



# Forestry, Wildlife & Fisheries Update Newsletter

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

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

## Calendar of Events

- Feb. 7** Forestry Assn. Forest\*A\*Syst Program  
Van Buren County
- Feb. 8** Forestry Association Meeting  
Coffee County
- Feb. 8** Forestry Association Meeting  
Grundy County
- Feb. 10** Forestry Assn. Forest\*A\*Syst Program  
Carroll County

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## Notes From the Web

*Samuel Jackson, Web Coordinator*

Oftentimes we are asked to identify a disease or fungus problem on trees in the area. Typically, the problem is fairly common and can be easily identified with a little research. One resource you can use to help in identification is the website of the US Forest Service Forest Health and Protection Division’s southern section.

The website (<http://www.fs.fed.us/r8/foresthealth/idotis/diseases.html>) has a listing of common hardwood and conifer diseases and fungi. Each of the common problems is described and control options are provided. There are also full-color photographs to help in determining which disease or fungus is responsible for the problem.

The website has a section (<http://www.fs.fed.us/r8/foresthealth/idotis/insects.html>) that deals with insects affecting trees in our area. Similar descriptions, control options, and photos are provided.

Identifying the problem is the first step in successfully treating a tree in distress. Many times, trees can be saved if treated soon enough and in the proper manner. These resources may help you in the identification of tree pests.

For more information contact:

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## **Wildlife Management Calendar For January**

*Craig Harper, Associate Professor, Wildlife Management*

Continue planting trees/shrubs for wildlife

- use as a hedgerow to break up fields into sections
- use soft- and hard-mast producers (see PB 1633 for list of species)

Erect boxes for wood ducks and bluebirds

- 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)
- bluebird boxes should be no closer than 80 yards apart
- up to 9 or more bluebirds may roost in a single box during the winter

Continue Timber Stand Improvement activities

- select good mast producers and release their crowns by girdling competitors and spraying herbicide solution into wound (1 quart Garlon 3-A / 6 ounces Arsenal AC / fill to 1 gallon water)

Build brushpiles

- put large stems on bottom, small stems on top

Keep bird feeders full

- black-oil sunflowers are a favorite of many birds
- thistle seed is preferred by goldfinches
- suet provides energy for lots of birds during the winter

Strip-mow dove fields

- complete mowing now for late winter seed source

Fertilize winter forage plots

- 30 – 60 pounds of N per acre
- P and K according to soil test

Begin burning woods (hardwoods and pines) and fields to enhance conditions for wildlife

- make sure firebreaks are in place
- **much** more beneficial for wildlife than bushhogging!

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## Tax Changes

*Larry Tankersley, Extension Assistant, Forest Management*

Note that timber sales occurring after December 31<sup>st</sup> 2004, are no longer required to retain an economic interest in the timber in to qualify for capital gains treatment of the proceeds. A lump-sum sale or out right disposal of the timber is now included in the tax code and qualifies for capital gains treatment. Prior to the recent changes persons actively engaged in the timber growing business were required to conduct timber sales such that they retained an economic interest in the timber. Sellers were paid only on scaled timber and were paid by the unit. New legislation now allows a lump-sum sale of standing timber paid for regardless of the amount actually scaled.

What this effectively does is allow landowners, who deducted annual expenses from their tree farming activities, declaring themselves in the business of tree growing may now conduct lump-sum sales and have the proceeds considered capital gains rather than ordinary income.

Other changes affect the reforestation tax incentives. The tax credit is no longer available for reforestation expenses incurred after Oct. 21, 2004. Reforestation expenses incurred on or after October 22, 2004, up to \$10,000, may be deducted in the year the money is spent. The remaining amount qualifies for the 84 month amortization already in the Code.

Tax students will recall that amounts over \$10,000 were formerly carried in a timber account as basis.

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## FACE Gets a Lift

*Craig Harper, Associate Professor, Wildlife Management*

The 4-H Wildlife FACE (**F**ood **A**nd **C**over **E**stablishment) contest will undergo some slight revisions this year. 4-Hers will still be planting warm-season food plots for small game and other wildlife, but the judging process will be a little simpler.

