



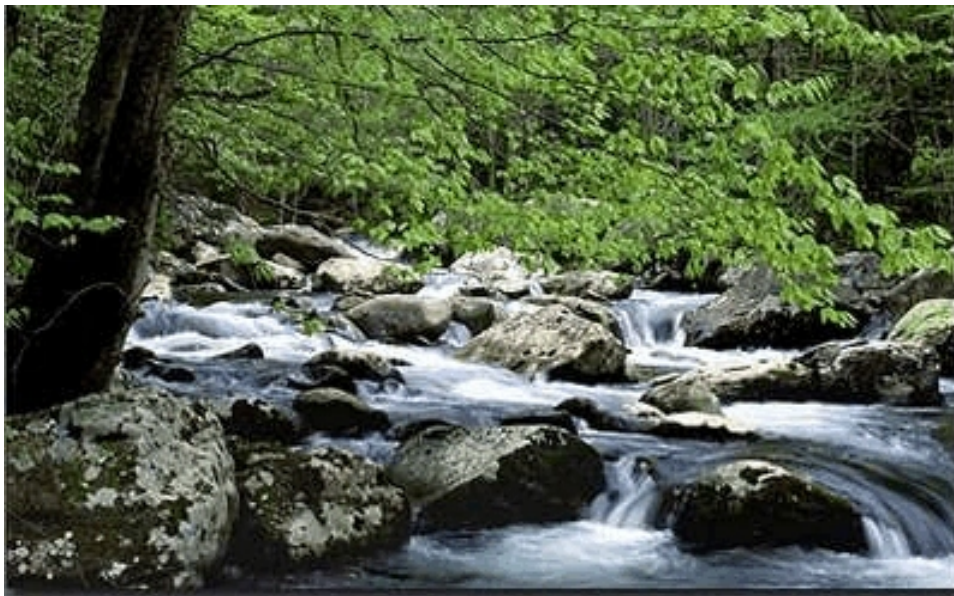
# Update Newsletter

Department of Forestry, Wildlife and Fisheries  
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*Forests... can insulate  
you against the woes of  
the world as completely  
as the wildest water of  
an ocean voyage.*

*Quick water and dark  
firs and the campfire's  
glow at dusk and the  
good smell of boiling  
tea at daybreak are  
inestimable things."*

*~ Federic F. Van de Water*

*Rivers are magnets for the imagination, for conscious pondering and subconscious dreams, thrills and fears. People stare into the moving water, captivated, as they are when gazing into a fire. What is it that draws and holds us? The rivers' reflections of our lives and experiences are endless. The water calls up our own ambitions of flowing with ease, of navigating the unknown. Streams represent constant rebirth. The waters flow in, forever new, yet forever the same; they complete a journey from beginning to end, and then they embark on the journey again.*

*~ From Lifelines by Tim Palmer*

## **Habitat Management**

### **It's time to burn – get out the drip torch!**

- > burn woods and old-fields to enhance conditions for wildlife
- > secure burning permit and develop burning plan with Tennessee Division of Forestry
- > make sure firebreaks are in place
- > burning is **much** more beneficial for wildlife than mowing!

**If you won't burn, do not mow or disk old-fields yet** - wildlife need the cover for another month!

### **Disk strips within field to encourage early successional growth**

- > disk strips 2 tractor-widths wide (12 – 15 feet)
- > can be used as firebreaks

### **Continue planting 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
- > apple, crabapple, persimmon, wild plum, elderberry are good choices
- > refer to *Improving Your Backyard Wildlife Habitat*,  
<http://www.utextension.utk.edu/publications/pbfiles/PB1633.pdf>, 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

### **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 replentish fresh wood shavings (about 4 – 6 inches)
- > screech owls and squirrels may use the boxes through winter
- > repair/install predator shields to guard against raccoons and snakes if necessary
- > in Tennessee, wood ducks may begin searching for nest sites in February / March
- > bluebird boxes should be no closer than 80 yards apart
- > up to 9 or more bluebirds may roost in a single bluebird box on cold nights

### **Finish 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 12 ounces Arsenal AC filled to 1 gallon of water
- > work should be finished for the season this month – any later and herbicide effectiveness will be reduced as sap begins to flow

