



Forestry, Wildlife & Fisheries Update Newsletter

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

April 2002
Website: <http://fwf.ag.utk.edu>

In This Issue:

4-H Forestry Judging Contests - Update	Page 2
Timber Forestry Association Forestry Expo	Page 2
Solar Lumber Drying Short Course, May 15-16	Page 2
What is Killing Trees?	Page 3
Analysis of Tree Cookies	Page 3
Assessing Storm Damaged Timber	Page 4
The Mixed Stand Management Alternative	Page 5
Home Grown Catfish	Page 6
Take Care of Caught Fish	Page 6
TWRA Offers Public Dove Field Program	Page 6

Calendar of Events - 2002

April 19 & 20

Timber Forestry Association Forestry Expo
Jackson

May 6, 7, 8, & 9 - District Forestry & Wildlife Judging Contests

Cumberland District - Skymont Boy Scout Camp
Smoky Mountain District - U. T. Arboretum
Central District - TBA
Western District - West Tennessee Experiment Station

May 15 & 16

Solar Lumber Drying Short Course
U.T. Forest Products Center, Knoxville

Faculty:

Brian Bond, Forest Products
Wayne Clatterbuck, Forest Management
Craig Harper, Wildlife Management
Thomas Hill, Fisheries Management

George Hopper, Natural Resources
David Mercker, Forest Management
Larry Tankersley, Forest Management

4-H Forestry Update

Larry Tankersley, Extension Assistant, Forest Management

We appreciate the run on this year's version of the contest rules. Over 250 books were sent out. It would be great to have those folks and more at the upcoming contests.

Note that a subset of the trees are not required at the district contest and that the "new" site evaluation event is also not required for the district contests. The full set of trees and the site evaluation will be required for the state contest on June 13.

Dates for the 4-H Wildlife & Forestry Contests are set as follows:

May 6, Cumberland District; Skymont Boy Scout Camp, past Altamont.

May 7, Smoky Mountain District; U. T. Arboretum, Oak Ridge

May 8, Central District; To Be Arranged

May 9, Western District. West Tennessee Experiment Station, Jackson

Training is always a problem but you are pros and will do an excellent job. I hope that everyone has bookmarked the National 4-H Forestry Website: www.invitational.uiuc.edu. This website has it all. I find the National project manuals especially useful as lesson plans. Check these out. Also look for the "Flash Cards" under training materials for the insect and disease contest. As always if you need further information, please let me know.

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

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Timber Forestry Association Forestry Expo

A Forestry Expo is being held in Jackson, TN on April 19 - 20 at the Jackson Fairgrounds. Exhibits will include manufacturers, dealers of out-door & forestry equipment products and supplies. Classes to be held are Master Logger Continuing Education Classes and County Forestry Association meetings. Entrance fees are \$3.00 for individuals and \$5.00 for families. Call the TFA office at 615-883-3832 for more information.

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Solar Lumber Drying Short Course -May 15-16, 2002

Brian Bond, Assistant Professor, Forest Products

The Tennessee Forest Products Center is offering the first short course specifically targeted towards the solar drying of lumber. The two day-day program scheduled for May 15-16, 2002 will be held at the Tennessee Forest Products Center, University of Tennessee, Knoxville, TN. Instructors for this course are Dr. Brian Bond of the University of Tennessee and Dr. Fred Lamb of Virginia Polytechnic Institute and State University. Specific Topics include: understanding wood and how it dries, drying stresses in wood, relationships between temperature, relative humidity and equilibrium moisture content, air-drying methods, monitoring the drying process, moisture meters, systems for drying wood, solar kiln design, operation of solar kilns, auxiliary heating methods for solar kilns, controlling the drying process in a solar kiln, and prevention of drying defects.

For registration materials please contact Brian Bond at the Tennessee Forest Products Center, University of Tennessee, at Tel: (865) 946-1121; Fax(865) 946-1109; Email: bbond7@utk.edu; webpage: <http://web.utk.edu/~tfpc>.

