



# FORESTRY, WILDLIFE & FISHERIES UPDATE NEWSLETTER

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*May you have tenderness for the past, courage for the present, and hope for the future.  
It is our fervent wish that every cup may overflow with blessings rich and eternal,  
and that every path may lead to peace.*



## NATURAL OR ARTIFICIAL CHRISTMAS TREES – - - WHICH IS GREENER?

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Adam Taylor, Associate Professor, Forest Products

At this time of year many of us buy a fresh Christmas tree to help celebrate the season – or bring one down from the attic. There are a number of reasons why you might prefer a ‘real’ tree over a ‘fake’ one: the nice odor, the fun of venturing out to cut a tree, or the lower price. But what about the impact on the environment?

Many of us are aware that Christmas trees are a dedicated crop grown on special farms. Natural forests are not the source for these trees, so deforestation is not a consideration. However, it does take resources to grow and transport these trees and they are only used once. Artificial trees can be reused indefinitely but they are made from plastic and metal (non-renewable resources). So how can we decide which is better?

Life cycle assessment (LCA) is an objective, standardized method for determining the total environmental impact of products over their lifespan. LCA is often used to determine which parts of a product’s life cycle have the most environmental impact but it can also be used to compare two similar products. LCA has been applied to many wood products and the results indicate that ‘wood is good’ – wood products generally have lower environmental impact than alternatives made from plastics, metal and concrete.

LCA has also been applied to Christmas trees.<sup>1</sup> This study (like most LCA) looks at many potential impacts, e.g. land, materials and energy used, and pollution of various sorts. Natural trees require more land use, as you would expect, but for the most part the artificial trees have greater environmental impacts.

LCA can help but assessing environmental impact is never simple. Conclusions can vary depending on which impact is most important to you (e.g. land use or energy use). Assumptions about the products are also very influential. In the case of Christmas trees, natural trees use a lot less energy; however, if you reuse an artificial tree more than 20 times, the total energy used starts to be less for artificial trees.

LCA also assumes that the two products are comparable in usefulness (*functional unit equivalency* in the jargon of the science). This may not be true for natural and artificial trees. Both may hold lights and ornaments, and provide a place to put the presents, but for many of us only a real tree provides the real holiday experience.

If you enjoy having a natural tree at Christmas time, rest assured that it is also a ‘green’ product choice.

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<sup>1</sup> [http://www.ellipsos.ca/site\\_files/File/Christmas%20Tree%20LCA%20-%20ellipsos.pdf](http://www.ellipsos.ca/site_files/File/Christmas%20Tree%20LCA%20-%20ellipsos.pdf)

## FOREST CERTIFICATION: A SUMMARY OF THE STATUS

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*David Mercker, Extension Specialist, Forest Management*

Whether you have favoritism, antagonism or indifference toward it, forest certification is likely the way that business in the forest product sector will move forward. *Forest certification* is a relatively new development and deals not with the final product, but with the practice of forestry, growth of the product, harvesting of the product, and ecological impacts associated with the harvesting of the product (Klingberg 2003). In 1977, forest certification originated in West Germany through the Blue Angel Program by authorizing the use of eco-labels for certification of environmental products. Emerging as a tool to attain sustainable forestry, certification provided for a voluntary, market approach to sustainable forest management, rather than traditional regulatory approaches.

Forest certification moved swiftly into the global arena, and by the mid-1990s, it was a topic of intense interest in the United States. The situation for forest certification in the U.S. is somewhat unique because such a large percentage of total forest area is controlled by nonindustrial private forest owners. The largest portion of the nation's forestland is located east of the Mississippi River, where the preponderance of nonindustrial private forest (NIPF) owners are located, especially in the 13 southeastern states.

Tennessee forest interests are becoming increasingly involved in certification. Some stakeholders question the need for accelerating forest certification on private lands. In time, market forces could require large-scale certification, and the needs and preferences of private landowners should be considered to ensure their participation. The primary certification alternatives at the present time work well for large land ownerships such as the major forest product companies, state forests, and larger private landowners, but are difficult and costly for the average landowner to implement. Tennessee presently has only about 450 certified forests through the American Tree Farm System.