**Build brushpiles** - put large stems on bottom, small stems on top

**Continue strip-mowing or silage chopping grain fields to provide seed for wildlife**

**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 winter
- > refer to *Improving Your Backyard Wildlife Habitat*, <http://www.utextension.utk.edu/publications/pbfiles/PB1633.pdf>, for information on specific feeders and seed for birds

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

- > don't plant too deep – no more than ¼ inch!
- > don't forget preemergence weed control next April/May; it is critical!
- > refer to *Native Warm-Season Grasses: Identification, Establishment, and Management for Wildlife and Forage Production in the Mid-South*, PB 1752, <http://www.utextension.utk.edu/publications/wildlife/default.asp>, for additional information

**Plant perennial clover and alfalfa plots**

- > ladino white clover, alsike clover, white-dutch clover, red clover, and alfalfa do well when sown in February
- > prepare seedbed and amend soil with lime and fertilizer as recommended from soil test
- > inoculate seed (if not pre-inoculated)
- > use cultipacker to firm seedbed and get good seed-to-soil contact

**Spray weeds in cool-season food plots before the weeds get too large**

- > most cool-season weeds are best killed when sprayed before they reach 3 – 5 inches tall
- > refer to *Growing and Managing Successful Wildlife Food Plots in the Mid-South*, <http://www.utextension.utk.edu/publications/pbfiles/PB1743.pdf>, for herbicide recommendations
- > always read and follow directions on the herbicide label before using

**Fertilize winter forage plots, especially those containing oats, wheat, and/or cereal rye**

- > 30 pounds of N per acre
- > P and K (if needed, according to soil test)

**Soil test now for spring plots** -applications of lime require about 6 months before full effect on pH is realized

**Begin drawdown of fields flooded for waterfowl****Wildlife Damage/Population Management**

**Skunks are on the move** - skunks mate in February and March

**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

**Set traps correctly to catch moles!**

- > make sure runway (tunnel) is active before setting traps
- > excavate 6-inch by 6-inch square exposing runway and determine exact depth of runway
- > replace dirt firmly, but not compacted
- > set trap at exact depth so mole will be caught

Refer to *Managing Nuisance Animals and Associated Damage Around the Home*, <http://www.utextension.utk.edu/publications/pbfiles/pb1624.pdf>, for additional information

For more information contact: Craig Harper @ 865-974-7346 or [charper@utk.edu](mailto:charper@utk.edu).

## **Begin Fertilizing Yard Trees Soon**

*David Mercker, Extension Forester, Forest Management*

The year 2007 was challenging for trees throughout Tennessee – first the late freeze, then the extended drought. These stresses mean that tree energy reserves approaching the spring 2008 growing season will be greatly reduced. When energy reserves are low, trees will compensate by “balancing” the amount of living tissue with the amount available energy. The phenomenon is most visible on the primary growth (or branch tips). Branch tips often die back as trees abandon efforts to expand outward, instead focusing on sustaining the more important inner core. Homeowners will likely see more tip die-back in trees this year. Healthy trees will quickly overcome; weak ones will struggle.

Our initial recommendation following the late spring freeze in 2007 was not to fertilize trees instead wait and fertilize near the end of the current dormant season. As it turns out, with the drought, this was the correct recommendation. Fertilizing last spring would have stimulated too much foliar growth, which would have been challenging to sustain through the drought (without extensive watering).

For homeowners who are concerned about the health of their yard trees, the season for tree fertilization is here. The macro-nutrients of most importance to trees include nitrogen, phosphorous, and potassium. As a general rule, an N-P-K ratio of 2:1:1 is the most beneficial for trees and woody plants. Professional arborists can either inject fertilizer directly into the tree trunk, or spray it on the foliage. For prized trees or for homeowners without the time or desire to fertilize, these options might be best. Otherwise, homeowners can apply fertilizer directly to the soil via a couple methods: surface or drill.

