



# FORESTRY, WILDLIFE & FISHERIES UPDATE NEWSLETTER

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## IN THIS ISSUE . . .

REVISITING THE CRYSTAL BALL . . . . .	page 1
TIMBER TAX TIPS FOR 2010 TAX YEAR . . . . .	page 3
WOOD IS GOOD FOR BURNING . . . . .	Page 4
INTERPRETING TREE TOLERANCE . . . . .	page 5
STAND STOCKING VS. STAND DENSITY . . . . .	Page 7
WILDLIFE MANAGEMENT CALENDAR FOR FEBRUARY . . . . .	page 8



## REVISITING THE CRYSTAL BALL

*David Mercker, Extension Specialist, Forestry*

In January 2010, we peered into the crystal ball of forestry to consider what “might be.” Facing yet another year, it seems fitting to revisit the ball and mull over the 10 predictions. The original predictions are given, followed by their status.

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 this will create some employment in rural areas.

**Status: Markets for woody biomass are developing, but will be regional and may not benefit all forest landowners; biofuel, at least with hardwoods, is D.O.A.**
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.

**Status: Domestic hardwood lumber markets are steady, but uninspiring, and will remain so until housing starts rise to around 1.3 million units per year (a 3x increase from current).**

3. Forestry is headed down the path of government subsidies and landowners will be in this mix.  
**Status: The business of ecosystem service markets is growing and will continue. NRCS is already paying landowners for their “good stewardship practices” through the Conservation Stewardship Program. Further, the USDA’s newly created Office of Environmental Markets supports the issue. See the following: <http://www.fs.fed.us/ecosystems/services/OEM/index.shtml>**
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.  
**Status: Standing firm on this prediction.**
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.  
**Status: This is already happening in some Tennessee counties.**
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.  
**Status: Standing firm on this prediction. The number of practicing professional foresters in Tennessee continues to decline.**
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.  
**Status: Ramping this prediction up. The University of Kentucky is launching the “Center for Forest and Wood Certification,” which is focused on building certification capacity in our region. Tennessee forest landowners and the logging and milling industry will have access to certified wood markets. Training and time must come first. Again, participation requires an approved forest management plan.**
8. The pressure to consider the visual impacts of timber harvesting will be relentless.  
**Status: Standing firm on this prediction.**
9. Controlling non-native exotic invasive pests will become a major focus. Both funding and qualified contractors will be lacking for adequate control.  
**Status: Ramping this prediction up. One only needs to examine the NRCS cost-share programs to realize the importance that the government is placing on the issue.**
10. Harvesting timber in bottomlands and unique habitats will become increasingly more difficult due to regulations over threatened and endangered species and water.  
**Status: No change to the prediction.**

Just as every seed that falls to the ground doesn’t germinate, some of these forecasts won’t either. Forecasts are just that. 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 revisit the crystal ball.

## TIMBER TAX TIPS FOR 2010 TAX YEAR

Larry Tankersley, Extension Specialist, Forestry



If you sold timber last year remember to file the proceeds as a capital gain rather than as ordinary income. Forest owners should receive a Form 1099-S from the purchaser of their timber listing the gross amount of the proceeds of the sale. Be sure to net out your depletion (basis) and other costs of conducting the sale. Capital gains rates should be applied to the net amount rather than the gross. Capital gains rates can be applied whether one has a “basis” or not if they otherwise apply. If you are not sure about your timber basis

refer to UT Extension publication 1691, “Setting up the Books: A Forest Owners Guide to Capital Accounts and Record Keeping for Federal Income Tax Purposes”

<https://utextension.tennessee.edu/publications/Documents/PB1691.pdf>

Long term capital gains are taxed at lower rates; this helps you keep more of your money. This year the lowest rate on long-term capital gains is 0% for people in the lowest two tax brackets (10% and 15%) and 15% for people in higher brackets. (You definitely want to look into this.) Basically, in December Congress extended these capital gains rates for the next couple of years.

