



# FWF Update Newsletter

Department of Forestry, Wildlife and Fisheries

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### The Economic Impact of Privately-Owned Forests

*Adam Taylor, Assistant Professor, Forest Products*

The forest products industry is a big part of the Tennessee economy. However, as an industry that has been around for a long time, and one that is made up of many small operations spread across the state, we sometimes fail to fully appreciate its importance.

A recent report prepared by F2M - Forest2 Market for the National Alliance of Forest Owners documents the economic impact of privately owned forests in the United States. Across the country as a whole, the industries related to private forests contribute about as much to the economy as the rubber and plastic industry - itself a huge business!

Because privately owned forest contribute the large majority of raw materials to the Tennessee wood products industry, the data from this report also highlight the impact of the Tennessee forest industry. A few numbers taken from the report are listed in the following table. "DII" refers to the direct, indirect and induced impacts. The full report is available at [http://nafoalliance.org/wp-content/uploads/f2m\\_economic\\_impact\\_study\\_2009.pdf](http://nafoalliance.org/wp-content/uploads/f2m_economic_impact_study_2009.pdf).

To put 96, 157 "DII employment" number into perspective, that equates to about 8 jobs for every thousand acres of forest! Regardless of which number you look at, it is clear the privately-owned forests, and the related forest products industry, is an important part of Tennessee.

| Private Forests' Economic Impacts |        | Tennessee |               | South         |
|-----------------------------------|--------|-----------|---------------|---------------|
|                                   |        | Per acre  | Total         |               |
| Employment                        | Direct | --        | 31,201        | 431,498       |
|                                   | DII    | --        | 96,157        | 1,275,102     |
| Payrolls                          | Direct | --        | \$1.2 billion | \$16 billion  |
|                                   | DII    | \$270     | \$3.2 billion | \$42 billion  |
| Taxes Paid                        |        | \$15      | \$199 million | \$1.8 billion |
| Contribution to GDP               |        | \$323     | \$3.8 billion | \$46 billion  |

## Hardwood Analysis and Trends (HAT) – Jan 2010

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David Mercker, *Extension Specialist II, Forestry*

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

The price of many commodities, such as wheat, gold or oil can be found with little effort. Hardwood timber is more challenging to track. For standing timber, price reports are virtually non-existent. Those out there are dated snapshots, such as a survey of consulting foresters. That's why many in the business rely on 1) delivered log price reports or 2) lumber reports. Of these two, lumber reports are published more frequently and offer a reliable pulse. **HAT** tracks lumber by following the *Hardwood Market Report*, Memphis, Tn.

With this issue of **HAT** there's good news to tell. After a slow, almost steady drop in lumber prices from 2005, last August the picture began to brighten. Since late summer and continuing into 2010, lumber prices for four species commonly harvested and sawn in Tennessee have risen. The price for #1 common Tulip tree, White oak, Red oak and ash lumber has risen 26%, 22%, 14% and 10% respectively. White oak and Red oak are both still below their 2005 levels, but this fresh news is met with eagerness.

The recent increase in lumber prices has "stumped" many foresters. Demand for finished hardwood goods is still uninspiring and there is little confidence this will change soon. Sawmills are in contraction or holding mode, making no major business decisions until the health care and cap and trade legislation are settled. Housing starts continue to bounce off historically low levels and will remain low until the inventory of existing homes drops from the current level of 3.5 million units (nationally) to the goal of 2.5 million. And the national unemployment rate hovers around 10 percent. Had enough?

So why *are* prices up? It's a supply issue (or rather a lack thereof). Standing timber, cut logs and sawn lumber are scarce. Essentially landowners aren't selling, loggers aren't cutting and inventory is drained. **So even though demand is down, supply is down even more.** As a result, in order to procure raw material, prices have up-ticked. This situation will likely be exacerbated by spring because logging operations typically taper during the wetter winter months. Spring could find some mills seriously low on logs.

For landowners with timber ready for harvest, this might be a favorable time to test the market. But remember, "Don't just sell your timber, *market it.*" And as always, see your County Extension Agent for a list of professional foresters serving your area.