Surface applications are effective, particularly if the grass under the tree has been deadened (grass competes for the nutrients). Homeowners should begin spreading fertilizers 2 – 3 feet from the tree trunk, then continuing in concentric rings to slightly beyond the crown “drip line.” This is the quickest method, but care should be taken not to over-fertilize. The drill method involves drilling holes at various depths (3 – 12”), about 1” in diameter, in a grid pattern 2 – 3 feet apart, and extending just beyond the drip line. Apply the recommended rate of fertilizer equally distributed into all the holes.

Important to these recommendations is regularly watering. Depending on the precipitation received in 2008, homeowners should deep-water their stressed trees twice weekly. Mulching the trees will also help. A variety of mulch types are acceptable. Depths of 2 – 3 inches and extending as far outward from the tree base as can be tolerated is recommended.

A final word of encouragement . . . much of the state enjoyed an extended fall growing season with ample moisture. This allowed many trees to retain their foliage longer than normal and continue photosynthesizing, thereby building some energy to help with 2008. The 2008 freeze/drought double-whammy is unprecedented, at least in recent history, and the long-term effects are yet to be known.

*For more information contact David Mercker at 731-425-4703 or [dcmercker@utk.edu](mailto:dcmercker@utk.edu)*

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## **Thoughts on Ecological Forestry**

*Larry Tankersley, Extension Specialist, Forestry*

This type of forestry generally analyzes forest resources from the standpoint of conserving natural biodiversity and ecological productivity. Ecological forestry **emphasizes natural patterns and processes** – understanding these, working with them and maintaining their integrity, even when it is inconvenient or financially difficult. **Natural disturbance patterns and processes show the way.**

A central theme of ecological forestry is that manipulations should work within established natural disturbance patterns that occurred prior to extensive human alterations. Developing native species under these circumstances and maintaining a full range of similar conditions under management offers the best assurances against loss of biodiversity.

A **disturbance** is any event that disrupts the ecosystem, community or population structure. It changes resources, substrate availability or the physical environment. Fires, floods, wind, insect/fungi outbreaks, ice storms and landslides would all be considered disturbances.

To describe a specific disturbance regime we measure three things:

1. **Return interval:** The average time between occurrences in a given stand. It is also sometimes expressed as a frequency. For instance, if a disturbance occurs once every 100 years, we say that roughly 1 percent of the area will be disturbed in any given year.
2. **Severity:** The intensity of the disturbance.
3. **Spatial pattern:** Distribution of the disturbance at various scales from the stand to the landscape.

Theoretically, a large number of disturbances could affect any stand or forest over the course of its life. When we consider the array of possibilities for a disturbance it can be overwhelming. Often, a few types of disturbances dominate the formation of a local forest. In Tennessee, fires, wind and ice storms have dominated the disturbance process of most of the state. Floods have affected forests in West Tennessee and other areas.

Increasingly, a general strategy for forest management is to follow natural disturbance processes. Although landowners will continue to tailor management to their particular objectives, disturbance concepts provide a broad template to manage forests where native species and ecological productivity are important values.

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## **How Will Tennessee's Forests be Managed?**

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

More than 14.4 million acres in Tennessee are forested, about 55 percent of the total land area. Non-industrial private landowners (NIPF) control about 80 percent or 11.5 million of these acres, while corporate ownerships possess 7 percent (1.0 million acres) and government owns (public land) the remaining 13 percent (1.9 million acres). What are the forest management approaches for these lands? Four of the most common approaches based on present policy are: (1) reserves, (2) incidental harvest, (3) intensive management and (4) integrated management.

Forest reserves are generally off-limits to harvesting. Most government-owned forest lands

such as National Parks, National Forests and State Parks are managed for objectives other than timber. Although some harvesting may occur on these lands, the purpose will be for wildlife habitat manipulation, recreation and demonstration. Forest reserves will be a minor source of the wood supply.

Incidental harvest is how many forests have historically been managed. Harvest the trees, abandon the forest while it regrows, and harvest again when the forest matures. Most private land has been harvested in this “potluck” manner, primarily for economic gain without regard to future aspirations or management. Those who use the incidental harvest approach are not reaping the full benefits of forestland ownership.