Recently the UNECE/FAO Forest Products Annual Market Review (2009-2010) published the following highlights relative to forest certification in a rebounding economy:

- Between 2009 and 2010, the global area of certified forest increased by 8%, now equal to 9% of the world's forest;
- Competition for market share between the major forest certification systems has increased, despite the fact that system standards are merging;
- Large publishers and packaging firms have driven the growth of certification; and
- Green building initiatives and public-sector policies designed to prevent illegal logging are driving demand for certified wood products.

Traditionally there have been few calls for certifying forests. That is changing. Forest certification is now gaining widespread attention by a variety of stakeholders including environmentalist, policy makers, professional foresters, social activists, loggers, and the general public (Viana et al. 1996; Mater 1999). Landowners should continue to monitor this emerging practice and weigh options. This is not just a concept anymore. It's reality.

## HARDWOOD ANALYSIS AND TRENDS (HAT)

David Mercker, Extension Specialist, Forest Management

HAT is ready to close-out 2011. An unnerving year, full of uncertainty, 2011 ends with the following 12 month price change for the six species tracked by HAT:

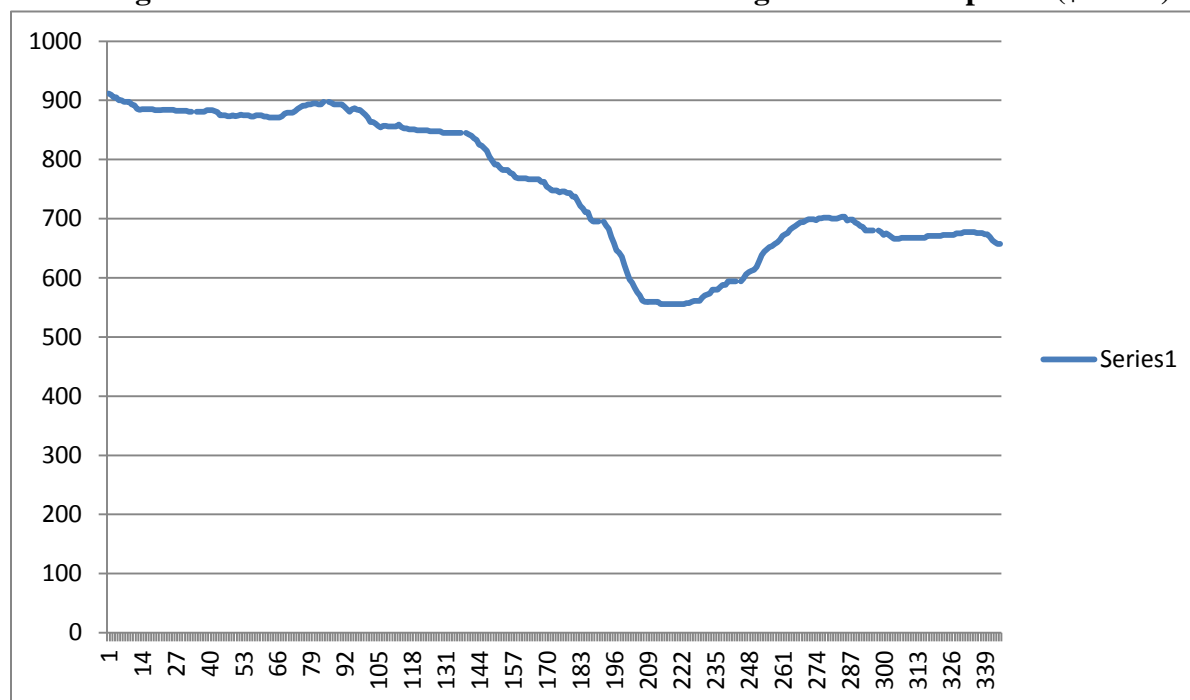
**Table 1. 2011 Price change for select species of hardwood lumber.**

Species	% Change in Price (2011) <sup>1</sup>
Red oak	-13.0
White oak	- 9.8
Hard maple	+ 3.5
Cherry	0.0
Black walnut	- 2.7
Poplar	+5.7

<sup>1</sup> #1 Common 4/4 lumber

HAT began tracking hardwood lumber prices the week of April 5, 2005. Six species have been followed, including: red and white oaks, tulip poplar, black walnut, cherry and hard maple. Specifically, #1 common 4/4 lumber is observed. Recently HAT developed a figure that summarizes the average price for these species, i.e., a compilation of the six. The intent was to develop a “hardwood lumber barometer” to better measure a composite of prices. The table is below. The Y axis is lumber price in MBF; the X axis indicates number of weeks since inception (April 5, 2005). In studying the figure, readers will note that most of 2011 experienced a sideways movement in prices. That is, until the recent few weeks. Red and white oak, both a mainstay of the Tennessee industry, have experienced a price pull-back, and are drawing the hardwood barometer down.