As in the past, seed will be shipped directly to the district (now regional) offices and/or 4-H centers. Seed should arrive sometime in March or April. A concerted effort is being made by TWRA to get seed in earlier than in previous years. This should help Extension agents get seed out to the 4-Hers in a timelier manner. **Seed should be ordered only for 4-Hers participating in the program. 4-Hers can get more than one bag, but they must enroll one plot in the contest.** If there is “left-over” seed, it should be offered first to Extension agents in other counties that could use additional seed. If there is still seed remaining, it should be given out to anyone willing to plant it. It is important for Extension agents to keep track of who received seed and if it was planted. TWRA needs this information for reporting. **4-Hers receiving seed should be enrolled in the 4-H Wildlife Project and given a FACE county activity code (C49C).**

Extension agents should encourage participating 4-Hers to collect a soil sample from the site where the plot will be planted and get it tested. A good incentive for 4-Hers to collect a soil sample is to give them a little “extra credit” when the plot is judged. When plots are limed and fertilized according to soil test, the growth rate is considerably better.

Plots should be planted between early-May and mid-June. Mid- to late May is best. The county Extension agent and/or the county TWRA officer will judge the plots **in August**. Agents are encouraged to get the county TWRA officer to judge the plots with them. The final plot score then

would be an average of the 2 scores. The high-scoring plot in the county is the county winner. Instructions for breaking a tie will be given in *Procedures for the 4-H Food and Cover Establishment Contest*, SP 209-B. (This publication is being revised and will give complete information on the FACE contest. SP 209-B will be available on the web.) Extension agents will send the information for the county winner to the Extension Wildlife Specialist.

County FACE winners will receive \$50, a FACE shoulder patch, and a subscription to TWRA's *Tennessee's Wildlife* magazine. There will be no regional or state judging. The contest will end at the county level. This allows more 4-Hers to win a little money, rather than a few 4-Hers winning a lot of money. It also allows prizes and awards to be given out in a timelier manner (September/October). If you have any questions concerning the FACE contest, contact Craig Harper.

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### **“Water Sprouts” and Their Application to Forestry**

*David Mercker, Extension Assistant, Forest Management*

As with all scientific disciplines, the science of forestry has fashioned a vocabulary that can be confusing to those outside the profession. Forester's vocabulary is an unusual mix of formal language and common expressions. One term that has confounded our efforts to educate forest landowners is *water sprout*.

When read side-by-side, the words “water” and “sprout” are an awkward fit. A water sprout is actually one of the many physiological responses of trees to disturbances. They are also known as *epicormic branches*. A water sprout (or epicormic branch) is a small shoot arising spontaneously from a dormant bud on the stem or branch of a woody plant. They are small branches, springing outward, leaving a viewer to observe an unnatural appearance of a tree, as if the branches don't conform to the traditional crown and trunk structure.

In most cases, water sprouts are a result of a disturbance to a tree or to the tree's surrounding. Most commonly, water sprouts follow sudden exposure to increased light levels, for instance, after a forest has been released via thinning or selective harvesting. The number of water sprouts experienced by a tree is directly related to the degree of release and to the level of growth suppression prior to release. In other words, if trees are released too heavily, or if the release occurs on trees that were severely suppressed due to overstocking, water sprouts will more likely occur. They are more common with hardwoods than with pine. White oak trees are especially susceptible.

Water sprouts can result from other disturbances too, such as fire. Ground fire can temporarily affect the availability of moisture and nutrients, triggering the formation of water sprouts. Sometimes they will even develop on trees with no apparent sign of disturbance. However, such trees will normally be experiencing growth suppression, and the sprouts are a response to that suppression.

Water sprouts can have a profound affect on the quality of lumber produced in a forest. Newly formed water sprouts do not penetrate deeply into the interior wood, but if allowed to grow, can become sizable branches, significantly lowering lumber grade and value. When thinning and selectively harvesting forests, much thought should be given to the residual stocking. Only well trained foresters should make the decision of which trees to harvest and which to continue growing, thereby minimizing the likelihood of water sprouts.