Depending on how your timber was cut, you might have prepared the site and replanted. If this is the case don’t forget Reforestation Tax Incentives, when you file. Qualified reforestation expenditures include site preparation costs, seedlings and expenses to get the trees planted. Expenditures up to \$10,000 can be deducted directly from you income. Amounts over \$10,000 can be amortized over the next eight tax years. Amortization gives you another opportunity to reduce your income for tax purposes. It is important to begin your amortization the year you spent the money, as this tax incentive can’t be started on an amended return. If you started an amortization in years past, don’t forget to take your deduction this year.

Many landowners receive cost-sharing from the government, when conducting operations in their forests. If you receive cost-sharing, it’s important to determine whether you can exclude the total amount or some portion of the amount from your income, otherwise you are required to pay taxes on the amount you receive. If you get a form 1099-GOV for the cost-sharing, as with other 1099's, don’t lose it. The IRS got a copy too and they’ll be in touch if you don’t account for the amounts listed.

If you sustained tree destruction from wind, flood, ice, or other involuntary conversion, you are allowed to claim losses up to the value of their adjusted basis in the timber that was damaged. You do need to document when the damage occurred; and that you tried to salvage the timber. If you need help understanding “adjusted basis” refer again to “Setting up the Books:

<https://utextension.tennessee.edu/publications/Documents/PB1691.pdf>

For a longer discussion of your timber tax options, refer to the “*Updated Tax Tips for Forest Landowners for the 2010 Tax Year*” by Linda Wang and John Greene of the US Forest Service.

<http://www.na.fs.fed.us/pubs/taxtips/tax-tips-2010-updated.pdf>

Be sure to let us know if we can give you hand!

## WOOD IS GOOD – FOR BURNING

Adam Taylor, Associate Professor, Forest Products

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Burning for household heating and cooking remains the most common use of wood in the world. In the United States, this use of wood is less common; however, wood is our most important biomass energy source because it is used to provide much of the energy for the wood products industry.



Burning wood does have the potential to release pollutants such as carbon monoxide and particulate matter to the air. Wood combustion also releases stored (“sequestered”) carbon as carbon dioxide, the main greenhouse gas. However, wood is a *better* fuel than most alternatives for a number of reasons.

Wood is relatively low in sulphur and nitrogen, compared with coal for example. Sulphur and nitrogen oxides are pollutants of concern. Burning wood correctly can greatly reduce or eliminate pollutants such as CO and particulate matter. In the home, this can mean burning dry wood in a hot fire with an EPA-approved stove. In commercial operations, there are various scrubbing technologies that are available. Finally, wood fuel is considered to be ‘carbon neutral’; the carbon released from burning wood does not make a net contribution to climate change because it was recently absorbed from the atmosphere by the living tree. This is different from fossil fuels that have been carbon sinks for millions of years and would continue to store that carbon if left undisturbed.

For the above reasons, when wood is used instead of other materials for fuel, it can result in less pollution. A recent study confirmed this and provides a ‘calculator’ that can be used to estimate how much better wood fuel is. Details of the study and the calculator can be found at <http://www.orcaa.org/woody-biomass-emissions-study/>.

In summary, wood is an important and good fuel. Its attributes include low cost, widespread availability, adaptability to large or small-scale applications and its low pollution production compared with common alternatives.

## INTERPRETING TREE TOLERANCE

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

A definition of the tolerance of an individual plant is: The ability of that individual to compete with other individuals within a limited growing space. Foresters often define tolerance as the ability of a tree to grow and develop in the shade of other trees. Shade in this sense involves more than merely light. Competition is ultimately a function of the total site. Therefore competition cannot exist between two individuals until they make demands upon a common resource that are in excess of the supply of the factors available. With forest trees, competition does not begin until there is closure, either of crowns or roots or both. The ability of a tree to endure and overcome competition after closure is known as tolerance.