## A Little Crystal Ball Gazing into Forestry's Future

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David Mercker, *Extension Specialist II, Forestry*

Periodically there are disturbances in the forest, large and small, that bring change. The same is true of the profession of forestry and the wood industry it supports. Presently forestry is teetering on some major changes. With over 50% of our state covered with trees, much hinges on how aggressively we adopt the changes (or steer from them). So it seems fitting that with the new decade we should do a little crystal ball gazing. Some of these predictions are supported by other foresters; some are not. Consider:

1. New wood markets are emerging, specifically in the wood-to-energy arena of biomass and biofuel. These could offset loss within other declining markets. Biomass is slated to replace a portion of the coal usage for electricity. Look for wood pellet plants to emerge; some to provide raw material for local usage, others to feed the global demand. The biofuel industry will be slower to develop, at least with hardwoods. Together these will create some employment in rural areas.

2. Demand for grade hardwood lumber will likely be less robust than it has been over the past few decades. Hardwood lumber is often used in the furnishings of new homes, and domestic housing construction is not expected to make a full-bodied recovery, so look for exports to increase. Grade sawmills could be adversely impacted. Landowners will still receive reasonable prices for their grade timber, but with less interest among potential bidders. The days of unreasonably-high prices are gone; more stable pricing will follow.
3. Forestry is headed down the path of government subsidies. This will be hurried-along by the wood-to-energy push. EPA will promote programs to support renewable fuels and the DOE will guarantee loans for renewable energy projects. Indirectly, landowners will be in this mix.
4. Woodland stewardship plans will be a requisite for participating in almost anything: cost-sharing, forest certification and carbon credit trading. However, the hassle will have to be smoothed in order to get large-scale buy-in.
5. Local governments will scrutinize the property tax abatement programs. The requirement that landowners have a woodland stewardship plan in order to enjoy reduced property tax will be more rigorously enforced.
6. Professional forestry assistance will become harder for landowners to find. Enrollment in forestry schools, though solid, has not been strong enough to replace retiring foresters. Opportunities for consulting foresters will increase, but finding qualified recruits will be difficult.
7. Forest certification will move front and center. Claims of sustainability will have to be validated in order to harvest timber. There will be a merging of sustainability standards among the various forest certification systems. New construction projects, both public and private, will call for certified wood. Certified wood will receive the “going price;” all other wood, though unsubstantiated, will be viewed as inferior by many and will receive a reduced price. With a shortage of professional foresters, others with natural resource backgrounds will be called upon to certify forests.
8. The pressure to consider the visual impacts of timber harvesting will be relentless.
9. Controlling non-native exotic invasive pests will become a major focus. Both funding and qualified contractors will be lacking for adequate control. Eventually the professional community will view control of many invasive pests as futile, and will give up.
10. Harvesting timber in bottomlands and unique habitats will become increasingly more difficult due to regulations over threatened and endangered species and water.

Just as every seed that falls to the ground doesn't germinate, some of these forecasts won't either. Forecasts are just that . . . and these are at best, lukewarm. Some of these predictions reach well into the future – beyond the scope of many current owners. Even so, it is still good now and then, to do some crystal ball gazing.

## What Remains After a Timber Harvest is Important

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*Larry Tankersley, Extension Forester*

Tennessee supports a tremendous hardwood resource. Unfortunately, far too many of these forests are diameter-limit cut, harvesting under the guise of “select management”. This has considerable short-and long-term negative impacts on the hardwood resource and the potential for landowners to sustain the values that hardwood forests can provide for future generations.

Diameter-limit harvesting usually involves removing trees larger than a specified diameter (DBH), with little or no regard to the composition and structure of the residual stand, or any deliberate effort to regenerate a new age class. Past thinking and too much present thinking, suggests that smaller trees, regardless of quality, vigor, or even species, will grow to replace the harvested trees. Stand development research **clearly** shows that many hardwood forests resulted from natural reforestation in old fields or after major disturbances and are therefore stratified even-aged stands. Removing the largest trees often releases poorer-quality trees along with the more shade-tolerant species having less desirable timber characteristics. These trees often interfere with the regeneration of desirable species, especially if repeated diameter-limit cutting removes the seed source.