Intensive plantations are how many corporate owners manage their land. The high investment costs of forest land and plantations need relatively shorter rotations, high yields and returns to be economically attractive. The amount of wood produced on an acre of intensively managed plantations is 5 to 10 times more than produced on most forest land, thus lessening the amount of land needed to grow wood fiber. This allows more forest land to be used for purposes other than intensive fiber production.

Integrated management allows stands to develop in a variety of patterns. A more diverse mixture of species and wood qualities would be supplied. The forest is managed as a portfolio to minimize the risk and to maximize profits by harvesting different stands at different times containing different species and products. The flexibility of integrated management provides many more choices and desires in accomplishing multiple-objective landowner values.

Forest policy is presently in flux with a wide divergence of opinions and values. Governments tend to place restrictions and/or incentives on forest management and harvesting trees, whether on private or public land. Intensive plantations are being promoted to provide a constant source of fiber for mills. Integrated management provides the best of both worlds by managing for multiple benefits. Since private individuals own most of the forest land in Tennessee, integrated management provides the most latitude in management philosophy. Private landowners are often portrayed as timber beasts or preservationists. In reality, the vast majority of private forest landowners are in the middle, providing a multitude of benefits for themselves and society.

*For more information contact Wayne Clatterbuck at 865-974-7346 or [wclatterbuck@utk.edu](mailto:wclatterbuck@utk.edu)*

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### **The Dynamics of High-Grading**

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

Concern exists among forest practitioners, owners, industry and the general public that high-grading --- the practice of harvesting only the best trees and leaving the poorer trees to grow--- may lead to a widespread decline in log and lumber grade of the more valuable hardwood species. Two practices, diameter-limit cutting and selective cutting fall in this category. In diameter-limit cutting, all salable trees above a certain diameter are harvested. Selective cutting usually removes the largest, most valuable trees and the poorer-quality, lower-value trees remain. In each case, most of the trees that remain after the harvest are the inferior, defective trees. Neither method gives any consideration to the composition of the future forest and does not create conditions for regeneration of desired species to replace those that were harvested. These destructive practices should be avoided and do not have a place in proper forest management.

In most forests in Tennessee, small-diameter trees are not necessarily younger trees. Most of

these smaller trees are the same age as their larger counterparts, but were overshadowed by the faster-growing trees. These smaller trees usually do not respond to release because of their spindly, small crowns and advanced age.

High-grading diminishes the diversity and economic value of the future forest when the slower-growing and poorer-quality trees are retained. The perception that the smaller trees will respond to release and become future crop trees when the larger, upper canopy trees are harvested usually is not true. High-grading is usually driven by short-term economic considerations. Immediate cash flow is higher with high-grading, but potential environmental degradation and decreased future timber values will more than cancel the immediate cash advantage.

Wise stewards evaluate the impacts of harvesting on their future forest. Consideration of the desired future condition of the forest is a key aspect of forest sustainability. High-grading will have serious consequences on future productivity, structure, composition and value of the forest.

*For more information contact Wayne Clatterbuck at 865-974-7346 or [wclatterbuck@utk.edu](mailto:wclatterbuck@utk.edu)*

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### **Determining the Amount of Seed to Revegetate Roads, Landings and Other Areas**

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

We often get confused in determining the amount of seed to apply (lbs/acre) based on purity and germination of the seed and when the dimensions of the area to be covered are unknown. Below is the methodology (with examples) for determining how much seed to apply at recommended rates.

#### **Determine Treated Area**

1. Measure the width (ft) across the area in several locations and determine the average width.
2. Measure the length (ft) across the area in several locations and determine the average length.
3. Multiply the average length by the average width to get square feet of the treated area.
4. Divide the square feet of the treated area by 43,560 (number of sq. ft. in an acre) to obtain the acreage of the area.
5. Multiply the acreage by the amount of seed per acre to determine the amount of seed required.

