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Monthly Extension Update Newsletter

Forestry, Wildlife, and Fisheries

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6-1-2004

## Update Newsletter June 2004

Department of Forestry, Wildlife and Fisheries

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# Forestry, Wildlife & Fisheries Update Newsletter

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

June 2004

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

## Calendar of Events

**July 11-16** Teacher's Conservation Workshop  
Lambuth University, Jackson

**July 31** Thomas K. Hill Retirement Banquet  
4:00 - 8:00 p.m.  
Location: TBA

**Aug. 12 - 13** TFA Annual Meeting  
Marriott Hotel, Nashville

**Aug. 17** Decatur County Forestry Assoc. Mtg.

**Aug. 25-26** Appalachian Cooperative Grouse  
Research Project Regional Workshop  
Shepardstown, W. VA,  
Contact: Craig Harper

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**"Mark Your Calendar"**

**Oct. 22 - 23**  
40<sup>th</sup> Anniversary Celebration  
Dept. of Forestry, Wildlife & Fisheries

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**Faculty**

**Wayne Clatterbuck** *Forest Silviculture*  
**Craig Harper** *Wildlife Management*  
**Thomas Hill** *Fisheries Management*  
**George Hopper** *Natural Resources*  
**Samuel Jackson** *Forest Management*  
**David Mercker** *Forest Management*  
**Larry Tankersley** *Forest Management*

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## Notes From the Web

*Samuel Jackson, Web Coordinator, (865) 974-2946*

## **Websites with Wildlife Information:**

- TN Amphibian Monitoring Program - <http://www.state.tn.us/twra/tamp.html>
- TN Birds Checklist - <http://www.tnbirds.org/TRBC/tnlist.html>
- Elk Reintroduction Info. - <http://www.state.tn.us/twra/elkques1.html>  
- <http://www.nps.gov/grsm/gsmsite/elkpage.html>
- TN Endangered and Threatened Species -  
- <http://www.state.tn.us/twra/nong001.html>
- Field Guides - [http://www.enature.com/guides/select\\_group.asp](http://www.enature.com/guides/select_group.asp)  
- <http://www.birds.cornell.edu/programs/AllAboutBirds/BirdGuide/>
- Field Trip Earth - <http://fieldtripearth.org/>
- Fish of Tenn. - <http://www.state.tn.us/twra/fish/FishFacts/fishes.html>
- Frogs and Toads - <http://state.tn.us/environment/nh/tnfrogs.htm>  
- <http://www.leaps.ms/>  
- <http://www.exploratorium.edu/frogs/tracker/index.html>  
- <http://www.itg.lbl.gov/ITG.hm.pg.docs/dissect/dissect.html>
- Project Learning Tree - <http://www.plt.org>
- Rock Mountain Elk Foundation - <http://rmef.org/>
- Tennessee Wildlife Resources Agency - <http://www.tnwildlife.org/>
- Trout - <http://www.tu.org>
- White-Tailed Deer - <http://qdma.org/>
- UT Extension Publications -  
<http://www.utextension.utk.edu/publications/default.htm>
- UT Department of Forestry, Wildlife and Fisheries - <http://fwf.ag.utk.edu/>

## Management Calendar for June - July

### Wildlife

Finish plant native warm-season grasses and associated forbs

- plantings this late may be fine if there is adequate rainfall
- kill existing sod before planting, then burn
- use pre-emergence herbicides
- plant seed **no deeper** than ¼ inch
- be patient!

Plant firebreaks and other disced strips not left for natural vegetation

- iron-clay cowpeas, re-seeding soybeans, milo, and various millets provide forage and seed for a variety of wildlife species

Plant warm-season food plots

- see *Planting Chart for Wildlife Food Plots in Tennessee*, SP 550-A, for planting recommendations

Bushhog and spray perennial forage food plots for weed control if necessary

Collect soil test samples from plots to be planted this fall and lime now as needed

Leave young wildlife alone

- let nature takes it's course; you'll do more harm than good by trying to save "orphans"

Establish salt/mineral licks for white-tailed deer

- best if offered in a metal-lined trough that can be cleaned occasionally with bleach/water solution

Spray woody competitors in oldfield habitats, including native warm-season grasses

- multiflora rose privet, sericea lespedeza, sweetgum, elms, etc.
- Roundup, Garlon, Arsenal, Ally, and PastureGard should be considered

### Fisheries

Chinese grass carp stocked at 15 per surface acre can help control algae and aquatic plants.