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### **A Word About Herbicides**

*Larry Tankersley, Extension Assistant, Forest Management*

They are considered pesticides. This classification includes several other "-cides", including insecticides, that kill insects, fungicides, which kill fungi, rodenticides, which kill rodents, such as mice and rats, bactericide which kill bacteria, piscicides, kill fish. All of these are "designed" to kill the target, some products like insecticides "bug spray" will kill humans.

Herbicides however are designed only to kill plants and have limited effects if any on other live organisms.

All Pesticides are rated with a score called an LD50. LD50 is a test that all pesticides must pass before the Environmental Protection Agency(EPA) allows release of the product to the public. LD50 stands for lethal dose for 50% of the test animals. The chemical being tested is administered to test animals at increasing doses until 50% of the animals respond negatively or die. This amount differs for different chemicals. Often herbicide folks like to point out that the LD50 of most commonly used herbicides are much greater than table salt. Table salt administered to test animals killed them at much lower amounts than the herbicide. Admittedly we do not spray table salt but it should be noted that table salt has been used as an herbicide in the past and it sterilized the area for many years. Most modern herbicides have a temporary effect. Our ancestors learned not to use salt as an herbicide.

What about Agent Orange? Agent Orange was a terrible flaw in herbicide technology. Apparently the herbicide was not completely cooked resulting in the unfortunate by product, dioxin, a terrible carcinogen sprayed on our soldier in Viet Nam. The herbicide in question is no longer made and production processes today are more carefully controlled and designed to prevent these awful mistakes. It's interesting to me that this mistake occurred over thirty years ago. Surely we've learned a few things since.

For those of us who use herbicides, mistakes such as DDT and Agent Orange are daily reminders of our responsibility to use the current generation of products with the utmost quality control and care. The few instances where problems occur are unfortunate, but I am satisfied that thousand of acres are treated successfully each year by honorable operators and these instances will not be reported by the media.

Please contact us anytime about this subject. Concerns about herbicide applications are always well founded, but they likewise can be thoughtfully explained.

Persevere!!

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## **Is The Tennessee Forest Environment in Trouble?**

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

A recent article by Michael Crichton (author of Jurassic Park and The Andromeda Strain) in *Parade* magazine (an insert in many Sunday newspapers) discussed the polarity of many environmental issues in an attempt to “scare” people about potential impending disasters that have not occurred. Examples include:

- Predictions of global warming that threaten to increase average temperatures as much as 4 or 5 degrees in the next 100 years raising ocean levels and impacting ecosystems. Crichton writes that it was not too long ago, in the mid 1960s, that the concern was about global cooling. --- average temperatures had dropped around the world for 30 years, pack ice was increasing and glaciers were advancing. The growing seasons had shortened by two weeks during those 20 to 30 years.
- So-called experts forecasted world population explosions and the inevitable resulting mass starvation and environmental degradation in the 1970s. Instead fertility rates have fell steadily and still are decreasing worldwide and mass starvation did not occur. Food production increased because better agricultural efficiency and management. India is now a net exporter of grain. Presently, we are worried about outsourced technology jobs to India, an aging population in the United States and a declining birth rate.
- Health threats due to technology, especially the scare about cancer from power lines or from personal computers that lasted for more than a decade before many studies determined them to be false. Today, we use the same magnetic fields that were once thought to cause cancer in health care. People attach magnets on their bodies and clothes to benefit from the magnetic fields that they once avoided. Concerns with cell phones and their links to brain cancer have emerged without conclusive evidence of any direct link.
- Experts predicted many horrors associated with Y2K from the collapse of financial institutions to airliners crashing. I still have several gallons of bottled water left over from Y2K. However, in the end, nobody noticed much at all.