**Example:** 2,500 feet of road that is 14 feet wide.  $2,500 \times 14 = 35,000$  square feet.  $35,000/43,560 = 0.80$  acres

Some frequently-used estimations for acreage

100 feet by 100 feet square =  $\frac{1}{4}$  acre

150 feet by 150 feet square =  $\frac{1}{2}$  acre

200 feet by 200 feet square = 1 acres

## Road Surface Area Determination for Application of Seed

Road Length (ft)	Road Width				
	8	10	12	14	16
	-----acres-----				
100	.02	.02	.03	.03	.04
500	.09	.12	.14	.16	.18
1,000	.18	.24	.28	.32	.37
2,500	.46	.57	.69	.80	.92
5,000	.92	1.15	1.38	1.60	1.84

### Determine Pure Live Seed to Apply

1. Multiply germination by percent purity
2. Divide the result into pounds of seed per acre. This gives the amount of bulk seed needed.

**Example:** Winter wheat has a 92 percent purity and 85 percent germination. To seed 35 lbs/acre >>>>>

$$0.92 \text{ purity} \times 0.85 \text{ germination} = 0.78$$

$$\text{Then divide } 35 \text{ lbs/acre by } 0.78 = 44.9 \text{ pounds of seed needed}$$

For more information contact Wayne Clatterbuck at 865-974-7346 or [wclatterbuck@utk.edu](mailto:wclatterbuck@utk.edu)

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### Identifying Chestnut Wood

*Adam Taylor, Assistant Professor, Wood Products Specialist*

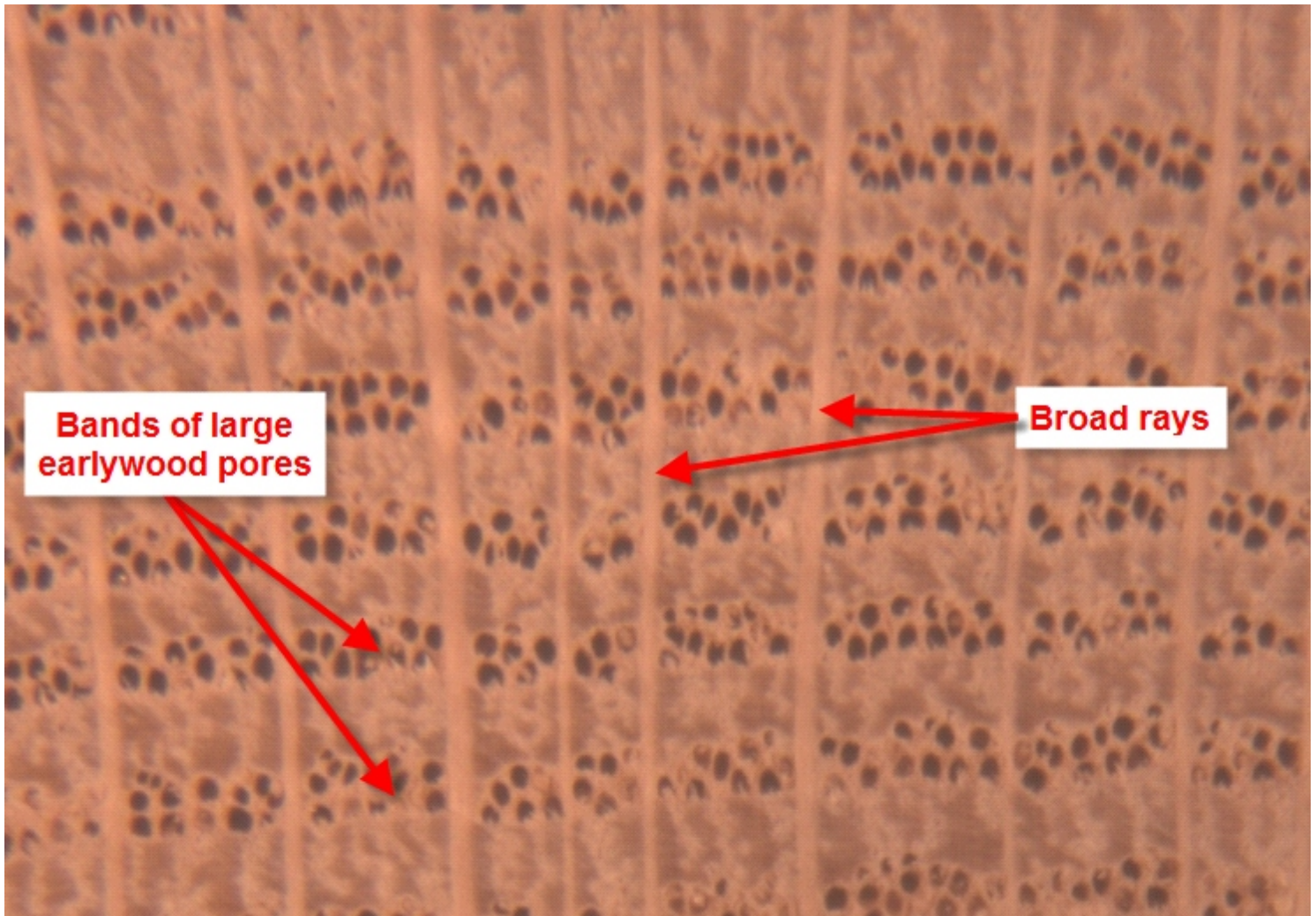
People who salvage wood from old buildings in Tennessee usually wonder what species they have. In particular, folks often want to know if the wood could be American chestnut, because chestnut was a common species in the past but is now rare and the wood can be valuable.