Despite possible exceptions, diameter-limit harvesting (often called selective management or select cutting) usually represents the opposite of good hardwood management. Repeated diameter-limit harvesting degrades hardwood forests, does not optimize the long-term production potential of stands, and is often simply outright high-grading. This “management style” or exploitation maximizes short-term profits with minimum investment. “This situation is made complex because the public often prefers the appearance of a high-graded stand to a clearcut, and the high grading often meets the immediate needs of the landowner”. Yet repeated diameter limit harvesting in hardwood forests is poor land stewardship.

Many landowners respond to increased prices for selected “choice” species by shifting their interest from silvicultural practices aimed at producing quality hardwoods toward simply taking out the biggest and best trees (the valuable ones), and leaving behind depleted and poorly-stocked stands with insufficient growing stock to sustain future production.

Research is now indicating that diameter-limit harvests being applied under recent and current market conditions portend a long-term conversion in the composition of stands, resulting in lower market values and decreasing other landowner benefits for the future. Also, diameter-limit harvesting leaves poorly stocked stands having an irregular distribution of residual trees, and it makes no effort to tend the residual size classes to upgrade their quality or enhance their growth. Over the long term, diameter-limit harvests tend to result in residual stands of poor-quality stems, with less desirable species and genetically inferior individuals, having variable stocking and crown cover, and lacking desirable seed sources.

There is a sense of urgency in forest management communities to assess the near-term and long-term potential of continued production of high-quality sawlogs, This potential is heavily influenced by current timber cutting practices and their effects on residual stand structures.

Harvests that remove large proportions of economically valuable trees reduce the potential for that species to be offered in the next harvest, as well as regenerated in the long run.

In May, 1998, a study conducted in West Virginia reported on 99 timber harvests across the state. At each site the researchers looked at the stumps and the trees remaining after recent timber harvests. Post harvest, timber remaining was reduced and the average stand diameters decreased roughly an inch. Most of the stands were considered severely understocked after harvest. Reductions in species remaining were highest for red oak, followed by yellow-poplar, white oak, chestnut oak and red and sugar maple. Nearly a third of the harvests exhibited reductions of red and white oak, yellow-poplar, ash, and black cherry greater than 80%. The proportion of mixed hardwoods and maple increased in the post harvest stand while the proportion of red oak and yellow-poplar decreased.

Nineteen stands were understocked when they were cut. Two of these were declared clear cuts with the other 17 deemed unable to support another sawlog removal in the foreseeable future. Twenty-three stands might sustain another commercial sawlog harvest in the next 15-20 years, while 25 stands would only support a fiber removal in the same time frame.

Thirty one of the stands had less than 50% residual stocking and insufficient stocking of valuable species and quality to sustain another commercial harvest in 15 -20 years.

Reductions in average stand diameter in 80% of the stands indicate the use of diameter-limit harvesting. Statewide reductions in species amounts show concentrated harvesting of the commercially valuable species, especially oaks and yellow-poplar. Shifts in species composition also reflect this trend, with proportionally higher amount of non-commercial species remaining in the post harvest stands than were present before harvest.

A study in West Virginia may not reflect conditions here in Tennessee, but you are encouraged to look at your forest and try to determine how it was cut the last time timber was removed. For many forest managers the question is often not what is removed, but what will remain. Remember, when harvesting timber “Don’t Cut Yourself out of Business”; a plan for the residual stand is most important.

## Logging Operation Inspection Questions for Harvesting Timber

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

Forest landowners or their representatives should inspect the ongoing logging operation periodically to ensure that the harvest is being performed efficiently and meeting Best Management Practices (BMPs) guidelines. What should you look for? Outlined below are a few questions to consider in determining if an operation is being conducted properly.