A few observations concerning tree tolerance:

1. All scales of tolerance that we have available are empirical ones that are subjective based on the experience of practitioners. There is no established, formal method of scientific research that can determine an absolute, quantitative degree of tolerance under all conditions for a given species.
2. Foresters must always give careful consideration to tolerance when applying silvicultural treatments to multi-species stands, but they frequently disagree on the level of tolerance characterizing various species.
3. Disagreements as to tolerance usually arise because tree species vary in tolerance not only among species, but also with age, edaphic site, climate and the nature and combination of associated species. Usually, young trees of most species exhibit greater tolerance than they do when they are old.
4. Tolerance may vary for the same species of tree from locality to locality both within and between regions.

A few characteristics of tolerance:

- a. Highly-tolerant trees can reproduce, grow, and form persistent understories and force their way upward through overstories of less tolerant trees and even within overstories of the same species. Intolerant trees, in contrast, reproduce successfully only in the open or where the overstory is very thin. Intolerant trees maintain themselves in dense mixtures only as dominant or codominant trees and commonly are eliminated from the mixture within one generation or natural rotation.
- b. Highly-tolerant trees form understories that are very persistent, despite minimal growth of the individuals for many years. Most tolerant trees have the ability to recover from severe suppression (30 to 60 years or more) indicating high tolerance.
- c. Intolerant trees do not persist as an understory, and even if released before death, they either do not recover or respond very sluggishly.

- d. Highly tolerant trees have deep, dense crowns and the leaves are usually thick and darker in color (more chlorophyll) than those of intolerant trees. These leaves remain functional even in very low light intensities. These trees are slow to self prune and have high crown ratios even though the trees are crowded in a dense stand.
- e. Intolerant trees have thin, open crowns of relatively pale green leaves which must be well-lighted to remain functional. Most intolerant trees yield a higher percentage of clear wood (prune well) because lower branches succumb when light is at lower intensity.
- f. Height growth, especially juvenile height growth, of more intolerant trees growing in the open tends to be more rapid than that of more tolerant trees. More tolerant trees usually live to greater ages than intolerant trees.
- g. Generally, tolerant trees have harder, denser wood, grow more slowly and live longer than intolerant trees. Tolerant trees are apparently more efficient, with photosynthesis occurring at lower light intensities and lower temperatures than intolerant species. Tolerant trees are also more efficient in the use of soil water and nutrients under extreme conditions of competition on better soils than intolerant trees.
- h. Seedlings of intolerant species rarely persist in closed canopies. The seedling usually dies if the crown canopy is not thinned either naturally or artificially. For tolerant species, reproduction becomes established under the overstory, remains alive with remarkable persistence, grows a little every year and following release through death of older trees, moves progressively upward through the canopy.

Typically, tolerance of the major hardwood trees in Tennessee is as follows:

**Very Tolerant:** eastern hemlock, American beech, sugar maple, American hornbeam, eastern hop hornbeam, American holly, and persimmon

**Tolerant:** blackgum, American basswood, red maple, dogwood, sourwood, boxelder, buckeye, eastern redbud, silver maple

**Intermediate:** American elm, green ash, white ash, oaks, hickories, yellow birch, cucumbertree, hackberry, sugarberry (bitternut and mockernut hickories and members of the red oak family tend to range toward the intolerant scale)

**Intolerant:** sweetgum, most yellow pines, black cherry, yellow-poplar, black walnut, river birch, sassafras, sycamore

**Very Intolerant:** willows, eastern cottonwood, black locust

Generally, there is little disagreement as to extreme values of tolerance, i.e., tolerant vs. intolerant. However, the grade between successive tolerance classes, for example, intermediate and intolerant is more open to interpretation.

## STAND STOCKING VS. STAND DENSITY

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

Stand density and stand stocking are often used interchangeably, but each phrase is quite different. **Stand density** is an absolute and quantitative measure expressing the number of trees per acre. The phrase does not give indication of size or arrangement of trees. If 150 trees per acre are reported, no one knows the relative size of the trees and the growing space being used. **Stand stocking** uses many variables in combination to give a relative measure of growing space. Some of these variables are trees per acre, basal area, volume and average diameter. Stocking terms such as under stocked (growing space is not being fully utilized), fully stocked (trees fully utilizing the growing space) and overstocked (no growing space available) frequently describes available growing space.