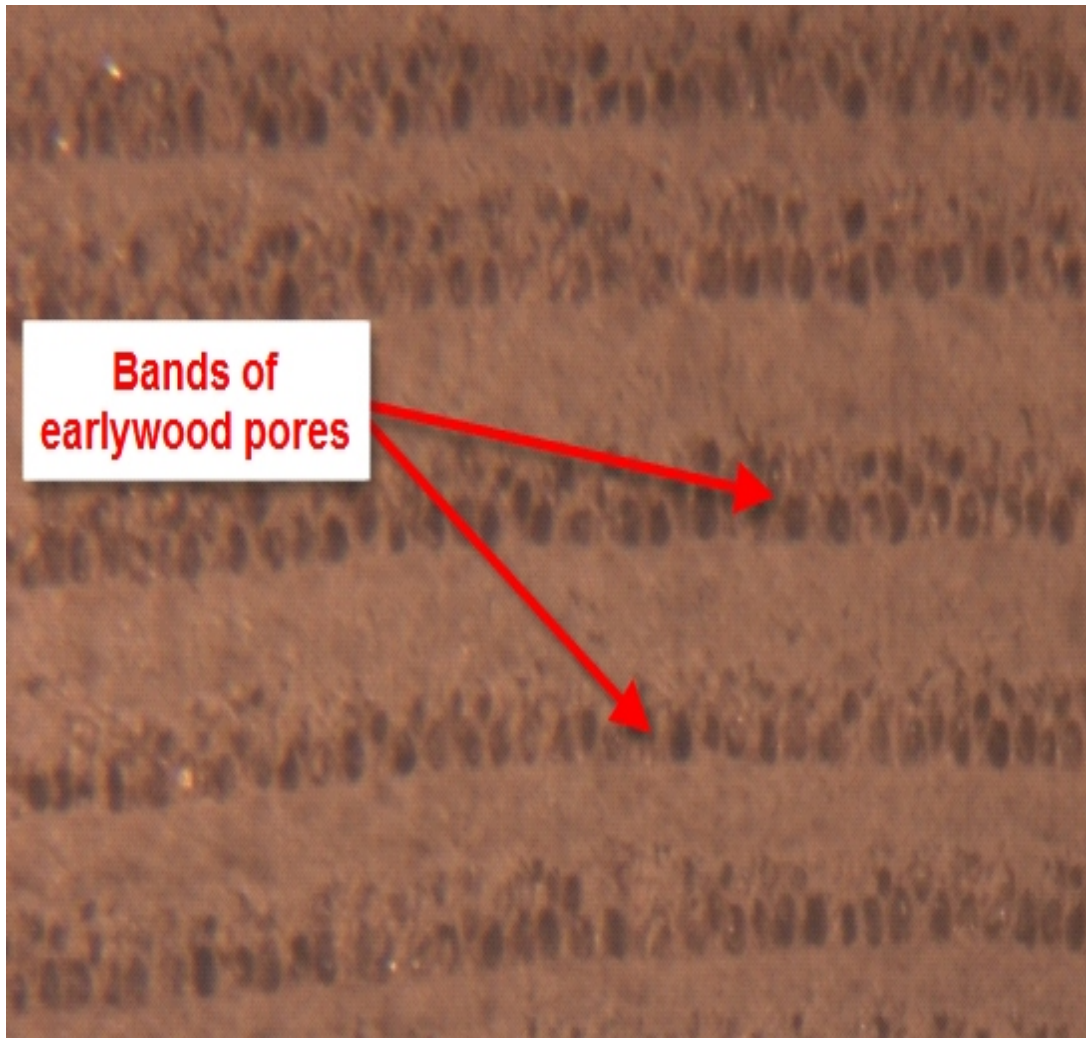
The American chestnut tree (*Castanea dentata*) was widespread in the eastern United States before being wiped out by a blight (*Cryphonectria parasitica*) in the early 20<sup>th</sup> century. Chestnut wood was widely used because it was abundant, has good wood-working properties and is naturally resistant to insects and fungi. Chestnut bark was also used as a source of tannin and the nuts were collected for food.