For more information contact: *Brian Bond at (865) 946-1121*
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What is Killing the Trees?

Larry Tankersley, Extension Assistant, Forest Management

Many careful forest watchers are reporting “considerable” tree death across the state. In the opinions of persons involved in forest health, the decline is real and seems to be related primarily to rainfall deficits over the last several years and the aging of many forests across the state.

In many locations the total amount of water received over the last five years is short 15-20 inches. This below average total is like removing flour from a cake recipe. Trees do not grow well without water. This introduces us to the role of insects and pathogenic fungi in the ecosystem.

Insects and fungi are opportunistic. During the “good” times the trees are able to defend themselves against the pests. An important consideration in the general vigor of our trees is also their age.

As trees age some will die from natural causes. This yields more space above and below ground for the remaining community and in many cases replaces the dominant plant species with a “new” group.

According to one source, we might need to prepare for this forest succession across the landscape as much of Tennessee’s forests are reaching advanced age. Lumber production from Tennessee was at its peak from 1910 to 1920. “Wood from Tennessee built the country.” Accordingly, the subsequent natural resilience of the forest and protection by certain owners have resulted in age structure across the landscape of many older stands of trees.

Will these acres continue to be forests? Ecologically the answer is yes. Forest succession, the gradual changing of community composition, is driven by the rainfall/drought cycles and time since the last disturbance; weather, rockslide or timber harvest. The forests will either change species ratios(more white oak, less red oak) or the whole canopy may yield to young seedlings or sprouts.

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Analysis of Tree Cookies

David Mercker, Extension Associate, Forest Management

Note: Please click on the treeRings.jpeg file attached to newsletter.

Cross sections (tree cookies) were cut from two hardwood trees left over from a recent timber harvest. *Both trees were determined to be 56 years old.* Analysis of each follows:

<u>Characteristic</u>	<u>Red Oak</u>	<u>White Oak</u>
Age	56 years	56 Years
Diameter	8.5 inches	5 inches
Average growth	1" diameter per 6.5 years	1" diam. per 11 years

Note that never did the **White oak tree** have the potential to develop into a reasonable crop tree. Its position in the crown canopy was suppressed, making it stunted and poorly formed. Its even likely that this tree never produced acorns. It simply occupied space that could have been utilized by a more acceptable tree.

The **Red Oak tree**, however, had potential to develop into a fine crop tree. The growth rate of this tree was fairly rapid until 1977 (25 years ago). At that point, the growth rate reduced by 60%, a result of too much competition by neighboring trees. Note point “A” marked on the cross section (click on jpeg file attached for picture). Here is the point where growth stunted. A light timber harvest should have occurred. The growth would have increased. If this had occurred, the Red Oak would now be

18 inches in diameter and have a value of approximately \$120. Instead, for the past 25 years, this tree grew only 2 inches in diameter, and gained essentially nothing in value. And likewise, the landowner's investment gained nothing.

Hardwood forests should be harvested on average every 15 years. Each time, harvesting those trees which are obviously mature, PLUS those trees that have very little potential of developing into fine future crop trees. In some cases, clearcutting is necessary, particularly when past mismanagement left the forest in a ruinous state. This will allow the forest to "regenerate" or start anew. In other cases, light thinning is needed to lower the density and accelerate the growth of residual trees. Yet in other cases, improvement harvesting should be conducted to "cull" the forest of undesirable trees.

There is no *single* right way to manage a forest. Several methods can be acceptable; often combinations of all the above are used. But care should be taken to harvest unacceptable trees too. Leaving the unacceptable "D" trees (**d**eformed, **d**iseased, **d**ying, **d**warfed and **u**ndesirable species) is "high-grading" and is not a responsible way of managing a forest.

