



Forestry, Wildlife & Fisheries Update Newsletter

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

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

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Calendar of Events - 2002

February 5 - March 19

Master Tree Farmer Advanced Program (MTF II), Satellite Shortcourse
Knoxville and Jackson

February 21

West Tennessee Foresters, Boyettes Restaurant, Reelfoot Lake
Tiptonville

April 19 & 20

Timber Harvesting Fair
Jackson

May 6, 7, & 8

District Forestry & Wildlife Judging Contests

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

Tennessee Forest Products Market Report - 4th Quarter 2001

Brian H. Bond, Assistant Professor, Forest Products

	<u>EAST TENNESSEE</u>	<u>WEST TENNESSEE</u>	<u>STATEWIDE AVERAGE</u>
<u>STUMPAGE</u>			
PINE SAWTIMBER \$/MBF DOYLE	175	271	223
OAK SAWTIMBER \$/MBF DOYLE	226	357	291
MXD HDW SAWTIMBER \$/MBF DOYLE	174	127	151
PINE PULPWOOD \$/CORD	10.32	19.51	14.91
HDW PULPWOOD \$/CORD	9.73	12.73	11.23
<u>DELIVERED</u>			
PINE SAWTIMBER \$/MBF DOYLE	294	350	322
OAK SAWTIMBER \$/MBF DOYLE	448	481	465
MXD HDW SAWTIMBER \$/MBF DOYLE	301	274	278
PINE PULPWOOD \$/CORD	55.54	53.53	54.54
HDW PULPWOOD \$/CORD	57.64	56.26	56.9
CHIPS – PINE \$/CLEAN TON	-	-	20.50
CHIPS – HDW \$/CLEAN TON	-	-	15.50

Note:

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EXPLANATORY NOTES:

PRICES: Prices given in this report are average prices in the current issue of Timber Mart-South. Prices for specific timber stands or products may vary significantly from the average prices listed due to location and accessibility of the timber, volume per acre, area included in the sale, restrictions placed on the harvest, size, quality and species of the stand or delivered product, and local demand.

Stumpage price is the price of timber standing in the woods.

Delivered price is the price of harvested products paid at the mill for sawtimber, or the loading point (with no freight included) for pulpwood.

Prices for sawtimber are given in dollars per thousand board feet (\$/MBF) based on the Doyle log rule. The Doyle rule is the predominate rules for measuring tree and log volume in Tennessee. To convert prices to the International rule multiply the price by 0.61. To convert to the Scribner rule multiply the prices by 0.74. (Note: these conversions are for average values and cannot be used to convert individual log or tree volumes.)

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Site Preparation for Natural Regeneration of Hardwoods

Wayne Clatterbuck, Associate Professor, Forest Management

Most hardwood stands in Tennessee are harvested by the diameter-limit, logger's choice or economic methods where the largest trees are cut and the smaller, undesired trees are left, i.e., high-grading. The supposition that the smaller trees would be the crop trees of the future has resulted in stands that are considerably understocked with trees of advanced age, unwanted species and poor form. The practice of leaving the low quality and smaller trees is not recommended for several reasons.

- Branches often form on residual trees when opened to full sunlight causing poor tree form.
- Unsalable large trees (usually culls) left after harvesting still occupy growing space and will always be worthless from a timber/economic standpoint.
- Residual trees inhibit regeneration of the more valuable, intolerant to shade tree species.
- Many small understory trees of advanced ages are not capable of responding to release when the larger trees are harvested.

Site preparation for natural hardwood regeneration involved the removal of these residual trees. Both chemical and mechanical means are used. Trees greater than one inch in diameter or over six feet tall should be removed. Uninhibited, natural regeneration will usually result with thousands of seedlings per acre.

Seedlings will regenerate from several sources. Seed from species such as yellow-poplar and ash remain viable in the forest duff for 6 to 7 years. When overstory and midstory trees are removed, the seed will germinate and grow.