While chestnut was a common tree before the outbreak of the blight, oaks also have long been an important part of Tennessee forests. Both white and red oaks were used extensively for building materials in the past. In fact, oak is the most common species that I have seen in my experience with identifying wood from old buildings around the state.



Oak and chestnut samples are sometimes confused because both woods are “ring porous” Ring porous woods have bands of large cells parallel to the bark. If you examine a clean cut on the cross-section (end-grain) of a wood sample, you should be able to easily see the bands of earlywood pores that are characteristic of a ring porous wood. However, the wood of chestnut can be easily distinguished from that of the oaks by looking for the rays. Rays are groups of cells that extend from the pith to the bark. All species of trees have rays but they vary in size. In chestnut, the rays are small and cannot be seen with the naked eye. In the oaks, the rays are very wide and thus are readily visible to the naked eye.





Both oaks and chestnut are ring-porous – they have bands of large earlywood pores. In oak (left), the rays are clearly visible as light-colored lines oriented perpendicular to the growth rings. In chestnut (right), the rays are narrow and cannot be seen with the naked eye. Please note that the distinct color differences shown in these pictures are NOT a reliable way to distinguish these wood species.

Recycling old wood provides us with a useful link to the past and is a testament to the durability and functionality of wood from Tennessee's abundant forests. Whether the lumber is oak, chestnut or another species, old wood is good!

*For more information, please contact Adam Taylor at 865-946-1125 or [AdamTaylor@utk.edu](mailto:AdamTaylor@utk.edu)*

### **Harvest the Fish that Are Produced to Maintain Balance**

*reprint — Thomas K. Hill, Professor Emeritus, Fisheries Management*

A very important practice in the management of farm ponds is to harvest the fish once they have been produced. Unfortunately, this particular practice is often neglected and, predictably, imbalance of the fish population results within a year or so.

In the second year after being stocked, a largemouth bass-bluegill pond will contain the maximum pounds of fish for its fertility level. The weight of fish in the pond is determined by the food supply that has developed from the available nutrients. Once the maximum crop is reached, growth of smaller fish is stimulated only as larger fish are harvested. Catch 50 pounds of fish per acre from an unfertilized pond and 50 pounds of fish will grow back. Fertilized ponds will produce 3 to 4 times this many pounds of fish so lots more fishing is required.

A new pond is ready to fish when the bass have reproduced successfully. The bass should be fished lightly for the first 2 or 3 months after spawning or too many of the easily caught yearlings will be removed. Harvest 4 to 5 pounds of bluegill for each pound of bass. To have the best continuous fishing, both bass and harvestable size bluegill must be taken.

Spread the catch out. You will have periods of good fishing and not-so-good fishing, but for consistently good results year after year try to harvest 5 to 6 pounds of fish per acre per week from a balanced fertilized farm pond from March to November. It is just good pond management to remove and use any caught fish that are large enough for food. Bluegill in the catch that are considered too small for the table should not be returned to the water. Since bluegill are so prolific, sufficient numbers will always be present in a pond.