Although questions need to be asked and concerns addressed and debated with many of these issues, it is a shame that a concern or an issue must be so polar and the impacts exaggerated to get people to notice. This is the case in the debate about the forests of Tennessee. Many of the facts are lost with the exacerbation of these issues. Today, we have more acres of forest in Tennessee than in the last 100 years. More wood fiber is growing per acre. Despite these facts, we still see claims in the press that we are running out of wood and forests. The forests of Tennessee are resilient and are providing many more benefits --- wood, wildlife, recreation, water, clean air --- to the general population than just 20 years ago. Trees are a renewable resource, we can always grow more, when compared to the finite sources of gas, oil, and coal.

The debate about pines in Tennessee is another one of those subjects that begs more accurate reporting. Pines are a native species in Tennessee, part of the early forest succession process and compose a much greater percentage of the forest land area just 50 years ago than today. However, we continue to read in newspapers and magazines and hear from the radio that hardwoods are being converted to pine resulting in declining hardwood acreage. Tennessee forests are turning into pine!

Nothing could be further from the truth! Pine acreage is actually declining in Tennessee. We still have a vast hardwood resource, almost 90 percent of the forest land area. The amount of pine acreage is actually declining, especially so because of the southern pine beetle. For the last 40 years, the amount of pine acreage in Tennessee has remained steady, between 1.2 to 1.5 million acres statewide. The pine debate is on just 10 percent of the forest resource in Tennessee. I wish that much energy was used to better manage the 90 percent of the forest land base that is in hardwoods.

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### **Hardwood Planting Recommendations**

*Wayne Clatterbuck, Associate Professor, Forest Management and Silviculture*

Hardwood plantations are not as common as pine plantations. Natural regeneration of hardwoods is generally more cost effective from a carefully planned and executed harvest. However, in cases where plantations are desirable, such as reclaiming agricultural fields, disturbed landscapes or when management for a particular species is desired, plantation establishment is recommended. The first step is to carefully evaluate the site potential and determine what species or mix of species would be best suited to those site conditions. A soil survey is a good place to start. Slight changes in soil texture, drainage and soil type will alter growing conditions for a particular species. For example, cherrybark oak, a highly prized red oak, exhibits best growth on first bottoms and terraces of floodplains. However, the fine-textured clayey soils of wetter flats lack sufficient drainage to support cherrybark oak. Green ash, Nuttall oak and sugarberry would be better choices in these poorer drained areas.

Be sure to establish the objective(s) for your hardwood plantation. Do you wish to produce walnut logs and nuts, oak sawtimber, provide mast for wildlife or simply create a hardwood forest habitat? Each objective will need to be evaluated to determine which species can be considered and which can actually be established for your site. Planting walnut in the Coastal Plain would be a poor investment. There may also be constraints on marketing if the industry is not well-established in your area to purchase products produced. Check with your county Extension office or professional forester before planting a species not commonly utilized locally.

Planting is usually done in the dormant season as with pine, generally January through March. On sites where flooding into late spring prevents dormant-season planting, containerized seedlings or bareroot stock that has been in cold storage can be planted after flood waters recede. Sites should be prepared the previous fall for planting by mowing, disking or burning. Use of herbicides to control weeds is usually necessary. Subsoiling along intended planting rows to shatter plowpans or hardpans is recommended on agricultural and pasture land. Fertilizers should only be applied when determined necessary by a soil test.

Quality planting stock is a vital link in successful plantation establishment. Hardwood seedlings are larger than pine seedlings with tops of at least 2 feet tall and minimum root collar diameters of 3/8 inch. When selecting seedlings, pay attention to the root system. Seedlings with five or more lateral roots, 1/8 inch in diameter and a well-developed taproot are preferred for planting.

Hardwood seedlings cost several times more than pine seedlings. To produce quality seedlings, nurseries must grow them at a lower bed density than pine seedlings, which requires more bed space.

Difficulty in seeding, cultural activities and lifting and storing seedlings add to the cost of quality hardwood seedlings. Choose your nursery and source of seedlings carefully. Favor seedlings produced from local sources.

