



Forestry, Wildlife and Fisheries Update Newsletter

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

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*Home Page - <http://fwf.ag.utk.edu>
Fisheries/Aquaculture - <http://www.utextension.utk.edu/aquafish>
Southern Pine Beetle Management - <http://fwf.ag.utk.edu/sites/spb/pine2/pine.html>*

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Calendar of Events – 2002

Calendar of Events - 2003

Sept. 30	Timber Tax Workshop	Holiday Inn/Cedar Bluff, Knoxville
Oct. 1	Timber Tax Workshop	Ellington Ag Ctr, Ed Jones Aud., Nashville
Oct. 2	Timber Tax Workshop	Doubletree Hotel, Jackson
October 2-3	Enhancing the Southern Appalachian Forest Resources - A Symposium Engaging Economic, Ecological and Social Principles and Practices	Kanuga Conf. Ctr, Hendersonville, NC
Oct. 16- 17	Annual Prawn Conference	Biotech Bldg., Knoxville
Oct. 16	Master Logger Continuing Ed.	PCA Training Center, Counce
Oct. 30	Master Logger Continuing Ed.	Bowater Credit Union, Calhoun
Nov. 5-6	Tennessee Vegetation Management Association Annual Conference Contact Larry Tankersley	Embassy Suites, Nashville, TN
Nov. 13	Forest Owners Meeting, Timber Taxes Contact Ron Johnson	Livingston, TN

Tennessee Forestry Commission Hosts Public Meetings

Wayne Clatterbuck, Associate Professor, Forest Management and Silviculture

The Tennessee Forestry Commission is hosting a series of public meetings to gather input about the recent Southern Forest Resource Assessment (SFRA) and its impact on forestry issues in Tennessee.

“The SFRA identified several important factors that are having an impact on southern forests,” said Commission chairman George McGrath. “The legislature has asked us to look at some of these factors and to make recommendations on public policy to ensure healthy forests in Tennessee. We want to give the public a chance to learn about the SFRA and to fully participate in discussions about the future of Tennessee’s forests.”

The SFRA is a report on how urbanization, timber demand and forest health are impacting southern forest resources. The report was initiated in 1999 by the USDA Forest Service and involved many experts from the public and private sectors.

The Tennessee General Assembly passed House Joint Resolution 189 earlier this year that calls on the commission to evaluate the SFRA relative to forest resource issues in Tennessee and to report back to the legislature in January 2004.

The meetings are open to the public and will be held in each major region of the state as follows:

October 7 at 6:30 p.m. (CDT) – U.T. Experiment Station, 605 Airways Blvd., Jackson

October 14 at 6:30 p.m. (CDT) – Ed Jones Auditorium, Ellington Ag. Center, 440 Hogan Rd., Nashville

October 21 at 6:30 p.m. (EDT) – Ellington Plant Science Bldg., U.T. Agr. Campus, Neyland Dr., Knoxville

October 28 at 6:30 p.m. (EST) – Chester Frost Park Pavilion, 2318 N. Gold Point Circle, Chattanooga

Participants will be able to meet one-on-one with forestry commissioners and staff of the Tennessee Department of Agriculture, Division of Forestry. Individuals and organizations are also invited to address the commission and to present written comments.

For more information, contact Kay Fermann of the Division of Forestry at (615) 837-5437 or email Kay.Fermann@state.tn.us

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Master Tree Farmer Video Short Course 2004

Larry Tankersley, Extension Specialist, Forest Management

Clemson University and Southern Regional Extension Forestry are again offering their seven week “Master Tree Farmer Shortcourse” via satellite. Several hundred Tennesseans have attended this course and have really appreciated the opportunity. This is also a good way to learn a great deal of “forestry” in a relatively short amount of time. Presenters from around the South also provide interesting perspectives. The Short Course begins on February 3, 2004, and airs on consecutive Tuesday evenings until March 16th.

We will coordinate this program for persons interested in setting up and administering viewing sites for Tennessee. We have many facilities in the state with Satellite viewing equipment.

If you have Forestry on your plan of work this is a program worth considering. Let us know if we can help you produce this program in your county.

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Notes from the Web.....