Livestock should be kept away from ponds. They erode banks making shallow areas become infected with aquatic weeds.

Fields next to ponds should have a buffer of sod or grass 50 - 100 ft wide. This will greatly reduce pond sedimentation. and possible pesticide contamination that can kill fish.

Place fish attractors no more than three per acre. Trees, stake beds, rock or block piles & tire reefs are all good attractors. This provides a place for small fish to temporarily escape predation.

Fish habitat in many ponds can be improved with aeration. This helps avert fish kills when running at night or during extended periods of cloudy days when too dense algae blooms are present. Supplement aeration requires about 1 hp of aeration per surface acre.

Check water levels and possible problems with leakage. Refer to SP374-Y Renovating Leaky Ponds for more detailed information.

### **Impacts of Cicadas on Trees**

Samuel Jackson, Coordinator, National Web-Based Learning Center

Now that the constant chirping from the Brood X cicada invasion has subsided, it would be good time to review what happened, the cicada's effects on trees, and when we can expect another visit. As we all know now, this brood was of the 17-year variety. These insects last visited in 1987. However, parts of Tennessee did see an occurrence of the 13-year cicada in 1998.

The life cycle of the cicada is one of the longest in the insect world. The adults emerge from the ground in late May of the 13<sup>th</sup> or 17<sup>th</sup> year of their life cycle, depending upon the type of cicada. Their emergence coincides with warming temperatures and lengthening daylight periods. After a couple of weeks, the mating cycle begins with the high pitch calls of the males. Once mating has occurred, females will lay their eggs in slits made on small branches of trees. Eggs mature and hatch in about six weeks. The nymphs leave the twig and drop to the ground, burrowing to the nearest tree root where they feed on the tree sap for the next several years, 13 or 17 years, depending upon the brood. After the proper number of years, they emerge as adults and begin the cycle anew.

Cicada nymphs, those feeding on tree sap from the root system, seem to have no effects on tree health, even when the root system is heavily infected. The Entomology researchers here at the University of Tennessee indicate that the cicadas prefer apple, pear, dogwood, oak and hickory trees as hosts for the eggs. After egg laying, the tips of branches of infested trees will begin to wilt and die. The dieback is typically confined to the first foot or so of the branch and will not likely harm mature trees. There is no necessary control or remedy needed for mature trees. The dead branch tips will eventually fall to the ground and the tree should recover. However, newly planted trees and trees still in nurseries can be severely impacted by this die-back. Small fruit trees also tend to be more susceptible to death as the cicada egg wounds open them to other problem insects, such as aphids. However, there may still be time before the cicada eggs hatch to prevent more damage to these susceptible trees. For trees that were not already pruned this year, they should be pruned now. The pruned twigs should then be burned to eliminate any hatching. This pruning helps you remove any potential damage to the trees by removing the eggs and the wounds associated with them.

Most of your trees should recover from this cicada invasion. With some minor pruning and care, even small ornamental trees will too survive. Our next invasion of the cicada is the 13-year cicada, projected to be in 2011. Be prepared! See the Periodical Cicada, SP341-F, for more information, online at <http://www.utextension.utk.edu/publications/spfiles/sp341f.pdf>.

For more information contact: Sam Jackson, Web Coordinator at (865) 974-2946

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### **Chiggers!**

*Larry Tankersley, Extension Specialist, Forest Management*

Chiggers are tiny, less than 1/50th of an inch in diameter. They are almost invisible without a magnifying glass. A bunch of tiny red chiggers clustered together can appear as a red

spot when they get under an elastic band. Under a microscope you can see that the young chiggers only have six legs; an adult would have eight.