Hardwood seedlings require larger planting holes than most pines. Dibble bars, tree planting spades, post-hole diggers and power augers have been used to plant large seedlings. Proper planting depth is critical. Seedlings should be planted with the root-collar just below the soil surface. Planting too deep can force roots to curl or j-root in the bottom of the planting hole. Shallow planting exposes the root-collar and roots from drying by sun and wind. Finish the planting by tightly packing the soil around the seedling roots to eliminate air pockets.

Spacing for hardwood plantations generally range from 10 x 10 feet up to 20 x 20 feet. From 100 to 450 trees are usually planted per acre. The number planted usually depends on ownership objectives, species of trees and future care. To account for mortality, consider planting more than the desired number, then thin to fewer crop trees later in the rotation.

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### **Hardwood Management Articles**

*Wayne Clatterbuck, Associate Professor, Forest Management and Silviculture*

Jeff Stringer (Forestry Extension Specialist at the University of Kentucky) and I have been writing and sharing a hardwood management column for forest landowners in *Forest Landowner* magazine, published in Atlanta, GA. Listed below are the articles that were published in 2004. If you have an interest in these articles, give me a call or e-mail and I will forward them to you or locate a copy of the magazine and view/copy the article for yourself.

Jan/Feb 2004	Big Trees, Little Tress --- Is There Always a Correlation with Age (Clatterbuck)
Mar/Apr 2004	Selection Silviculture or High-Grading? (Stringer)
May/June 2004	Guidelines for Managing Trees that Develop from Sprouts (Clatterbuck)
July/Aug 2004	Assessing Natural Oak Regeneration ---- Can Your Forest Regenerate Oaks? (Stringer)
Sept/Oct 2004	Managing Hardwood Stands to Minimize Epicormic Branching (Clatterbuck)
Nov/Dec 2004	Reducing Harvest Damage in Hardwoods (Stringer)
Jan/Feb 2005	Planting Hardwood Seedlings (Clatterbuck)

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## **The Role of Wind in a Prescribed Burn**

*Larry Tankersley, Extension Assistant, Forest Management*

Understanding the role of wind in a prescribed burn is often the difference between a controlled fire or a wild fire.

Wind is necessary to provide a steady supply of oxygen to the fuel. Wind blows away the smoke and determines whether we have a head fire or a backing fire. Wind also can ruin a good burn by shifting direction or blowing hard enough to cause fire brands to ignite fuel outside our intended area.

Various firing techniques are used to accomplish different burn objectives. Fires either move with the wind (**heading fire**) or against the wind (**backing fire**) or at right angles to the wind (**flanking fire**). The movement of almost any fire can be described using these terms. A **spot fire** would exhibit all three types.

Heading fire is the most intense because of its faster spread rate, wider flaming zone, and longer flames. A backing fire is the least intense, having a slow spread rate regardless of the wind speed. Flanking fire intensity is intermediate.

A backing fire has short flames and a narrow flaming zone. Backing fires concentrate heat at ground level, and since they move slower often yield more complete combustion of the available fuel producing less smoke. A backing fire is started along a baseline(anchor point), such as a road, plowed line stream or other barrier, and allowed to “back” into the wind. Backing fire is the easiest and safest type of prescribed fire to use, provided windspeed and direction are steady. Wind shifts in the middle of a burn change a backing fire into one of the other kinds of fire.

The major disadvantage with a backing fire is the slow progress of the fire and the increased potential to damage roots in the upper layers of the soil if the lower litter is not moist enough. I like for the fuel against the soil to be pretty damp. The slow progress can be relieved by either putting additional fire breaks on the interior of the forest stand to allow additional backing fires to be set. Strips can also be ignited at shorter intervals that allow resulting headfires to burn out before they spread too far.

A good technique is to start the afternoon with a backfire to secure the downed wind fuel. Once a secure area is burned, stripping fire along lines directly into the wind will allow for more fire. Typically two flanking fires with bands of slow moving backing fires. The flanking fires burn faster, but the general characteristics of a backing burn i.e., concentrated ground heat, and complete fuel combustion reduces air pollution and fire brand fly.