1. Are the remaining trees reasonably free from logging and felling damage --- scraping bark on trees and broken limbs?
2. Are the stumps one foot or less in height?
3. Are the tree tops being utilized satisfactorily?
4. Are all trees included in the sale being cut?
5. Are trees excluded from the sale being left?
6. Are the logging trails, skid trails, and yarding locations (log decks) being maintained with little site damage? Is soil disturbance minimized?
7. Are the roads used in the sale passable for normal use?
8. Are the ditch-lines, streams and open land areas free of tree tops and other debris?
9. Are the woods relatively free of trash such as empty drink cans and bottles and oil cans?
10. Are water bodies (streams, ponds, rivers) being protected during the harvesting operation?
11. Are fences, gates, cattle guards, bridges or culverts damaged?
12. Are log yards, roads, and skid trails being properly addressed by providing suitable water diversions or vegetation following the harvest?
13. Is the purchaser fulfilling all other contract agreement terms?
14. Are the number of landings (log decks) and skid trails minimized?
15. Are the number of stream crossings minimized? Are streams being crossed to minimize soil erosion?

## Salt Damage on Trees

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

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With the prolonged winter weather and below-freezing temperatures this winter, the extensive use of de-icing salts on streets and highways can cause damage to woody species. Trees and shrubs can be injured by salt spray and drift, by salt that leaches into the soil or by a combination of both.

The degree of damage to trees from salt varies considerably from year to year. Fluctuations in the quantity and frequency of frozen precipitation determine the amount of salt applied each year. Weather conditions such as wind and temperature will influence the amount of salt taken up or absorbed by plants. Damage to trees is also affected by climatic factors such as frequency of freezing and thawing. The different species also vary in their sensitivity to salt damage.

A symptom of salt injury on evergreen plants is the browning of the tips of the needles that progress to the needle base. As injury continues, needles drop prematurely with branches becoming progressively bare. Photosynthetic capacity is curtailed with needle loss, causing the tree to progressively weaken, dieback and perhaps die. When the new growth does not counteract the needle loss, the tree becomes stressed and declines.

Salt injury on deciduous or broad-leaved plants delays opening of buds and flowers in the spring, thus reducing growth. Factors that influence salt sensitivity include bud size, nature of bud scales, twig thickness, and bark thickness. Generally, trees with thin bark and naked buds (little bud protection) are injured more by salt. Salt symptoms include reduced leaf color, smaller leaves with scorched margins, thinner or sparse crowns, and earlier fall leaf coloration and leaf fall.

The accumulation of salt within plants and soils influences water absorption and plant nutrition. The availability of water to plants is decreased because of increased osmotic tension, by which water is held in the soil. Water does not move readily into the plant and could even pull water from the plant cells to the soils. Increased salt contents tend to draw water toward the salt solution. Sodium reduces nutrient uptake of potassium, calcium and magnesium by displacing those nutrients. Salts absorbed by the plant can desiccate leaf cells causing browning and leaf abscission.

Assuming that the use of salt to de-ice roadways will continue, there are a few management techniques that can be used to minimize damage to trees.

1. Irrigate soils to leach sodium and chloride before spring growth. A saline soil condition is relatively easy to correct. Since most salts are water-soluble, applications of water will leach some salt out of the root zone. Application of 6 inches of water should leach about half the soluble salts. Leached potassium and magnesium can be replaced through application of fertilizer. Another treatment is to apply gypsum (calcium sulfate) to soils that are high in sodium. The addition of calcium displaces the sodium.
2. All trees are affected by salt to some degree, but some species are more tolerant than others. A listing of the susceptibility of trees to salt is located in UT Extension publication SP610 (<http://utextension.tennessee.edu/publications/spfiles/SP610.pdf>). Plant trees in salt-prone areas that are less vulnerable to salt damage.
3. As a preventative solution, avoid sites at high risk from salt injury by planting trees away from the salt spray drift zones and areas where salt-laden brine and slush are likely to accumulate.
4. Plants that are injured and exhibit dieback should be watered, pruned and fertilized. Mulch should be applied to reduce water loss. Weakened or stressed trees from salt damage are often attacked by insects and disease.