Contrary to popular belief, chiggers are not equipped to bore into our skin, and they are too large to enter a pore. Chiggers attach by inserting minute specialized mouth into our skin. The mouth parts are short and delicate and thus require thin skin, wrinkles or folds. You know all the places around ankles, the back of your knees, crotch and belt line.

The “bite” alone does not cause the intense itch, it the “saliva” that the chigger injects. The saliva literally dissolves the skin. This is liquid the chigger lives on not blood.

Chiggers are feeding for several hours before we begin to notice the itch. During this time our “digested skin” forms a tube call a stylostome. The longer the chigger feeds the longer the stylostome and the bigger the welt. Itching usually peaks after a couple of days because the stylostome remains imbedded in our skin after the chigger is gone.

An undisturbed chigger can feed for three or four days. On humans however, we typically knock it or wash it off before the meal is finished. North American chiggers prefer reptiles and birds and only affect humans when we move into their environment. Unlike ticks which wait on us to pass by, chiggers actually move towards us. You can test an area for chiggers by placing a black piece of cardboard or a white saucer vertically on the ground if chiggers are present they will move rapidly over the object and accumulate on the upper edge where you can see them with a magnifying glass.

Chiggers that bother people can move fast. They can get all over you in a matter of minutes. Once chiggers are on you they wander about looking for a tender spot to dine. If they encounter an obstacle like an elastic band they stop and eat there.

The distribution of chiggers in an area is very spotty. Chiggers tend to congregate in patches, while nearby similar spots are chigger free. Often one person in a group will get chiggers when folks a few feet away are unaffected.

Chiggers seldom survive in well groomed areas. Clearing away brush and weeds, keeping the grass cut close and removing conditions which attract small animals that can serve as hosts are ways to get chiggers out of your yard.

Chiggers are also affected by temperature and are most active in afternoons when the ground temperature is between 77-86°F. Chiggers are completely inactive at temperature below 60 and killed below 42 degrees. Research has also found that chiggers avoid objects hotter than 99 degrees. A warm rock would likely be chigger free.

Our first line of defense is the right kind of clothes. Shorts, sandals and sleeveless shirts are not good defense. Tight woven socks, and clothes, long pants and long sleeve shirts and high shoes or boots. Tucking pants into boots and buttoning collars and cuffs tightly also helps keep wandering chiggers out. Change clothes soon after leaving chigger country and wash them before wearing them again.

Mosquito repellants also repel chiggers. All brands are equally effective. Applying these products to exposed skin and openings in your clothes will force the mites across the treated line to get to you. Repellants should be reapplied every couple of hours to maintain effectiveness.

Warm soapy water will remove and kill chiggers. There is no need to apply household products such as turpentine, alcohol, or gas. Many of these products are actually dangerous. Chiggers are easily removed by frequently rubbing with a towel or a cloth if a bath is several hours off.

Once the chiggers have bitten, all you can do is alleviate the suffering with lotions, but no substance is completely effective. Time is really the only cure as the stylostome remains after the chigger is gone. Local anesthetics such as benzocaine, camphor-phenol and ammonium

hydroxide may provide you with several hours of comfort . Over the counter creams may help. Severe allergic reactions are rare but may require a doctor visit and prescription medicines.

The old nail polish remedy only reminds you not to scratch. Since the chigger did not burrow into the skin, you can't smoothen it. In fact most chiggers have been brushed off before the itch really begins.

Chronic scratching maybe the biggest health hazard from chiggers as we might cause a secondary infection with our dirty finger nails. Disinfecting a well scratched area might be wise. Use a topical antiseptic.

Fortunately, Tennessee chiggers don't carry diseases like those in other countries. For their size they sure cause a lot of torment. Learning about chiggers helps us understand what is going on with the itch and may help us avoid a chigger attack. I feel better about the critters already, but I am not looking forward to my next encounter.