Prescribed fires behave in a more predictable manner when wind speed and direction are steady. Although wind speeds are variable, they typically peak during the early afternoon and diminish at sundown. Desired wind speed will depend on what you are burning. In the open, say a wildlife field, you want winds under 10 miles per hour. Any faster and you risk **spot over** especially if you are using a heading fire. Under a pine canopy we like the wind speed to be around 3 mph. If you are using a weather forecast, remember the speed reported was probably measured in the open. Open wind speeds would need to be 6-10 mph to be brisk enough to be 3 mph in the middle of a stand of trees.

Relatively high winds help dissipate heat thus reducing the amount of damage to tree crowns. This is very important when burning under a canopy.

Winds from a steady direction are often more important than the speed. Persistent wind directions are common in the winter following passage of a cold front when the winds are from the west or northwest. As these winds shift clockwise over the next several days, they become weaker and less steady. A forecast of wind steadiness should always be obtained prior to a burn as shifts during the burn can drastically influence to fire’s behavior.

From a smoke management stand point, the stronger the wind the better the dispersion—provided there are no smoke sensitive areas downwind. A thoughtful burner should know where smoke sensitive areas are, consider roads, houses, etc. Wind direction may change with height above your fire. It is these higher level transport winds that will quickly dissipate your smoke with minimal impact on ground level air quality.

A word about air pollution. Forest and grassland fuels produce lots of particulate, particles of unburned fuels, that scatter lightly and are small enough to pass directly into our lungs. We trust that the burn is worth the air pollution created. We should conduct our fires in such manner to reduce the amount of particulate.

We have mentioned before the difference between **flaming combustion** and **smoldering combustion**. Flaming combustion is fuel consumption in the flames. This combustion produces heat and few particulate. Smouldering combustion, on the other hand, is not hot enough to produce flames and incompletely burns the fuel. This produces larger particulate that create fog and get into our lungs. The moral is to produce less smoke. This requires seasoned fuel (lower fuel moisture), and steady oxygen supplies from the wind.

Prescribed burning is a great management tool when used correctly. It's impossible to know too much about it or to be too careful. Remember all open burning until May, requires a permit from our local Forestry office. When you call, ask for a weather report!

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### **Will Consumers Pay More for Certified Wood?**

*Adam Taylor, Assistant Professor, Wood Products Management*

More and more landowners are considering having their timber lands “certified,” but there are questions about the possible costs and benefits.

Forest certification involves having a third party agency declare that the forest is being managed in a sustainable manner. The “certified” wood harvested from these forests can then be sold displaying a special stamp, or “eco-label”, that indicates its origin. There are a number of certifying agencies, each with varying guidelines for sustainability. The Forest Stewardship Council (FSC) and the Sustainable Forest Initiative (SFI) are two of the more well-known certification groups in North America. Some environmental organizations are demanding that retailers stock certified wood whenever possible, and some retailers, including major chains such as the Home Depot and Lowes, have started to give preference to certified wood.

Surveys have shown that consumers claim that they would be willing to pay significantly more for certified wood products. However, recent research suggests people’s actual buying habits don’t match their predicted behavior. In one study, shoppers at Home Depot were presented with two stacks of plywood sitting side by side. The plywood sheets were identical in grade, but one pile was stamped with an eco-label from the Forest Stewardship Council while the other plywood had no eco-label. When both stacks of plywood were the same price, consumers indeed bought more of the FSC-certified plywood. However, when the certified plywood was increased in price by 20¢ per sheet, the un-labeled plywood outsold the certified product by 2:1. A similar study found that most customers wouldn’t pay more for pencils displaying a certified wood eco-label.

Many people who have joined a forest certification program have found that the process has required few changes in their forest management practices. This is a reflection of the fact that most forestry today is environmentally sound. However, certification requires inspection and auditing, and these are paid for by the landowner. The question remains whether these costs can be recovered in the sale of certified wood products.

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