## Wildlife Management Calendar for February

*Craig Harper, Professor, Wildlife Management*

### Wildlife Notes

White-tailed deer are shedding antlers  
 Great horned owls and red-tailed hawks are nesting  
 Bald eagles are building nests  
 River otters are born February and March  
 Spring squirrel litter are born  
 Opossums are born and cling to mother's pouch  
 Coyotes are breeding  
 Bluebirds wood ducks are looking for nesting sites  
 Bullfrogs begin breeding activity  
 Salamanders may be seen searching for ephemeral ponds  
 Spring peepers and chorus frogs are calling

### Habitat Management

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

- Burn woods and old-fields using prescribed fire to enhance conditions for wildlife
- secure burning permit and develop burning plan with Tennessee Division of Forestry
- make sure firebreaks are in place
- get help from experienced personnel if you don't have experience burning
- burning fields is **much** more beneficial for wildlife than mowing!
- refer to Chapter 6 in *Native Warm-Season Grasses: Identification, Establishment, and Management for Wildlife and Forage Production in the Mid-South*, PB 1752, for additional information on managing early successional habitat

Plant firebreaks for additional forage, seed, bugging opportunities

- alfalfa, clovers, and annual lespedezas can be planted in mid- to late February
- warm-season plantings can be made later in May
- see *A Guide to Successful Wildlife Food Plots: Blending Science with Common Sense*, PB 1769, for seeding rates and additional information

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

Disk fields to encourage early successional growth

- disk one-third of the field in a block or strips
- strips should be at least 2 tractor-widths wide (12 – 15 feet)

Plant 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*, 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 imazapyr or triclopyr
- use a 25% solution of Arsenal AC (imazapyr) or a 50% solution of Garlon 3-A (triclopyr) with 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
- building brushpiles along a woods edge adjacent to a tall fescue pasture or hayfield may do more damage than good because all rabbits present will then be isolated for predation
- best done along and within high-quality early successional habitat (native forbs and grasses with scattered brambles and shrubs)

## 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
- it is very important to clean feeders regularly to reduce disease outbreak
- refer to *Improving Your Backyard Wildlife Habitat*, for information on specific feeders and seed for birds

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

## 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 in April; it is critical!
- Refer to Chapter 5 in *Native Warm-Season Grasses: Identification, Establishment, and Management for Wildlife and Forage Production in the Mid-South*, PB 1752, for additional information

## Plant perennial clover and alfalfa plots

- ladino white clover, alsike clover, red clover, and alfalfa do well when sown in mid-to late February
- refer to *A Guide to Successful Wildlife Food Plots: Blending Science with Common Sense*, PB 1769, for information on planting and soil amendment



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 [\*A Guide to Successful Wildlife Food Plots: Blending Science with Common Sense\*](#), PB 1769, for herbicide recommendations
- always read and follow directions on the herbicide label before using

Spray Chinese privet and Japanese honeysuckle

- spraying the green foliage of these species now prevents harming dormant desirable species
- 5% solution of Garlon 3-A or 1% solution of glyphosate herbicide and water works well for honeysuckle
- 1% solution of Arsenal AC works well for privet
- for privet too large to spray foliage, cut stem and treat cut stump surface with 1% Arsenal AC or 50% Garlon 3-A; ALSO, stems may be treated with basal application of 20% Garlon 4 with commercially available basal oil with a penetrant

Fertilize cool-season forage plots

- those containing oats, wheat, and/or cereal rye will respond to 30 pounds of N per acre
- fertilize perennial forage plots with P and K according to soil test recommendations

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

Moles also mate in February, so increased activity may be evident

- “mole hills” are created as quart-sized chambers and deep runways are excavated where young may be born and raised
- moles are born in late March/early February; they are independent at 1 month

Set traps correctly to catch moles!

- make sure surface 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

Repel large winter flocks of blackbirds and starlings

- don't allow them to roost in your trees; if they start, they'll form a habit
- repel them with noise makers (shotguns, firecrackers, banging metal pans together)
- be persistent; you will have to scare them off at least 5 or 6 nights in a row before breaking their habit

Vultures can present a real problem for calving by plucking out eyes and eventually killing calves

- try scare tactics as soon as vultures appear during calving season
- contact USDA-Wildlife Services if problems continue; they can give you a referral to the US Fish and Wildlife Service for depredation permit if warranted

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