Samuel Jackson, Web Coordinator, Extension Forestry

The State of Tennessee has some valuable resources available for landowners on the web. The Department of Agriculture, Forestry Division has a great website that carries on their long-standing tradition of providing assistance and information to landowners and others. The website, which can be found at <http://www.state.tn.us/agriculture/forestry/>, is well organized and easy to navigate. By following the links in the menu, users can unlock a vast amount of forestry information about our state.

One key feature on the site is the availability of contact information for each of the Area Foresters in the state and for the State Forests. Tennessee has 33 Area Foresters that are available to provide forestry assistance to landowners. Each Area Forester generally has a region of 3 counties in which he or she works, so there is always someone familiar in your area to help!

Our state also has 2 Urban Foresters, one in West TN and one in East TN, and six district offices who can help landowners find assistance as well.

Another highlight of the site is the informative section on the Southern Pine Beetle (SPB) Initiative and its related cost-share program that aids landowners in replanting pine on their lands. Cost-share of up to 50% is available for site preparation, planting, and competition control. Eligible pine stands, defined as having more than 50% their basal area in pine prior to SPB attack, include stands affected by SPB after January 1, 1998. Pine stands needing thinning, existing stands of seedlings needing release, and existing stands of seedlings needing replanting.

Information concerning Best Management Practices (BMPs) and related state water quality rules and regulations can also be found on the site. BMPs are important because they help protect water quality and the environment while logging operations are in progress. It is important for landowners to know and understand BMPs and their uses to protect his or her lands during harvesting.

There are many other features on the site including seedling ordering information, the arboretum certification program, Tennessee forest facts, management information, and an overview of the TN Master Logger Program. Visit the site and become more familiar with the services the Forestry Division provides.

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Alkalinity Considerations Are Important in Fish Ponds

Thomas K. Hill, Professor, Fisheries Management

Alkalinity is an important water quality parameter that should be considered by pond owners. Total alkalinity is expressed as parts per million (ppm) calcium carbonate. The desirable range of total alkalinity for fish culture is 75-200 ppm even though good pond productivity can be gotten as low as 20 ppm.

The role of alkalinity as a buffer in controlling high daily pH fluctuations is critical to fish production in both commercial and recreational ponds. The pH of well-buffered water normally fluctuates between 6.5 in the mornings to 9.0 in the afternoons. In waters with low alkalinity, pH can reach dangerously low levels in early morning and dangerously high levels in mid-afternoon. By stabilizing pH at or just above 6.5, alkalinity improves pond fertility by increasing soluble phosphate concentrations.

Liming ponds with agricultural lime is the best way to increase and maintain alkalinity levels. **Since agricultural lime takes several months to react with bottom muds, it needs to**

be applied in winter, so time is getting short! If applied in the warm months, the lime causes the available phosphate to precipitate out of the water and be unavailable for producing phytoplankton.

Liming rates are determined by testing pond bottom muds. Take about ten samples from each pond bottom with a can on a stick. Dry, pulverize and blend the samples, fill a soil sample box and send it to the Soil Test Lab in Nashville. The lime requirements will be determined and the results with a recommendation returned to you.

New ponds should have the required amount of lime spread evenly over the bottom before filling with water. For ponds already full of water, spread the lime over the entire pond surface. A single application of lime may last several years depending on the amount of water that flows through.

Simply liming a pond will not result in increased production. However, the addition of lime coupled with regular fertilization during the summer months can result in greatly increased fish production.

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Fall Webworms Return for the Season

Samuel Jackson, Web Coordinator, Extension Forestry

Fall is that time of year when we begin to see fall webworm webs in the branches of trees in our yard or woodlot. Don't, however, be alarmed that there is another insect to worry about. Unlike the Gypsy Moth or the Hemlock Woolly Adelgid, the Fall Webworm is not necessarily a destructive defoliator, as most of its damage occurs in the fall when leaves are beginning to be shed anyway. The pest will, however, affect the aesthetics of your trees.

The larvae or caterpillar itself is around 1 to 1 ¼ inches long and is covered by fine silky hairs. There is generally a black stripe on the back and yellow stripes on the sides. As with all caterpillars, the larvae will pupate into a moth. An adult moth will be white with dark spots on the wings and usually does not exceed 1 ¼ inches in length.