*(This article is freely adapted from a report prepared by Nina Bicknese, a Natural History Biologist with the Missouri Department of Conservation. Let me know if you would like a copy of the entire article.)*

For more information contact: [Larry Tankersley at 865-974-7346](mailto:ltanker1@utk.edu)  
[ltanker1@utk.edu](mailto:ltanker1@utk.edu)

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### **Keeping Wildlife Out of The Garden**

*Craig A. Harper, Associate Professor, Wildlife Management*

Deer, rabbits, groundhogs, and raccoon species enjoy your garden as much as you. Keeping these critters out of your vegetables can be challenging. Planning ahead can prevent frustration later and help save your sweet corn, beans, peas, lettuce, and carrots.

Fencing is the most effective method to keep nuisance animals out of the garden. Erecting a fence before wildlife begin feeding will help control the situation before habits form. For best results, erect your fence soon after planting. Small gardens do not require much fencing material, which makes this method quite efficient, especially since the materials can be used year after year. 2-strand electric fences (one strand 6 inches above ground and the other 12 inches above ground) are effective in keeping raccoons out of sweet corn and groundhogs out of leafy vegetables. A chicken-wire fence 2 feet high with the bottom tight to the ground will keep most rabbits out of vegetable patches. For deer, try a single-strand electric fence (2½ feet above ground) with aluminum tabs attached every 3-5 feet. Smear peanut butter on the aluminum tabs. Deer are attracted to the peanut butter; however, when they touch their nose and/or mouth to the tabs, they quickly learn to stay away from the area.

There are many taste and area repellents available for deer and rabbits. Deer Stopper<sup>®</sup> has been effective keeping deer out of gardens when applied to a "repellent fence." A cotton rope, strung around the garden approximately 2½ feet off the ground, will "hold" repellent for several days before reapplication is necessary. This method requires less repellent than spraying within the garden.

Shooting can be very effective and efficient when dealing with nuisance animals in the garden. Shooting raccoons, groundhogs, and rabbits is legal outside designated hunting season when the

animal(s) is found depredating crops. A depredation permit, however, is necessary to shoot deer outside the hunting season. Requests for depredation permits should be made to the Tennessee

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Wildlife Resources Agency. Raccoons, groundhogs, and rabbits also can be trapped using cage (live) or Conibear (body-gripping kill) traps. Baits may include the plant(s) that are being damaged, sardines for raccoons, fruits and melons for groundhogs, or fruits and leafy greens for rabbits. There are no toxicants registered for deer, raccoons, groundhogs, or rabbits.

It is important to realize the effectiveness of these methods depends on the number of animals causing damage and the availability/quality of other food resources. When offending animals are not very numerous, a patch of ladino white and red clover or cowpeas grown near the garden will lessen browsing pressure on garden vegetables by groundhogs, rabbits, and deer. Regardless, using a combination of methods will be more effective than using only one method. For additional information, pick up a copy of *Managing Nuisance Animals and Associated Damage Around the Home*, PB 1624 and/or *Using Single-Strand Fencing to Manage Deer Damage*, SP 598, available at your county Extension office.

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

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### **As the Wind Blows. . .**

*Larry Tankersley, Extension Specialist, Forest Management*

Salvaging wind blown timber might be more successful if you enlarge the opening. Gaps, at least two tree heights in diameter allow buyers access to more timber and create openings in the canopy for use by a different community of plants and animals. Initially wild poke and blackberry will dominate the gap. After a while however many of these gaps fill with yellow-poplar and cherry. Hopefully, we can identify a few oaks and “release” them and encourage their joining the future canopy.

The width of the opening is most important. It needs to be large enough to allow the young trees in the gap to ultimately reach the canopy. Smaller gaps are quickly closed by the surrounding trees and the habitat type desired (brush and young forest) disappears.

Recall the “critical height” concept used in Europe i.e., when a percentage of the trees begin to blow over it perhaps indicates that the forest is beginning to loss timber volume and thus a good time to regenerate. Many forest management plans call for group selection or patch clearcutting as the silviculture of choice. Working with a group of blown down trees makes sense as the blown down trees might indicate high wind exposures, soil structures that fail with wind loads and trees that are not wind firm any more. Depending on the shape of the land and the forest’s exposure to wind a homogeneous area surrounding the recent ‘blow down’ might be enlarged with a timber sale rather than waiting for the next wind storm.