Some seeds germinate before the overstory trees are harvested. This "advanced regeneration" of seedlings up to five feet tall have a greater chance to become larger with their head start in growth over those that begin from seed.

Forests also regenerate readily from stump, seedling, and root sprouts. Almost all hardwood trees reproduce from sprouting. The intact root system gives sprouting a growth advantage over those that regenerate from seed. To promote sprouting, the residual trees should be cut close to the ground to induce sprouts developing from ground level. The best sprouting occurs on trees that are less than 10 inches in diameter. Although sprouting will occur on larger stems, the probability of sprouting diminished with increasing size above 10 inches. The stumps of unwanted species can be treated with herbicide to reduce sprouting and to increase the proportion of desired trees/species.

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Weaving a Web to Catch Southern Pine Beetles

Wayne Clatterbuck, Associate Professor, Forest Management

A new web site promises to help educate those interested in learning more about the nasty beetle that has been killing the region's pine trees.

The University of Tennessee Department of Forestry, Wildlife & Fisheries in cooperation with the UT Agricultural Extension Service has launched "Southern Pine Beetle Management." Located at <http://fwf.ag.utk.edu/sites/spb/pine2/pine.htm>, the web site is designed to help landowners and practitioners better understand and manage the Southern pine beetle in Tennessee.

"It is a starting point for those interested in finding out more about this beetle, its biology, management and control," said Wayne Clatterbuck, UT associate professor of forest management and a contributor to the web site.

The southern pine beetle has ravaged state forests for the past three years. Since 1998 an estimated 100,000 acres of Tennessee pine forests, valued at \$75 million, have been destroyed, with most of the impacted areas occurring in the east and southwest portions of the state. The majority of the infestations have damaged non-industrial, private forestland.

The web site includes links to management recommendations as well as answers to the most common questions landowners face. The new statewide Southern Pine Beetle Initiative cost-share guidelines have also been listed on the site. This initiative of the Tennessee Department of Agriculture Forestry Division can help landowners replant pine on forested areas killed by the Southern pine beetle and establish management practices to reduce the susceptibility of pine forests to beetle attacks.

Funds for the initiative were allocated to the Division of Forestry from the USDA Forest Service for a two-year period ending September 30, 2003.

“Southern pine beetle infestations have reached epidemic levels in 44 of 66 counties with infested pines,” said Clatterbuck. Salvage operations have placed large quantities of pulpwood and sawtimber on the market, driving prices down.

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Nutritional Needs of Catfish

Tom Hill, Professor, Fisheries Management

While it is true that channel catfish do not eat as much food in winter, paying attention to their diets will mean more potential profits from brood fish, fingerlings and harvestable sized fish that must be carried over.

While brood catfish spawn once a year in the summer and the females begin right away to form eggs for the next year. It is especially important they receive proper nutrition during the cooler months to produce a good crop of eggs. Research has shown that many more viable eggs are produced when fish is included in their diets. An effective way to do this is to stock fathead minnows in with the brood fish. Along with the fish flesh, a supplemental diet of pelleted catfish food, fed at the rate of 1 percent of their body weight on alternate days, will keep the brood fish in good condition and enable them to spawn successfully.

Catfish fingerlings are much more active in cooler water than adults and may take some food even when ice is around the edges of ponds. Their performance in production ponds the following summer will depend to a large extent on the way their nutritional requirements are met during the cooler winter months. Unless they are fed adequately in the winter, they will become emaciated and more susceptible to parasite and disease problems. Skeletal deformities from vitamin C deficiency may be particularly prevalent.

Food-size catfish held over during these months in production ponds without feeding lose about 9 percent of their weight. When fed 1 percent of their body weight either on alternate days or on days when surface water temperatures are 54 degrees F or above in mid-afternoon, you should see a gain of about 18 percent body weight during winter months. They will be in good condition and ready to go to market at the proper time. Fish food is expensive and certainly does not need to be wasted, but by using good feeding practices catfish farmers can expect much better performance by all their fish. The ends results will be worth it.