The adult moths appear in early summer and lay hairy masses of eggs on the undersides of tree leaves that will hatch and begin to develop in approximately two weeks. It takes another six to eight weeks for the larvae to mature into the worms and webs we commonly see. Depending upon how early adult moths appear during the year, there can actually be two different generations webworms produced in the same year.

In the south, host trees include persimmon, pecan, sourwood, ash, black walnut, hickory, and oak. In all, some 100 tree species are known to host the fall webworm. As the larvae begin to appear, you will notice, in addition to the web, leaves that have been "skeletonized." These leaves are the result of the defoliation that the larvae causes while they feed. In most cases, the defoliation is not bad enough to warrant some type of insect control and occurs in a time of the year where leaves are dying anyway. If webs become an aesthetic or defoliating problem, there are a few control options. If only one web exists in a tree, that limb can be trimmed off and the nest destroyed. However, if a tree is badly infested, chemical control applied by a licensed professional may be necessary. Naturally, these insects are heavily impacted by weather and other biotic factors which help control their population.

View photos of the fall webworm at <http://www.forestpests.org/northeast/fallwebworm.html>. Remember, don't confuse the Fall Webworm with the Eastern Tent Caterpillar, which appears in the spring and is almost twice as large.

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Revision of Forestry Best Management Practices (BMPs) Guidelines Published

Wayne Clatterbuck, Associate Professor, Forest Management and Silviculture

The Tennessee Department of Agriculture, Forestry Division has published a revision of the BMP guidelines replacing an earlier edition from 1993. Copies are available from your county forester or from the Division website at www.Tennessee.gov/agriculture/forestry.

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Streamside Management Zones are Effective for Filtering Sediment

Wayne Clatterbuck, Associate Professor, Forest Management and Silviculture

A recent study from the University of Georgia demonstrates that streamside management zones (SMZs) are more than 70 percent effective at filtering sediment. Researchers studied 30 different clearcuts totaling more than 3,700 acres in the Georgia Piedmont on commercial timberlands owned by Weyerhaeuser, Plum Creek Timber and International Paper. Where they found evidence of breakthroughs – areas where there was obvious soil erosion and runoff moving through stream buffers after heavy rains – they recorded the depth of sediment in the flow area as well as instances where mud staining on leaves where the water level had risen, then receded. The analysis showed about 5 percent of the land within these clearcuts allowed sediment to reach streams. Erosion from clearcuts occurs in the first two years after harvest. Thus, over a typical 30-year rotation, about one-third of 1 percent of the harvests contributes some sediment to streams at any given time.

The study showed that breakthroughs occurred primarily where large areas of a clearcut drain to a single point, where slopes are steep and where there was a high percentage of bare ground. Half the breakthroughs were a result of road runoff. When considering these factors collectively, managers can obtain a good predictor of which areas are likely to cause problems and which are not. The data also illustrate why it is not necessarily helpful to increase buffer width around waterways uniformly when 95 percent of the time, current buffers are fine. The most effective practice would be to increase the buffer only where problems are likely to occur.

Researchers had assumed that once a breakthrough occurred, forested buffers would have little benefit, but this was not the case. They set up silt fences in problem areas to catch and measure sediment transported through breakthroughs. Silt fences set 40 feet inside a forested buffer collected less than 30 percent of the sediment caught by fences set at the edge of the buffer, showing that a 40 percent buffer was able to trap more than 70 percent of sediment in transport.

What are the implications for Tennessee? We suspect the results would be similar. This study did not look at base levels of erosion on non-harvested forest land. Some erosion is always occurring in natural systems, especially after intense rainfall events (downpours). Harvesting operators should be careful in areas where more erosion might occur from increased water velocity such as steep slopes and junctions of stream tributaries. Increasing SMZ width in these areas with a high chance of potential erosion would be advised. Most of our sediment problems are the result of roads and stream crossings. If proper best management practices (BMPs) are used on roads and stream crossings, erosion is minimized.