With the wind selecting the location, creating a gap of a couple to five acres is a nice way to diversify your woods, salvage blown down trees and make a little money for native warm season grass seed.

For more information contact: *Larry Tankersley at 865-974-7346*  
[ltanker1@utk.edu](mailto:ltanker1@utk.edu)

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## **Distinguishing Between the Hickories**

*David Mercker, Extension Assistant, Forest Management*

Hickory trees are truly an American group of trees. There are 23 known species of hickories, of which only 3 occur outside the United States. Hickories are actually classified under the walnut family (*Juglandaceae*), having similar characteristics as black walnut, butternut, and pecan trees. The wood of hickory is strong, tough, and straight-grained, and traditionally was used for handles, agricultural implements, and wheel spokes. More recently, it has captured some of the cabinet and hardwood flooring market, though its tough qualities make it difficult for machining.

Proper identification of hickory trees is challenging, even for seasoned foresters and botanists. The hardwood sawmills rarely separate hickory logs by species, rather grouping them together. The leaves of hickory trees are similar, all are compound, and having odd-numbered leaflets from 5 to 11. Proper identification of hickories normally requires more than examining leaves. Bark, buds, and fruit, if available, help to make proper tree I.D.

Four of the more common hickory species in Tennessee include: Shagbark, Mockernut, Pignut, and Bitternut. Though very similar, each has unique characteristics separating it from the others. We'll call these characteristics "Brief Recognizable Features" and summarize them as follows:

<b><u>Species</u></b>	<b><u>Brief Recognizable Features</u></b>
Shagbark Hickory ( <i>Carya ovata</i> ) 5	undeniable shaggy bark plates that noticeably hang from the trunk of the tree (all other species in this group have tight bark pattern);  large leaflets per leaf.
Mockernut Hickory ( <i>Carya tomentosa</i> )	scraping the bark away will normally reveal a rich chocolate color; leaflets and rachis (central stem of leaf) are hairy beneath; husk of fruit is very thick (up to ¼" thick); leaf with spicy odor; 7 – 9 leaflets per leaf.
Pignut Hickory ( <i>Carya glabra</i> )	Fruit is pear-shaped, with thin husk (1/10" thick) and husk splitting only to ½ to ¾ length (i.e., not completely to the base of the nut); Normally with only 5 leaflets; Bark is interlacing and with <u>very</u> small shag-type plates.
Bitternut Hickory ( <i>Carya cordiformis</i> )	Terminal bud (found on the very end of the branch) is sulfur-yellow color; fruit with 4 distinct ridges or ribs occurring from the middle upward; 7 – 11 leaflets per leaf.

Aside from the strong attractive wood, the fruit of hickory trees is important for hard mast, benefitting an array of wildlife - this is especially the case during years of poor acorn production.

For more information contact: *David Mercker at 713-425-4703*  
[dcmercker@ext1.ag.utk.edu](mailto:dcmercker@ext1.ag.utk.edu)



**Forest Management for Hardwood Veneer** (Part 6 in a series of 7)

*David Mercker, Extension Assistant, Forest Management*

Normally forests are not managed to specifically grow hardwood veneer trees. Rather, if one is found, it's a bonus. Veneer logs, just as with lumber logs, pallet and R.R. tie logs, and pulpwood, are among many products that result when forests are harvested. However, the likelihood of producing more veneer trees increases if proper silvicultural procedures are followed.

To produce oak veneer trees, the following must occur: (1) quality seed sources (acorns) must be present, (2) sunlight reaching the forest floor during establishment must be adequate, (3) during early stand development undesirable competition must be controlled, and (4) stocking must be regulated while protecting and favoring those trees with veneer potential.

**Seed Source** - because of their shape and weight, acorns will normally not travel far from their parent tree. If adequate seed sources are not present, oak will not likely regenerate. Even when seed sources are present, if the genetics is inferior or site is too poor, the potential to produce quality veneer oak trees will be limited.