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Manage Water Quality for Fingerling Production

Tom Hill, Professor, Fisheries Management

Good water quality is of utmost importance to production of healthy fingerlings. Everything else can be done correctly, but if water quality management is neglected, fingerling production will be low.

A low level of dissolved oxygen (DO) is the most common water quality problem. Since fingerling growth can be severely slowed when DO remains below 3 parts per million (ppm) for lengthy periods, every effort should be made to maintain levels above 4 ppm. Even though the fish may not die directly from low oxygen, stress from such conditions often lowers resistance to diseases.

Microscopic algae, the plants that give water a green color, produce oxygen during daylight hours and put it into the water. No oxygen is produced at night, but fish, algae and other organisms continue to remove oxygen from the water. Also, cloudy days will reduce the amount of DO. The probability of low DO increases with higher fish densities and more food added to the pond. With a stocking rate of 50,000 per acre, you could have as much as 3,000 pounds by this fall as the fingerlings grow.

Either an oxygen test kit or an oxygen meter would certainly be a worthwhile investment for any fingerling producer. Dissolved oxygen levels should be taken daily at dawn and dusk during warm weather in ponds that are heavily stocked and receiving large amounts of food. This is especially important when water visibility is less than 18 inches and during cloudy days. When daily records of DO are kept on each pond, low oxygen problems can often be predicted and emergency aeration equipment put into place before a catastrophe occurs.

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Phytoplankton Blooms in Ponds

Tom Hill, Professor, Fisheries Management

Phytoplankton (single-celled plants) fill several positive roles in ponds. Suspended in the water, these microscopic plants that make it appear green are often collectively referred to as “the bloom.” Like all green plants, phytoplankton produce oxygen during daylight hours as a by-product of photosynthesis. This is a major source of dissolved oxygen in fish ponds.

A complex community of microscopic animals called zooplankton is associated with a phytoplankton bloom. These tiny animals are herbivores that graze on the phytoplankton. In turn, they become a major food item for small fish by providing a link between the bloom and the rest of the food chain.

Another valuable function of phytoplankton blooms is to help prevent submerged weed growth in ponds. A bloom that is dense enough to shade the pond bottom will not allow weeds enough sunlight to grow. A bloom heavy enough so you cannot see your fingers moving when your arm is submerged to the elbow is about right.

To establish an adequate bloom to keep submerged aquatic weed from growing on the pond bottom, it may be necessary to add fertilizer. Recommended fertilizer rates vary dramatically and are dependent on soil and water chemistry. Begin fertilizing in early spring before bottom-growing weeds and algae become established. Once fertilization is begun, it is important to follow a schedule to monitor the pond and add fertilizer as needed.

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Time to Burn Fields and Woodlot for Wildlife

Craig Harper, Assistant Professor, Wildlife Management

One of the best ways to improve habitat for many species of wildlife is through prescribed burning. This includes fields and woods—both pines and hardwoods. Late winter is an excellent time to burn because it is not long until spring green-up. Thus, the reduction in cover (consumed by the burn) for wildlife is short-lived.

Prescribed fire reduces the litter layer (e.g., dead leaves and grass) and enables seeds to reach mineral soil so they can germinate. The reduction in the litter layer also enables many seeds already in the seed bank (the top few inches of soil) to germinate. This helps promote plant diversity. By rejuvenating and stimulating herbaceous growth, forage, seed, and insect availability for wildlife is increased.

Burning old fields is highly recommended over bushhogging. Burning consumes the dead thatch and stimulates the early successional community used by birds for nesting and brood rearing. Burning old fields every 2 – 3 years will continue to set back succession and keep the field from becoming a thicket of small trees. Burning is by far the best practice used in preparing a field to be sprayed (e.g., a fescue field being converted to native warm-season grasses). Oftentimes, planting isn't even necessary. An application of 12 ounces of Plateau herbicide (salt of imazapic) per acre following a prescribed burn is all that is necessary to create favorable wildlife habitat in most fields.