Stocking is often highly variable in hardwood stands in Tennessee. Many present hardwood stands are remnants from earlier stands following years of repeated high-grading, diameter-limit harvests, burning and grazing. The stocking in these stands is often inadequate and does not reflect the true productivity of the site. The decision for most landowners to make is whether to rehabilitate or to regenerate these understocked stands. Often the best management alternative is to harvest what remains of the stand and regenerate it. However, if the stand contains adequate acceptable growing stock --- enough trees of favorable species, age and quality potential for future growth and development --- then other management alternatives are available such as crop tree release, thinning, and timber stand improvement.

Stands adequately stocked to carry the present stand to rotation age will contain the following number of trees in a fully-stocked hardwood stand. The table assumes that all trees per acre are in the same diameter class, although in reality, most mixed species stands have trees with a variety of diameters.

Diameter in inches at 4.5 feet above the ground	Number of trees per acre
6	200-340
8	140-240
10	90-150
12	70-115
14	50-90
16	40-75
18	35-60
20	30-50

The above table is a guide and does not indicate that all trees must be outstanding in quality or form. Many of these potential crop trees will be cut during intermediate thinning when stands become overstocked. Others will succumb to insects, diseases or other causes. The number of trees for each size class is represented by a range because some species will take more growing space than others (for example, sweetgum with a fairly narrow crown size will have more trees per acre for full stocking compared to oaks with much larger crowns). The guiding principle should be to favor and carry to final harvest the best 40 to 50 trees per acre. All intermediate cutting and cultural work should be done to promote the growth and value of the better trees.



## WILDLIFE MANAGEMENT CALENDAR FOR FEBRUARY

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Craig A. 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 and wood ducks are looking for nesting sites  
 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 maintain early succession and to enhance cover and food availability for many wildlife species in upland hardwoods

- 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 for wildlife

Disk fields to encourage early successional growth

- disking is especially good to set back succession if you can't burn
- disk one-third of the field in a block or strips
- blocks are better than strips – makes it more difficult for predators to find nests
- strips should be **at least** 30 feet wide

Disk strips around field edges to encourage early succession growth

- disk strips the width of your sprayer to facilitate killing undesirable plants if needed
- can be used as firebreaks for fields managed with prescribed fire
- leave a soft edge buffer between woods and the field edge – at least out to the drip-line of the trees

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 or disk, do not mow old-fields yet – wildlife need the cover for another month!

#### 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 tree shrubs in blocks at end of fields or in “odd” areas
- apple, pear, 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 the woods
- fertilizing oaks in woods is a waste of time and money; to increase mast potential for trees in the woods, refer to Timber Stand Improvement 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 replenish fresh wood shavings (about 4-6 inches)
- screech owls and squirrels may use the boxes through the 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

- simulate growth among oaks, beech, cherry, persimmon, and other mast producers by killing surround competitors
- girdle unwanted trees and spray wound with imazapyr and triclopyr
- use a 25% solution of Arsenal<sup>®</sup> AC (imazapyr) or 50% solution of Garlon<sup>®</sup> 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 from thinned trees and pruned limbs

- put large limbs on bottom and small limbs on top for crevice space and overhead protection
- this is best done, and the effect greatest, along the edges of and within high-quality early successional habitat (native forbs and grasses with scattered brambles and shrubs) where quality cover already exists
- building brushpiles along a woods edge adjacent to a tall fescue pasture or hayfield may do more harm than good because all rabbits present will then be isolated for predation

#### Keep bird feeders full

- black-oil sunflowers are a favourite 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 *Managing Nuisance Animals and Associated Damage Around the Home*, PB 1624 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<sup>®</sup> 3-A or 1% solution of glyphosate herbicide and water works well for honeysuckle
- 1% solution of Arsenal<sup>®</sup> 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<sup>®</sup> 3-A; ALSO, stems may be treated with basal application of 20% Garlon<sup>®</sup> 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
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Begin drawdown of fields flooded for waterfowl in mid-February

### **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 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

Refer to *Managing Nuisance Animals and Associated Damage Around the Home*, PB 1624 for additional information on wildlife damage management.

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