**Sunlight** – most oak species are classified as intermediate in shade tolerance, meaning that they do not regenerate nor develop well in shaded environments. Therefore, single tree selection harvesting is not recommended for oak development because a sufficient amount of sunlight will not reach the forest floor. Instead, oak regenerate best in partial to full sunlight, such as that resulting from group selection or clearcut harvests. Even with these harvest methods, if a yellow poplar or sweetgum seed source is present on good forest sites, oak will typically not grow rapidly enough and will be out-competed.

**Control of Undesirables** - along with the development of the desirable veneer trees, will be undesirable trees. These undesirables will compete for growth elements, slowing, suppressing and even killing the preferred trees. Through a process called crop tree release, young forests stands can be manipulated to improve the percentage of potential veneer trees (for a description on this procedure, refer to Extension Publication SP559 - Crop Tree Release in Precommercial Hardwood Stands).

**Regulating the Stocking** - stocking is an indication of available growing space. Producing quality veneer trees requires that a relatively consistent growing space be maintained. Forest stands should be thinned on approximately 15 year intervals to assure consistent growth. Waiting too long will cause tree suppression, then when released, trees will grow too rapidly. This sudden increase in growth brings wider than normal annual growth rings and often epicormic branching - both lowering the chances of a tree becoming veneer. Only an experienced forester and a conscientious logger should be trusted to select and thin stands having a goal of future veneer production.

For more information contact:

*David Mercker at 713-425-4703*  
[dcmercker@ext1.ag.utk.edu](mailto:dcmercker@ext1.ag.utk.edu)

## **Dissolved Oxygen in Ponds**

*Thomas K. Hill, Professor, Fisheries Management*

It's that time of year again. Phone calls with concerns about either stressed or dead fish have become plentiful lately. Here is some information to help you understand some of the dynamics of dissolved oxygen (DO) or lack of it in ponds, in order to try and avoid some problems.

How do you recognize DO depletion? First of all, you should observe the pond immediately before daylight. Fish will be seen on the surface gulping for DO. If disturbed by a loud noise, they dive but immediately return to the surface. If the DO content is not low enough to kill fish, fish at the surface in early morning will return to deeper water as it builds up during the day through photosynthesis. In fed ponds, fish often give warning signs of low DO by not eating. DO levels lower than 3 ppm in the upper 2 feet should cause concern. Many fish will die if DO content is below 0.5 ppm for very long.

DO in ponds comes from two sources – photosynthesis and diffusion from the air. The most important source is photosynthesis, which is the process plants use for manufacturing food. In the presence of sunlight, plants (especially algae) add DO to water as a by-product of photosynthesis. At night, no DO is produced, but respiration of algae, fish, bacteria and other pond dwellers continue to remove DO from the water. Most of the time there is a desirable balance between how much DO is produced and how much is consumed. However, under some conditions the balance can be upset, and the DO concentration becomes low enough to either stress or kill fish.

The most common DO problem occurs when consumption by respiration exceeds the amount of DO produced through photosynthesis and diffusion from the air. Algae grows in large quantities as a result of nutrients from heavy fish feeding. As the quantity of algae increases, it accumulates closer and closer to the surface to gather sunlight and increasingly shades the lower depths. As a result, most of the DO is produced near the surface, leaving a large volume of water below the first 2 to 4 feet deficient in DO production. Eventually, DO produced during the day is less than the demand for DO during the night, resulting in possible death or undesirable stress on fish. This situation may be especially acute after several consecutive cloudy days.

If you have experienced excessive filamentous algae growth in your pond this year, consider fertilizing earlier next year. A good plankton bloom established and maintained can shade the pond bottom and prevent growth of unwanted filamentous algae. Stock 15 Chinese grass carp per acre in your pond as well. They can be a tremendous help in keeping algae and aquatic weeds reduced in ponds.

Another type of DO depletion occurs when algae die suddenly. When algae die, not only does the pond lose a source of DO, but the decaying algae also use considerable amounts of DO. All causes of sudden algae die-offs are not fully understood, but it is known that die-offs can occur after pond treatments with certain chemicals and herbicides.