**Figure 1. Hardwood Lumber Barometer: average value of six species (\$/MBF).**



Until recently, a lighter than normal supply of red and white oak lumber has propped prices, this even without strong consumer demand. More recently, export demand from both China and European countries has fallen while supply has been building. This is an unfortunate formula and one that has led to price softening for these two species.

There is some brighter news. Wood is gradually being viewed as an alternative for energy production, particularly for pellets used in boilers. International demand is good, mainly in Europe, for low-carbon biomass energy. Access to rivers and ocean ports is vital for shipping. For this reason, Tennessee interests are slow to develop, but could as domestic demand for the same materializes. However, the value of pellets pales in comparison to high grade hardwood lumber, so this market will mostly be an advantage for low quality wood timber. In addition, the National Hardwood Lumber Association reports that 93% of consumers like hardwood as a material for furniture, flooring and cabinetry. **HAT** thinks that's compelling. What's more, the railway tie industry relies on hardwood timbers and this market is expected to remain robust for decades due to strong transportation needs of corn, coal and (now) sand industries. Sand, it appears, is a major input in the shale fields ("Fracking"). Collectively, these will surely cause the situation to improve. Hold on as together we muddle through this.

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

## **FOREST LANDOWNER LIABILITY**

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*Larry Tankersley, Extension Associate, Forestry*

Several weeks ago I was ask to look into Landowner liability and I found this research paper. It's pretty interesting so I paraphrased it for this newsletter. I hope you enjoy it. I also include current sections of the Tennessee Code that seem pertinent.

*Forest Landowner's Liability for Recreational Injuries: Myths, perceptions, and realities.*  
B.A. Wright, R.A. Kaiser, and S. Nicholls, 2002 Journal of Soil and Water Conservation, Volume 57, Number 3, pages 183-191.

Liability for injuries has been identified as particularly worrisome for landowners. This perception however is not commensurate with the reality of legal risks. This study analyzes liability risks by analyzing liability of the 50 state recreation-use statutes intended to protect landowners from legal exposure tied to injuries sustained on their land. Further analysis from 637 appellate court cases heard since 1965 involving recreational injuries were compiled and considered based on characteristics of the landowner (pubic vs. private), activity at the time of injury, and actual liability exposure.

Liability concerns are a dominant influence on landowner decisions regarding allowing access to their land. The fear of being sued or being held liable for injuries sustained by recreational users has consistently been cited as a primary concern of landowners. States, including Tennessee, have taken significant steps to insulate landowners from liability when they grant free recreation access. Liability remains a concern among landowners and public access.

Most studies indicate that landowners are concerned about the threat of liability and often use this as a justification to restrict public access. Lack of knowledge regarding recreation accident rates or landowner protections provided by state law contribute to this perception. All states have enacted recreation-use statutes protecting landowners from liability .

Common-law tort and property rules govern landowner duties and obligations to re-creational users. Under these rules, recreational users are considered invitees, licensees, or trespassers. These categories are important because they establish the legal obligations of landowners in their relationships with recreation users. Among the three categories invitees receive the greatest legal protection, licensee moderate protection and trespassers little protection.

An **invitee** is a person expressly or implicitly invited on the property by the landowner for a public or a business purpose. For example if a hunter leases or pays an access fee to the landowner, the hunter may be classified as an invitee. Under these circumstances, the landowner owes the highest duty of care to the invitee. The landowner has a duty to 1) inspect the property and facilities to discover hidden dangers, 2) remove the hidden dangers or warn the user about them, 3) keep the property and facilities in reasonably safe repair, and 4) anticipate foreseeable activities by user and take precautions to protect users from reasonably foreseeable dangers.

