% (1.5 million acres) of the forest land was in public lands (Cherokee National Forest, Great Smoky Mts., Big South Fork, State Parks, State Forests, State Wildlife Management Areas, military installations such as Fort Campbell, TVA, Corp of Engineers, etc), another 10% was owned by wood-using industry, those industries with wood processing facilities, and about 80% or 11.5 million acres were owned privately by individuals, partnerships and corporations that do not own wood processing facilities. With some 450,000 private forest ownerships in Tennessee ranging from a few acres to thousands of acres, most private tracts are fairly small averaging 25 to 30 acres.

Since 1999, most privately-owned lands (larger tracts) and particularly forest industry-owned lands, have been sold or are being sold to others. With the recent company announcements of land sales by Bowater and International Paper, nearly all of the industry-controlled forest land in Tennessee is divested or liquidated. A few companies that have sold all or portions of their land in Tennessee include Weyerhaeuser/Willamette, Mead/Westvaco, Tennessee Consolidated Coal, Stearns Coal and Lumber, Anderson-Tully Company, Packaging Corporation of America and the Huber Corporation. While some of these lands have been bought by state and federal governments, the majority has been sold to timber investment management organizations (TIMOs). The more-valued, prime real estate is partitioned and sold for development. The history of these TIMOs is short-term management (usually less than 10 years), selling the land as land prices escalate and profits can be made.

What will be the impact on forest land in Tennessee? Large blocks of land are being sold, harvested, then partitioned, and sold into smaller tracts. We are now seeing buyers of forest land harvesting the trees to help pay back or lower the amount of their loans. Some of the controversy on the Cumberland Plateau can be attributed to the capitalism associated with forest land being bought and sold. However, this is a fairly short-term phenomenon until these large blocks of land are harvested and divided into many, smaller tracts. The large-scale harvesting occurring now will subside because in the future mosaic of smaller ownerships.

Without the larger blocks of forest land of the corporate forest landowners, hunters will need to find their hunting enjoyment on smaller tracts of land owned by private individuals. Hunting opportunities will probably be fewer because of the varied objectives of private landowners. Ecosystem services and management are much more difficult to achieve in smaller ownerships where land is managed as tracts instead of ecosystems.

Alternative land uses are being implemented which will take forest land out of production, more or less permanently. As more urban dwellers and retirees find rural Tennessee a hospitable place to live, the population is increasing and more land is needed for expanding development and infrastructure. This increased development was predicted in the Southern Forest Resource Assessment conducted by the Forest Service in 2002, and Tennessee was one of the prime centers of conversion of forest land to other uses. Early estimates from the 2005 Tennessee forest survey indicate that 300,000 to 400,000 acres of land classified as forest in 1999 is now in another land use category.

However, even with the divestiture of industry-owned forest land (almost a 1.5 million acres in six short years), opportunities abound for forest management and protection. Forests still cover more than 50% of Tennessee. Realizing that more than 88% of the forest land in Tennessee is privately-owned, how will landowners and non-landowners develop a vision for the conservation (wise-use) of our forest land for generations to come? The times are changing and our forests are changing. This process must be open and all perspectives considered to ensure the forests of Tennessee are managed well and profitably. This includes having competitive markets for forest products. Generally, land is valued at its most valuable use. If forests cannot pay for themselves, then many of our forests will be converted to more highly-valued, usually developed uses.

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Characteristics of West Tennessee's Private Forest Landowners

David Mercker, Extension Specialist, Forest Management

In the fall of 2004, a survey was conducted of the forest landowners located in three west Tennessee counties that owned 40 or more acres of forest land. The purpose was to evaluate their awareness, acceptance, and educational needs regarding forest certification. In addition, information regarding forest land ownership, landowner education and assistance, and demographics was collected. The following summarizes characteristics of "who owns the forest" in West Tennessee.

The Forest Land

The average landowner had 217 acres of forest land. Most landowners purchased their land (rather than inherited or gifted), owned the land less than 20 years, and intended to retain it for more than 15 years. In general, most landowners indicated that they own their land so that it can be passed on to their children or heirs, to enjoy the scenery, to supply food and habitat for wildlife, and as a long-term investment. Seven out of ten landowners have harvested trees from their land, and of those, one-third used a professional forester.

Landowner Education and Assistance

Those landowners having received advice or information regarding their forest land are equally split with those that have not. Those that had received advice were more likely to be larger owners who had harvested trees and received government cost-share. Also, they wished to stay up-to-date with new forestry practices and programs and were aware of their County Forestry Association (CFA). The state division of forestry was the most common source of information. Most landowners recognized at least some importance with staying up-to-date with new forestry practices and programs, except those who own their forest land for non-consumptive uses.

Owner Characteristics

The owners, on the average, were 61 years old, with 70 percent being 50 years or older. Most had at least some post high school education with one-third being college graduates. Over 40 percent of the owners were retired, with an additional 43 percent either professional or owning a business/farm. Less than one in ten were employed as a craftsman or blue collar worker. Younger landowners had higher education and desired to stay up-to-date with new forestry practices and programs.

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Uneven-Aged Structure in Tennessee

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

The idea of uneven-aged structure of hardwood forest has been recently promoted in Tennessee. A few of the tenets of this hypothesis are as follows.