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Assessing Storm Damaged Timber

David Mercker, Extension Associate, Forest Management

When the winds blow, left behind can be twisted, torn and tattered timber. Each year storms claim millions of dollars of standing timber and much of it is owned by private landowners. Sometimes total market value of the timber is lost through excessive damage, while at other times owners receive only a partial loss. When working with a logger to salvage and sell damaged timber, expect higher logging costs and lower timber prices (given the dangers associated with felling and removing such timber). Even good quality timber still left standing among storm damaged timber, will likely have lost 50% of its pre-storm value. Compounding the problem, storms can cover expansive areas, meaning that yours is not the only damaged timber on the market. Plush supplies and overloaded sawmills further depress timber prices.

To gain market advantage, it is vital to promptly press forward when you've experienced storm damage. The extent of the damage must first be assessed. If your forest is small in size, walk the property and identify damaged areas. It is good to have an aerial photo and a topographic map where the affected areas can be outlined and acreage estimated. Larger forests might require the assistance of professional foresters to estimate the extent of damage and values.

Several types of damage will likely have occurred. Some of the damages your trees can overcome, while others will either lead to mortality, or such suppressed growth that allowing the trees to continue growing is not advisable. Consider these types of damages and the resulting action (ref. Wray, Walkowiak and Kemperman. Iowa State University Forestry Extension):

Breakage – harvest trees with 75% or more crown loss; those with less than 50% will most likely survive.

Uprooted – trees that are uprooted or "root sprung" will degrade quickly by insects, stain and fungi and should be harvested.

Major Wounds – harvest trees with wounds more than two inches deep and that affect more than 25% of the circumference of the tree's trunk.

Bent – Bent trees are common following storms. Small trees may recover from bending but larger trees are not as likely. Often bent trees will have cracks, and harvesting

them can be extremely dangerous.

Be sure to assess the condition, stocking, spacing, investment potential etc. of the trees to remain after the salvage harvest *before* the logging commences. If stocking levels after the harvest won't be sufficient to support the stand, then complete regeneration is needed (clearcut), starting anew with young growth.

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The Mixed Stand Management Alternative

Wayne Clatterbuck, Associate Professor, Forest Management

Mixtures of pines and hardwoods often occur on forested areas in Tennessee that are not intensively managed. These stands are generally found on the marginal sites of (1) partial harvests or cutover areas with a blend of residual trees and regeneration sources (seeds, sprouts and established seedlings and saplings or (2) where site preparation (mechanical, chemical or fire), or the lack thereof, after a regeneration harvest did not completely favor either pure hardwood or pine stands. Mixed stands also develop naturally as a transition between early successional (pioneer) pine stands and later successional hardwood species.

The benefits of pine-hardwood mixtures are attractive to many landowners. Accepting mixed stands is often less costly than establishing pure stands, i.e., lower intensity to control competing vegetation. Mixed stands offer a greater range of microenvironments that support a wider variety of wildlife species. Diversity among tree species reduces the risk of disease and insect problems in the forest. Pure stands are more conducive to insect and disease epidemics. A few examples include the southern pine beetle (pure pine), gypsy moth (oak-hickory), and oak decline (oak). Pine-hardwood stands also will produce a greater variety of forest products. Future demand for a particular type of wood is difficult to predict. A mixture of species and forest products allows a more diversified investment portfolio. In mixed stands, shorter-lived and faster growing pines are usually harvested first, leaving the slower growing hardwoods for future harvests. Income from mixed stands is more periodic and consistent than the lump sum payments associated with mature pure stands.

A problem with mixed stands is that the composition and structure will change over time in response to environmental and management changes. Mixed stands are transitional during the succession of pine to hardwoods. The long-term maintenance of pine-hardwood forests is problematic at best. Pines are short-lived trees that require full sunlight for survival. Thus, pines will not develop in the shade of overstory hardwoods. Large overstory gaps are needed for pines to regenerate, develop and survive.