Landowners only have to use reasonable efforts in fulfilling these duties to prevent an unreasonable risk of injury. It may be impossible to ensure or guarantee the safety of the invitee. A **licensee** is anyone who enters the property by permission only, without any economic or other inducement to the landowner. Commonly a licensee is a social guest whose use of the property is gratuitous and not economically beneficial to the landowner. For example, a person permitted to hunt on a person's land without paying a fee is a licensee. The landowner's duty of care to a licensee is the same as to the invitee, except that the landowner does not have a duty to inspect the property to discover hidden dangers. However, once a landowner becomes aware of a hidden danger, there is a duty to warn the licensee of this hidden condition. Conversely, a landowner has no duty to warn the licensee of dangers that are known, open, or obvious to a reasonable person.

The law affords an adult **trespasser** scant legal protection. A trespasser is a person who is on the property of another without any right, lawful authority, expressed or implied invitation or permission. Generally, a landowner has no duty to maintain the land for the safety of the adult trespasser, except that a landowner cannot intentionally, willfully, or wantonly injure a trespasser. The landowner has an obligation not to do something that would harm the trespasser.

If the trespasser is a child, however, the level of responsibility is much higher. If any danger exists which may **attract** a child, property owners may be liable if a child wanders into the hazard and is hurt. There is limited responsibility for natural dangers that are obvious, however. An example might be an area adjacent to a river, you aren't responsible if people fall in or drown swimming there.

To encourage landowners to make their lands available for public recreation, all 50 states including Tennessee have adopted recreation-use statutes. The underlying theory of the statutes is that the landowner is protected from liability and will allow recreational use of their land.

Although the statutes vary in detail, they are all similar in limiting landowner liability and in altering the common-law duty of care. In effect, the statutes provide significantly greater liability protection for the landowner than is available under common law.

The Tennessee statute explicitly provides that the landowner has no duty to warn the recreation user of hidden dangers, keep the property reasonably safe, or provide assurances of safety to recreational users. The landowner remains liable for gross negligence/willful misconduct. Generating income also negates liability protection for recreational use.

The statutes in general also contain a general disclaimer of liability for an injury to a recreational user caused by the commission or omission of the recreational user.

## Private lease arrangements

Lease payment are considered fees. This means that the free-access liability protections provided to the landowner under terms of the recreation-use statutes are lost. In contrast, governmental lease payments are not considered fees, and liability protections are retained by the landowner.

Landowners in private lease arrangements should consider transferring, by terms of the lease, the liability risk to renting parties or tenants. This risk-transfer language is often supplemented by a requirement that tenants purchase their own liability insurance coverage. Landowners that follow this practice can require minimum insurance policy coverage and proof of insurance.

Since the model state recreation-use legislation was drafted in 1965, 637 cases involving injuries or death to recreation users were identified and analyzed in this study(2002). This “section” discusses how the recreation-use statutes have been interpreted and applied by appellate courts since that time.

A distinction must be made between the filing of an injury lawsuit and a landowner being held liable for an injury. A person must file a lawsuit to establish liability, and not all lawsuits result in liability. Indeed this with this data set, only about one-third of the cases found liability. No data are available on cases settled out of court.

Water-related injuries from swimming, boating, and fishing generated the largest number of cases and potentially pose the greatest lawsuit risk exposure. Although lawsuit risks may be greater from water activities, it does not follow that the liability risk is also greater.

Over the last 30 years, motorized recreational activities have increased in popularity. This growth has resulted in an increasing number of motorized-vehicle injury cases.

Hunting, an activity traditionally associated with public access, provides very little lawsuit and liability exposure for landowners. Only 15 case involved hunting accidents, and seven of those occurred in Louisiana. These data suggest that landowners allowing access for hunting have minimal lawsuit and liability exposure.

## Summary for Tennessee

Includes two cases against public agency, one holding agency responsible. Three cases against private landowners, two holding landowner liable, one case was fishing, one boating, one bicycling, zero cases involving hunting,

Survey-wide public agencies were held liable 36% of 307 cases, where private landowners were held liable 27% of 330 cases.

## Summary and conclusions

The myth and perception of landowner liability appears to be greater than the actual liability risks. State recreation-use statutes provide significant liability protection for landowners. Lots of similarities across the country, but important differences exist.