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Thinning Stump and Seedling Sprouts

Wayne Clatterbuck, Associate Professor, Forest Management and Silviculture

Young hardwood stands almost always contain some stump and seedling sprouts and occasionally entire stands can develop from sprouts. Because of their vigorous, early growth from large, intact root systems, sprouts often dominate other forms of reproduction such as newly germinating seeds and small seedlings with diminutive root systems. The quality and longevity of trees resulting from sprouts are sometimes questioned. Outlined below are a few guidelines for successful trees that originate from sprouts.

1. Sprouting is more prolific on smaller stems and tends to decrease once stems are larger than 8 to 10 inches.
2. Stems that start from small stumps cut at or near the ground level are considered good risks. Harvesting operations should encourage leaving low stumps.
3. Multiple stem sprouts is often perceived as a detriment for desirable tree form. However, with time the most vigorous sprout will express dominance and other sprouts will eventually succumb.
4. Sprouts in thinned clumps grow faster and produce higher quality stems than sprouts in unthinned clumps. Thinning allows the selection of the best formed, most vigorous stem(s) for crop trees.
5. The earlier the thinning takes place, the larger the resulting stems. Growth is partitioned to the remaining stem rather than being distributed to several stems in the clump. The longer the thinning is delayed, the more growth will be reduced. Research in the North Central States with northern red oak indicates sprout clumps can be thinned as early as 5 years. If thinning of sprout clumps is delayed from age 5 to 10, stem diameter will be 12 percent smaller at age 25. If thinning is delayed until age 15 or 20, stem diameter will be 23 to 30 percent smaller. If thinning is delayed to age 25, the growth advantage of sprouts is lost.
6. Clumps can be thinned at most anytime of year. Some people prefer thinning clumps during the dormant time of the year (winter), when the leaves are not on the trees.
7. Select species that are long-lived and have high value potential. Thinning sprout clumps is an expensive proposition. Choose those species that will maximize returns such as oaks, black cherry, sugar maple and ash.
8. Leave the best one or two sprouts that are widely separated on the stump. These stems should be well-formed dominant or co-dominant sprouts that are free from defect and are attached to the stump at or below ground line.
9. Do not over thin between sprout clumps. Stems given too much growing space will have reduced height growth and poorer natural pruning. Only thin enough stems to provide for future desirable growing stock or crop trees.

In summary, thinning sprout clumps will increase the value of the timber, will reduce rotation length, will increase stem quality and will reduce or minimize risk of defects. Sprout clumps should be thinned if you want to grow high quality stems to a larger diameter as fast as possible. Realizing that thinning sprout clumps is an expensive practice, thin only those that will be future crop trees and with species of high potential value.

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Forestry's Megatrends

David Mercker, Extension Assistant, Forest Management

Periodically, it does us all some good to peek into the future to examine our current course and to make projections on what's ahead. It's good business. For those involved in the management of forestland, whether professional foresters or landowners, it's critical because of the long planning horizon for our crop.

Mega-forestry trends in the United States and worldwide are emerging that should be evaluated from both the economic and environmental perspectives. Landowners are changing, the forest products industry is changing, consumers are changing, and indeed, the way some forests will be managed in the future is changing. Consider the following:

U.S. Population Continues to Increase - In 1920, the U.S. had 105 million people and the area of forestland per person was 6.9 acres. By 2000, our population had more than doubled leaving approximately 2.7 acres of forest per person. By 2100, the population is expected to be 571 million, lowering the acres per person to 1.3 acres.

Plantations are Coming – Though forest plantations have increased significantly in the U.S. over the past 3 decades, the US plantation acreage still accounts for less than 10% of the world's total plantation acreage. China and India collectively control over 40%. What will this lack of US market share mean? Plantations are mostly designed for the production of softwood fiber for paper production. Could this keep pulpwood prices low?

Key-in on High-Quality Hardwoods - When we examine the sum of all global forests, very few places in the world have as heavy a concentration of deciduous hardwood trees (oaks, hickories, maples, poplar, etc.) as do the Central US and Appalachian regions. Prices for fine quality hardwoods have traditionally outpaced inflation. Quality hardwood timber is rare and will continue bringing favorable returns. Landowners should focus on growing to meet the demand for this product.