1. Uneven-age structure will promote shade-tolerant species such as beech and maple.
2. Uneven-age structure must create conditions for regeneration and secure regeneration with each cutting
3. Uneven-age structure generally requires more frequent entries and cutting of trees in the stand
4. Uneven-age structure requires harvest in all size classes, even pre-commercially smaller ones (2 to 8 inches), usually at a cost rather than a profit.
5. Uneven-age structure can be maintained sustainably with a reverse-J distribution of size classes (negative exponential function)

There is no evidence or research that indicates that uneven-age structure can be maintained in Tennessee. A long term study in the mountains of western North Carolina initiated in 1946 suggests that even though a negative exponential function can be created, the smaller diameter size classes are composed of non-canopy, tolerant trees such as dogwood, sourwood, and hornbeam --- non-commercial species that will not ensure the future sustainability of the stand. The other dilemma is that a fairly long time period is required to achieve and maintain uneven-age structure. Unfortunately, disturbances of Tennessee forests, either anthropogenic (caused by humans) or natural (tornados, wind, ice, insects and disease, fire) are fairly common, not allowing the maintenance of uneven-age structure.

Lastly, notice the terminology used when expressing uneven-age structure. Actually, we are managing the distribution of diameter size classes and not ages. Generally, the terminology has developed that size is an indication of age. That is not necessarily true in eastern hardwood forests where each species (over 180 species in Tennessee) grows at different rates. Can you tell if a 4-inch dogwood is 20 or 50 years old; or whether a 14-inch white oak is 30, 50, or 100 years old? We use the terms of even-aged or uneven-aged “management,” “forest management,” or “forest” all the time. The use of these terms is basically incorrect and confusing in silvicultural terminology. Mixed species, even-aged stands often have uneven-age structure because of the differential growth rates of various species. Even-aged and uneven-aged refer to the structural attributes (arrangement in vertical and horizontal space) of a stand of trees. They are not management terms, even though they are frequently used incorrectly in that manner.

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Welding Wood

Adam Taylor, Assistant Professor, Wood Products Management

A lucky laboratory accident may have important implications for the wood products industry. Researchers were using linear friction equipment to melt plastics between pieces of wood. On one occasion, a technician forgot to insert the plastic piece – the exciting and unexpected result was wood that was “welded” together. Since that accident, the research team has been improving the technique for using mechanical welding machines to bond wood.

The technique is now called “mechanically-induced wood flow welding”, and it produces high-strength bonds in seconds without the use of adhesive. To “weld” wood, pieces of lumber are pressed together (at 60 – 330 psi) and rubbed back and forth at high speed for a few (3-5) seconds. After a few more seconds of clamp time, the bonding process is complete. Examination of the bondline suggests that the friction between the pieces heats and melts components of the wood (mainly lignin) and loosens fibers on the surface. These fibers intertwine in a matrix with the molten lignin and solidify to form a bond that is strong enough for structural applications. The bonds are not water-resistant, thus the technology is most promising for interior joinery and furniture.

The technology is still being developed but someday “wood welding” may offer a fast, inexpensive, adhesive-free method for bonding wood.

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Hardwood Analysis and Trends (HAT)– November 2005

David Mercker, Extension Specialist I, Forest Management

There is some favorable news to report in this month’s edition of **HAT**. After the prolonged drop in price for #1 common red and white oak lumber, conditions have stabilized. Listed below are the percent price changes for average grade lumber for six hardwood species commonly logged in Tennessee. Included are the 31 week results followed by the recent 10 week activity.

Table 1. Price Change of #1 Common Lumber for Six Hardwood Species

<u>Species</u>	31 Week	10 Week
	<u>Price</u> <u>Change</u>	<u>Price</u> <u>Change</u>
Red Oak	-10.10%	0
White Oak	-12.90%	0
Tulip Poplar	5.10%	1.20%
Black Cherry	-10.40%	-1.00%
Hard Maple	2.40%	0
Black Walnut	2.50%	0

Red Oak – the market condition for this regionally important species have changed very little from previous weeks. In response to consumer preference for whitewoods, the cabinet industry is reducing red oak utilization. Lower prices are not yet enticing much renewed interest.

White Oak – the demand for white oak is giving mixed signals, and varies according to grade, dryness, and thickness. Demand for better grades is strong, held in place by the usage at veneer plants, stave mills, and international markets.

Poplar – *Stability* describes poplar demand, particularly for the upper grades used for molding and millwork. Most production is being absorbed by the market. Poplar is the only species to have increased in price during both the 10 and 31 week reporting periods.

Black Cherry – Cherry has become a fashionable consumer choice for furniture, cabinets, molding, and flooring. Demand is firm. However, many saw mills have changed their output focus from oak species to

cherry, thus filling the demand quickly. This has led to a 10.4 percent reduction in #1 common lumber over a 31 week period.

Hard Maple – Demand is solid, led by strong consumer preference. Hard maple is the top species for cabinets. Like cherry, mills have concentrated on maple production, leading to some short-term over-production.

Black Walnut – intense competition for this species exists, particularly for the quality logs. Demand is strong, especially for solidwood flooring. Top quality logs are difficult to find.

Summarized with permission from Hardwood Market Report, Memphis, Tennessee

Programs in agriculture and natural resources, 4-H youth development, family and consumer sciences and resource development.
University of Tennessee Institute of Agriculture, U. S. Department of Agriculture and county governments cooperating.
UT Extension provides equal opportunities in programs and employment.