Predicting natural algae die-offs is difficult. However, they are often associated with surface algae scums and very heavy algal “blooms”. When a die-off occurs, the green water often becomes streaked with gray, black or brown. The color of the water may eventually become totally brown, gray, black, milky or clear. A distinct foul smell may also be noticeable.

The third and most serious kind of DO depletion is referred to as a “turn-over”. During hot summer weather, surface water becomes less dense as it absorbs heat and floats over a cooler, more dense layer of water. All the DO is produced in the warmer layer and the two layers may not mix for weeks at a time, especially in deep-water ponds. Eventually, all the DO is used

up in the lower, cooler layer. A cool snap or a thunderstorm with wind and hard rain can cool the warm surface water, making it heavy enough to sink and mix with the oxygen-deficient bottom layer. The net result is a dilution of the DO and an increase in the demand for DO from dissolved minerals and decaying organic matter. To complicate these problems, the algae usually die at the same time. “Turn-overs” cause the most catastrophic fish kills in ponds of any oxygen-related problems.

What should be done if signs of DO depletion are observed? Immediate action must be taken. Stop feeding until good water quality is restored. Flush the pond with fresh aerated water from a well or another pond. If an irrigation pump is available, pump water from the upper 2 feet, aim the water exhaust parallel to the bank and establish a circular motion around the pond. Back a tractor-powered rotary grass cutter into the pond and stir the water with the blades. A boat motor can help in a small pond. Add 6 to 8 pounds each of potassium permanganate and superphosphate per acre. The potassium permanganate helps reduce some of the organic matter with its oxygen demands and the superphosphate will stimulate the growth of planktonic algae in the water.

After the emergency has passed, the pond management program should be reviewed and the cause of the DO depletion eliminated. Prevention of such situations through proper management is the only permanent solution.

For more information contact: *Thomas K. Hill at (865) 974-7346*  
[tkhill@utk.edu](mailto:tkhill@utk.edu)

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### **How Much Pine in Tennessee?**

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

Despite news reports to the contrary, the amount of pine and softwood acreage has not changed much statewide in Tennessee in the last 50 years. There actually was more softwood acreage in Tennessee in 1952 (1.8 million acres) than today (1.5 million acres in 1999). In 1952, softwoods composed 14 percent of the total forest acreage; today they compose about 10 percent. The softwood category also includes about 250,000 acres of eastern redcedar. Thus, the actual amount of pine acreage is less without the eastern redcedar component.

What has changed is the amount of pine in plantations. The amount of pine plantations has increased from 297,000 acres in 1962 to 458,000 acres currently. Pine plantations compose only 3 percent of the 14.4 million acres of forest in Tennessee. Acreage in natural pine stand has remained steady between 1.0 and 1.2 million acres for the last 40 years. Although there has been some conversion of hardwood land to pine by landowners, investors and forest industry, most of the plantations are due to government cost-share programs such as the Conservation Reserve Program (CRP) and the Tennessee Reforestation Incentive Program (TRIP) that have taken highly erosive and marginal farmland out of agricultural production with the planting of trees. These “new” plantations, afforestation, are additions to the forest land base statewide.

Southern pine beetle has had a dramatic impact on the pine acreage. The Tennessee Division of Forestry estimates that about 400,000 acres of pine (both natural stands and plantations) have been affected to some degree by pine beetle since 1998, primarily in the eastern half of Tennessee. Some of this land will be replanted to pine. However, many landowners are not willing to assume the cost or the risk to replant pine. Thus, their pine beetle land will probably naturally succeed or revert to

hardwoods, reducing the amount of pine acreage. We always hear about land being converted to pine because it is so visible, but there may be a reciprocal amount of former pine land becoming hardwoods that hardly anyone notices. A net decrease in the acreage of pine statewide is expected during the next inventory.