Pine-hardwood mixtures can be easily established. Before planting, a prescribed summer burn is used to prepare the site. Then plant pine at wide spacing (100-150/acre) during the winter. The fire temporarily delays the growth of the hardwood sprouts and allows the pine to make rapid early growth. As the hardwood sprouts regain their vigor, the site quickly becomes a pine-hardwood stand.

Pine-hardwood mixtures are not for everyone. Remember that these mixtures are not permanent and relatively short-lived. However, landowners often overlook the potential of such stands. Lower cost and more diversity make mixed pine-hardwood stands worthy of consideration.

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Page 6

Home-grown Catfish in Cages

Tom Hill, Professor, Fisheries Management

For Tennessee families with access to a pond or lake, growing channel catfish in suspended cages during the summer can provide fresh fish while stretching food budgets. Catfish have been grown successfully in cages of nylon netting, molded plastic mesh and plastic coated wire. The mesh should be at least one-half inch so that water can move freely in and out of the cage.

Either a rectangular cage 4 ft. x 3 ft x 3 ft. deep or a cylinder 4 ft. x 4 ft. in diameter makes a nice family-size cage capable of holding 500 catfish. Stock 6-inch fingerlings now and they will grow to an average weight of one pound by October. Plan to feed the fish a 32% protein floating food once per day; the amount they will consume in about 10 minutes.

A cage may be either floated on the water's surface or fastened to a dock. It should be at least a foot off the bottom and away from the shore so that water can circulate freely to move wastes away from the fish.

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Take Care of Caught Fish

Tom Hill, Professor, Fisheries Management

You have been on a successful fishing event. You caught lots of fish and had lots of fun. Now is the time to dress those fish to preserve their quality.

Caught fish should be given the best possible care from the time they are lifted from the water until they are served at the table. To keep fish quality high, remove the gills and viscera and place the carcass on ice just as soon as possible.

Depending on the species and size of fish caught, they can be scaled or skinned and divided into portions after you get home. Small fish are usually cooked whole. Filleting provides boneless, waste-free portions. Steaks are crosswise sections cut from whole fish. When properly cleaned and cooled, dressed fish should remain in good condition for 8 to 10 days. Frozen fish keeps well for 6 months. Fish covered with water and frozen will maintain excellent taste for a year.

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TWRA Offers Public Dove Field Program

Craig Harper, Assistant Professor, Wildlife Management

In 2001, the Tennessee Wildlife Resources Agency began to lease new field types for dove hunting and increased the payment rate. As a result, the number of fields leased last year increased threefold and the quality of the fields provided improved substantially. Hunter participation more than doubled and the number of doves killed per hunter increased 62

percent. TWRA will lease three types of fields this year.

Spring Leased Fields are those planted specifically for doves without any grain harvested from the field. These contracts will be signed in the Spring and will be dedicated dove fields, available for a minimum of three priority hunt dates in September. Four Spring Leased Fields will be contracted in each TWRA region. The rate for Spring Leased Fields is \$100 per acre for a maximum of 25 acres. The total maximum payment per contracted field is \$2500.00.

Page 7

Improved Silage fields are a new type of leased dove field TWRA began contracting last fall. These are cut corn silage fields with corn left standing, then mowed (as directed by the TWRA Regional Small Game Biologist) 2 weeks prior to the opening of dove season to provide additional food for doves. Improved silage fields typically provide excellent hunting opportunities. The payment rate for these fields is \$40 per acre with 40 acres maximum per field. TWRA will pay the farmer \$1,000 to leave 4 acres of standing corn. The maximum total payment per contract is \$2600 per field. TWRA will contract two Improved Silage Fields per region.

The standard Fall Leased Field is a harvested grain or hay field. The new payment rate for these fields is \$40 per acre with a maximum field size of 40 acres. Thus, the contract cannot exceed \$1600 per field. TWRA will lease four to eight Fall Leased Fields per region.

In Summary, TWRA will lease three types of dove fields for the 2002 season. Lease rates have increased and the fields should provide quality hunting. Anyone interested in leasing a dove field to TWRA should contact their TWRA Regional Office.

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