Burning in woods also consumes litter, which is fuel for a wildfire. The effect of burning in woods is greatly influenced by the amount of light entering the canopy and reaching the forest floor. Generally, the best effect for wildlife is realized after a stand has been thinned.

All burning should follow a burn plan prepared by a trained professional. For further information concerning the benefits of prescribed fire and assistance with burning fields or woodlot on your property, contact the Tennessee Division of Forestry or the Tennessee Wildlife Resources Agency.

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Precision Forestry

David Mercker, Extension Forester

Precision agriculture is a concept that is accepted and practiced on row crop acreage, particularly throughout the Midwest where land is well suited for tillage. With precision agriculture, fertilizer/herbicides/lime, etc., are applied in precise rates, varying throughout the field depending on the soil characteristics. This method makes best use of these soil additives, assuring that no area receives too much or too little. Each acre is treated uniquely, as though there are a series of small fields all falling within one larger field, working together for maximum profit.

Though not commonly practiced in forestry, this same “precision” management concept can be applied. Most privately owned forests have great diversity. Site factors, such as soil will vary according to position on the slope (ridge tops and upper slopes are less productive than mid- and lower slopes). Slope aspect, or direction the slope faces, also has a measurable impact on productivity (south and west slopes are less productive than north and east slopes). Further, past practices within a forest often result in an assortment of tree species, varying in age and in different condition. For example, if portions of the forest were previously exposed to livestock pasturing, ground fire, timber harvesting or even row cropping, these areas will have different attributes than other portions of the forest that were not exposed.

Too often, a generalized broad – brush forestry prescription is made and implemented in forests when the forest instead, due to its diversity, needs “precision forestry.” Many private forests are more a conglomerate of small, unique stands, falling within the larger forest tract. Each of these

smaller stands should, based on both economics and ecology, be managed with careful analysis of what it indicates is needed.

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For example, a 100-acre forest tract may have 20% of its acreage with poor quality trees, previously mismanaged and without good economic potential, scattered in 4 separate, smaller stands. These areas could be regenerated (clear-cut) to create young growth and diversity in wildlife habitat. An additional 50% of the acreage might have fine quality timber, middle aged, needing lightly thinned (harvested) to gain some monetary return and to energize the remaining trees so that they'll be ready for a follow-up harvest 15 years hence. The balance (30%) is simply too young for commercial harvest, is overstocked, and is experiencing suppressed growth. Here an owner should implement "crop tree release" by deadening weed trees with a chainsaw, thereby assuring a future forest with well-spaced, highly desirable fine crop trees.

With precision forestry, essentially all crop trees are allowed to reach their economic maturity, rather than be sacrificed (harvested) too early. Plus precision forestry creates great diversity in habitat, age structure and species . . . a condition highly desirable for those landowners who consider the other uses of their forest (recreation, wildlife, aesthetics) important too!

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New Cost-share Program for Planting Pine Trees

David Mercker, Extension Forester

The Tennessee Southern Pine Beetle Initiative (SPBI) is a new and notable cost-share program for rural landowners. The SPBI was created in August 2001 to encourage landowners to reduce the vulnerability of existing and newly established pine stands to beetle infestation. This is to be accomplished by providing financial assistance (cost-share) to encourage stand establishment practices and intermediate treatments known to reduce the likelihood of beetle attack. Funds are provided by the USDA Forest Service and administered by the Tennessee Department of Agriculture.

Eligible owners include private individuals, joint owners, corporations (except wood using industries) without publically traded stock, and non-profit organizations. Eligible stands include:

- any pine stands that were harvested after January 1, 1998 (regardless if SPB attack was evident);
- pine stands killed by SPB after January 1, 1998;
- pine stands 6 to 10 years old needing thinning;
- existing stands of seedlings needing release from woody or herbaceous vegetation; and
- existing stands of seedlings needing replanting (some restrictions apply).