Many assume that if pines were not planted, that the land would remain in hardwood forest. Land ownership is a costly venture considering taxes, insurance, maintenance and management costs. Considering that 80 percent of the forest land in Tennessee (11 million acres) is owned by private landowners (non-industrial), most landowners are looking for some form of income to offset their annual land expenses. The shorter rotations of pine compared to hardwoods is one alternative. If the land was not in pine, the land (presumably hardwood forests) would probably be cleared for row crops, pasture, orchards or urban sprawl or other forms of development. This would decrease the forest land base as well as increase the amount of fragmentation and parcelization of the forest. Pine plantations are much more vegetationally and structurally diverse than these alternative land uses.

In summary, total pine acreage in Tennessee has remained steady for the past 50 years and is projected to decrease during the next inventory period because of the impacts of southern pine beetle. Acreage in planted pine has increased, primarily due to afforestation of marginal farmland from government cost-share programs. Some hardwood conversion to pine has taken place, especially on poor, degraded and cutover hardwood sites. However, former pine land is also reverting to hardwoods because of southern pine beetle.

Lost in this discussion of pine is that Tennessee is an overwhelming hardwood state with pine comprising a small percentage (about 10 percent) of the total forest. The “pine controversy,” whether pro or con, in Tennessee is overshadowing many other forest concerns that should be addressed more proactively: urban sprawl and development, insects and disease, forest health, fragmentation and parcelization, rehabilitating degraded forests and harvesting practices.

For more information contact: *Wayne Clatterbuck at 854-974-7346 or*  
[wclatterbuck@utk.edu](mailto:wclatterbuck@utk.edu)

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### **Determining the Economic Value of Your Timber**

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

The quantity, quality and species of your trees, location and access of your property and the timber market will determine the value of your timber and the sale method. The recommended steps in conducting a timber sale are as follows:

1. Consult a professional in your area who knows the timber market.
2. Decide when to sale to get the most value for your timber
3. Know what you have to sell (do a timber inventory) before the sale
4. Sell by sealed bid to invite competition
5. To control the transaction between the buyer and the seller, use a timber contract.
6. Specify that Best Management Practices are used during the timber harvest
7. Consider that income from your timber sale will influence your tax situation.
8. After the harvest, inspect your logging job and retire the sale area.

For further information about planning and conducting a timber sale, contact your local county Extension office or Division of Forestry office.

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[wclatterbuck@utk.edu](mailto:wclatterbuck@utk.edu)

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### **Are We Destroying Our Forests?**

*From ABCNEWS.com, Challenging Conventional Wisdom, John Stossel, author. March 2004 broadcast of the television show "20/20"*

[http://abcnews.go.com/sections/2020/US/myths\\_040322.html](http://abcnews.go.com/sections/2020/US/myths_040322.html)

Lots of Americans feel bad when they see images of trees being cut down, because they've been told that America's running out of forestland.

Carl Ross, of the group, Save America's Forests, says we've cut way too much. "The loss of natural forests in America is a crisis," he said. "And we will lose species forever, and they'll go extinct, if we don't take action now."

Other environmental groups run ads warning of the dire consequences. But The U.S. Agriculture Department says America has 749 million acres of forestland. In 1920, we had 735 million acres of forest. We have more forest now. How can that be? One reason is technology that allows us to grow five times more food per acre — so we need less farmland. Lots of what once was farmland has reverted to forest. But Ross says we don't really have more forests. "We have more areas, in America, with trees on them, that's true. But we have less that are natural," he said. He's right that many of the oldest trees have been cut down, and about 7 percent of America's forests have been planted by man, but that still means that 93 percent are natural.

Ross is also concerned that loss of old-growth forest is leading to a loss of biodiversity. But while some species have decreased, the populations of many other animals have actually increased in the past 75 years.

Michael Shermer says many people believe America is destroying the forests because environment groups need to scare people to raise money. "The fear is there," he said, "because, if your goal is to raise funds you have to scare people. You can't tell people things are getting better, and here's the data. You have to tell people things are worse." The truth, however, is that today in the United States there are two acres of forestland for every single person, and America is growing more forest than it cuts.

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COOPERATIVE EXTENSION WORK IN AGRICULTURE AND HOME ECONOMICS

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