###

### **Refill Ponds and Start Fertilization**

*reprint — Thomas K. Hill, Professor Emeritus, Fisheries Management*

March is a good time to refill ponds and start fertilization. Ponds will need to be fertilized for them to reach their potential. Proper fertilization increases available food along the food chain so a pond supports more pounds of fish. However, if total alkalinity of the water is below 20 ppm, fertilization will not stimulate a good bloom. Take a bottom mud sample, dry it and have the UT Soil Test Lab check to see how much lime is needed. Apply the recommended amount of lime over the entire pond bottom during the winter.

A simple method of knowing when to fertilize a pond is based on water clarity. Light penetration can be measured using a Secchi disk. An optimum bloom allows light to a depth of 18 to 24 inches.

Liquid pond fertilizers have been available for several years and do a wonderful job of stimulating plankton booms. In fact, research has shown that concentrations of phosphate are available in the pond water sooner and remain available longer than comparable analyses of granular fertilizer. A gallon of liquid 10-34-0 yields slightly more than 4 lbs. of phosphate. The researchers recommend 4 lbs. of phosphate ( $P_2O_5$ ) per acre in ponds with light fishing and 8 lbs. in ponds where heavy fishing is expected.

The first application of fertilizer should be **made in early March** and then as often throughout the summer as needed to maintain a good plankton bloom. Usually, 8 or 9 applications will be needed per year. Liquid fertilizers are heavier than water (they weigh about 12 lbs./gal) so they should be diluted with water before application. Pond fertilization should be stopped by mid-October.

Liquid fertilizer is available at most farm supply stores and will cost \$17.50-20.00 for 5 gallons. This means you can fertilize an acre pond for a summer for around \$50. **Considering the increased fish production and the resulting control of aquatic plants, this would be money well spent.**

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### **Hardwood Analysis and Trends (HAT)**

*David Mercker, Extension Forester, Forest Management*

The value of Tennessee's standing hardwood trees is directly related to the demand and supply of end products - those finished goods such as cabinets, flooring, furniture, mouldings, etc. that have beauty and utility enjoyed by consumers. Largely the demand for end products is tied to housing starts and remodeling. Total housing starts, according to US Census data, from November 2005 to 2007 dropped over 44%, and single-family housing starts fell 54.1%. To compensate, Eastern US hardwood sawmill production declined, but not at the same pace, only 12.8% during the period. This created an oversupply of lumber for many species.

During the 2005 – 2007 period, prices for hardwood lumber fell for red oak, hard and soft maple, tulip poplar, and cherry. Some price escalation occurred for white oak (supported mainly by European demand), and black walnut (supported by uniqueness and overall scarcity). These two became the profit focus for many mills. More recently, even white oak and black walnut are showing a downward trend. For white oak, European secondary manufacturers are experiencing competition from lower value substitutes imported from other regions of the world. For black walnut, demand has peaked.

How does this affect landowners? Is it a favorable time to sell timber? That depends. If trees have matured, perhaps even to the point of a declining condition, then selling them is likely advisable. Unlike other agricultural crops, trees can be retained standing for a long time, often enough time to endure market aberrations. But as forest stands mature, the rate of decline normally accelerates. So there is risk (wind, disease, insects, etc) of retaining a valuable "standing" asset. In other words, the loss associated with rot and general decline may be greater than the worsening market conditions. Secondly, usually when lumber prices fall, price reduction in "stumpage" value (value of standing trees – the landowner's value) drops less dramatically, if at all. Lately consulting foresters have voiced that their timber sales are showing strong interest among buyers, and that stumpage price is solid.

As always, it is advisable for landowners to work with a professional forester – and perhaps several. The forester can develop a long-term forest management plan, make sound recommendations on the timing and procedure for selling timber, and oversee the logging operation to assure contract compliance.

The word "lackluster" was used in **HAT** to describe hardwood lumber markets at the end of 2007. The **HAT** word for the first quarter of 2008 is ratcheted up to "concerned."

Summarized with permission of the Hardwood Market Report, Memphis, TN.

###

### **TheUNIVERSITY ofTENNESSEE**

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.