Engineered Wood Products and Composites – These utilize wood residue, waste, and low-quality trees to manufacture oriented strand board and other products. These are rapidly replacing plywood veneer and some solid wood products. Wood beams can now be engineered. Will 2x4's be next?

Forest Certification (FC) – FC is a voluntary tool designed to reward good forest management practices. Wood products from certified forests are specially labeled with a stamp declaring that the product comes from wood that was harvested from a well-managed forest. This process is gaining worldwide acceptance and could be the way forestry business will be done.

Landowner Cooperatives and Associations – The threat of increasing forest regulation, plus a growing number of landowners not having agricultural backgrounds (and who are now seeking forestry education), is fueling the start-up of landowner cooperatives and associations. Presently Tennessee has 24 counties involved in County Forestry Associations with more to follow.

Biomass for Energy – To reduce our dependence upon foreign oil, there is momentum to develop low-cost, sustainable, environmentally friendly substitutes. Wood biomass could be part of the solution, and could help improve markets for plantation-grown wood fiber.

Rising Land Values –forestland values have consistently increased since the 1930s – a trend that should continue. Such has not been the case for cropland and developed land values.

Forest Amenities in Demand - Many forest landowner surveys indicate that the primary use of privately owned forestland is not for timber income, rather for improving wildlife habitat, environmental protection, recreation, and aesthetics. Opportunities for alternative income such as hunting and recreational land leasing will increase.

Increasing Numbers, Decreasing Size –More and more larger forest tracts are being broken into smaller parcels. Known as parcelization, the average size forest ownership in the U.S. will continue to shrink.

Urban Sprawl – Throughout the 1990s, considerable forest acreage was lost to expanding urban centers. This is now viewed as one of the major threats to the Southeastern U.S.

Bottomland Forest Restoration – Wetland row-crop areas will see significant afforestation (replanting to trees), particularly in the lower Mississippi River Floodplain.

For forest landowners, it will be important to stay informed, to practice responsible forest management, to join landowner associations, and to be an advocate. Though clearly different than the present, the future will offer much good news.

(References: American Tree Farm System, the U.S. Forest Service, the Food and Agriculture Organization of the United Nations.)

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Controlling Raccoon Rabies in East Tennessee

Craig Harper, Associate Professor, Wildlife Management

An oral rabies vaccine targeting raccoons is being distributed again this year by USDA Wildlife Services. This effort is intended to help stop the spread of the raccoon rabies variant into Tennessee along the Tennessee-Virginia border. Baits will be distributed aerially by low-flying (approximately 500 feet) fixed-wing aircraft (a yellow airplane) in 7 counties of upper East Tennessee, including portions of Grainger, Greene, Hamblen, Hancock, Hawkins, Sullivan, and Washington Counties. The air drop began September 20 and should conclude by September 30, 2003, dependent upon weather. The vaccine will be distributed in urban/residential areas by ground crews starting October 6, lasting approximately 1 week.

The oral vaccine, Raboral V-RG (Merial, Ltd.), is placed inside fishmeal bait, which consists of square blocks made from a compressed mixture of fishmeal and fish oil that readily attracts raccoons. When the raccoon bites into a bait, the sachet is ruptured, allowing the vaccine to flow into the raccoon's mouth and throat. Most of the baits (about the size of a Fig Newton bar) will be gone within 10 – 14 days after being dropped. The public is advised to leave the baits alone if found, but they may be moved if found where children or pets play. It is recommended to wear gloves or use a rag if handling a bait. The bait may be thrown into a fencerow, woodlot, ditch, or other area where raccoons might occur. The vaccine will not harm pets if consumed; however, if the animal eats several baits, vomiting or diarrhea may occur.

Following the baiting period, raccoons will be live-trapped in the vaccination area to estimate the effectiveness of the program. A blood and tooth sample will be collected from trapped raccoons and tested for antibodies and a tetracycline biomarker. Increased surveillance for sick or dead raccoons will be conducted and continued in the area. If you have questions concerning the oral vaccination project, call USDA Wildlife Services toll free at (866) 487-3297 or the Tennessee Department of Health at (615) 741-7247.

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