(Pine stands are defined as having more than 50% of their basal area in pine prior to SPB attack.)

This is a well-funded program; cost-share of up to 50% of the actual cost per acre is available for projects such as: tree planting (loblolly, shortleaf and white pines), mechanical and/or chemical site preparation, site preparation for natural hardwood regeneration, non-commercial thinning, release of pine seedlings and replanting pine seedlings. Other provisions apply to this program. For additional information, contact your local Area Forester. The Forestry Division State Office in Nashville can be reached at 615-837-5411.

For more information contact: *David Mercker at (731) 425-4717*

Decisions, Decisions, Decisions - Remove or Not to Remove

Larry Tankersley, Forest Management

In checking your landscapes around businesses, churches and homes, you might find a tree that you think needs to be cut down because of damage or location. When trees appear in generally good condition and there are few dead branches (natural pruning) and modest damage to the “driveway/highway trees” (typical of church yard trees), I personally see no compelling reason to remove a tree completely. I would tend to rate these trees as providing considerable value to the community.

Consider the following measures to safe guard a tree from further damage. Barriers (crossties laid on top of the ground) and a thin layer of mulch would remind people to respect the butt of the tree. There is no reason to apologize for the existing damage; we just need to try and prevent additional damage. Regular observation of the trunk and surrounding ground for evidence of rot such as fungal fruits, conks and the like, would monitor a rot that could render the tree’s increased hazards.

We might give the tree a “shower, haircut and a shave”. The shower does not require soap or water but is simply removing dead material. As any tree matures branches that were once important to the tree become shaded by the expanding crown. This material ultimately falls, becoming a nuisance requiring maintenance (“pickin’ up sticks”) and depending on its size can cause damage to humans, cars, and other items of value.

The haircut is general pruning designed to shape the crown. Branches that are rubbing each other, drooping, or will presumably be shaded out in the near future should also be removed. The haircut may also be conducted to reduce the “sail effect” or the capacity of the tree to catch wind. I also like to consider the tree’s center of gravity. Lean and asymmetrical crowns are of concern when considering snow and ice loads that could tip the tree. Also consider branches that might droop into “human space” with an ice or snow load.

The shave is just raising the length of the trunk slightly. I prefer trees to be up and out of the way roughly a minimum of 25% of the total height of the tree. I also recommend raising an area over the drive in the event extra clearance is needed at some point.

Who to do this work? You can find several pages of arborists from a couple of search engines on your computer, check the yellow pages or call your local county Extension agent for recommendations. Please see the following article for more information about finding a tree arborist.

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Finding an Arborist

Larry Tankersley, Forest Management

Recommending good tree care and management is one thing, finding someone qualified to administer your recommendations is another. In support of your efforts at better tree care, I spent a few minutes on the Internet and here’s what I found.

As most of you know, where considerable knowledge of tree biology is required I like to recommend members of the following organizations: **International Society of Arboriculture (ISA)**, **National Association of Arborists (NAA)**, and **American Society of Consulting Arborists(ASCA)**..

Of course just being “certified” or a member does not always assure a good job. These associations do provide an initial screening and recourse if the quality of work by their members is substandard. At the home page of each of these groups you will find buttons that lead you to members in your neighborhood.

Consider the ISA at www2.champaign.isa-arbor.com, after hitting the “find an arborist” button, just enter your zip code and the database will generate a list of “certified arborists” in a fairly large radius around your town. Also visit the NAA at www.natlarb.com, tap the find an arborist button and again type in your zip code. The ASCA is at www.asca-consultants.org. This search is by State.

These are just a few ideas for helping clients get the tree care prescribed. Of course, if you need for me to generate these lists for you, I will be glad to do so.

Keep up the good works and keep in touch!

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