All states limit liability for free access, and most states including TN, lessen landowner obligations to recreational users. The most notable difference among states relates to the ability (or inability) of the landowner to charge access or use fees and retain liability protection.

Despite the extensive attempts at liability protection through legislation this information is not widely known by landowners or many natural resource professionals.

## Tennessee Landowner Liability Law

### Tennessee Code Annotated

\*\*\* CURRENT THROUGH THE 2011 REGULAR SESSION \*\*\*

#### Title 70 Wildlife Resources Chapter 7 Liability of Landowner to persons Using Land Part 1 General Provisions

##### 70-7-101. Definitions

As used in this chapter, unless the context otherwise requires:

(1) (A) "Land" or "premises" means and includes all real property, waters, private ways, trees and any building or structure that might be located on real property, waters and private ways;

(B) "Land" or "premises" includes real property, waters, private ways, trees and any building or structure located on the land or premises, owned by any governmental entity, including, but not limited to, the Tennessee Valley Authority; and

(C) "Land" or "premises" does not include the landowner's principal place of residence and any improvements erected for recreational purposes that immediately surround such residence, including, but not limited to, swimming pools, tennis or badminton courts, barbecue or horse shoe pits, Jacuzzis, hot tubs or saunas;

(2)(A) "Landowner" means the legal title holder or owner of such land or premises, or the person entitled to immediate possession of the land or premises, and includes any lessee, occupant or any other person in control of the land or premises; and

(B) "Landowner" includes any governmental entity.

##### 70-7-102. Landowner's duty of care.

(A) The landowner, lessee, occupant, or any person in control of land or premises owes no duty of care to keep such land or premises safe for entry or use by others for such recreational activities as hunting, fishing, trapping, camping, water sports, white water rafting, canoeing, hiking, sightseeing, animal riding, bird watching, dog training, boating, caving, fruit and vegetable picking for the participant's own use, nature and historical studies and research, rock climbing, skeet and trap shooting, skiing, off-road vehicle riding, and cutting and removing wood for the participants' own use, nor shall such landowner be required to give any warning of hazardous conditions, uses of, structures, or activities on such land or premises to any person entering on such land or premises except as provided in 70-7-104.

(b) The landowner, lessee, occupant, or any person in control of land or premises owes no duty of care to keep such land or premises safe for entry or use by others for recreational non-commercial aircraft operations or recreational non-commercial ultra light vehicle operations on private air strips except as to known hazards or defects and except as provided in 70-7-104.



**70-7-103. Landowners; permission; duty of care**

Any landowner, lessee, occupant, or any person in control of the land or premises or such person's agent who gives permission to another person to hunt, fish, trap, camp, engage in water sports, participate in white water rafting or canoeing, hike, sightsee, ride animals, bird watch, train dogs, boat, cave, pick fruit and vegetables for the participants' own benefit, engage in nature and historical studies and research, climb rocks, shoot skeet and trap, ski, ride off-road vehicles, recreational non-commercial aircraft operations or recreational non-commercial ultra light vehicle operations on private airstrips, and cut and remove wood for the participant's own use upon such land or premises does not by giving such permission:

- (1) Extend any assurance that the premises are safe for such purpose;
- (2) Constitute the person to whom permission has been granted to legal status of an invitee to whom a duty of care is owed; or
- (3) Assume responsibility for or incur liability for any injury to such person or purposely caused by any act of such person to whom permission has been granted except as provided in 70-7-104.

**70-7-104. Liability; applicability**

(a) This part does not limit the liability that otherwise exists for:

- (1) Gross negligence, willful or wanton conduct that results in a failure to guard or warn against a dangerous condition, use, structure or activity; or
- (2) Injury caused by acts of persons to whom permission to hunt, fish, trap, camp, hike, sightsee, cave, recreational non-commercial aircraft operations or recreational non-commercial ultra light vehicle operations on private airstrips, or any other legal purpose was granted, to third persons or to persons to whom the person granting permission, or the landowner, lessee, occupant, or any person in control of the land or premises, owed a duty to keep the land or premises safe or to warn of danger.

(B) Subdivision (a)(1) shall not be construed to impose liability or remove the immunity conferred by 70-7-102 for failure to guard or warn of a dangerous condition created by forces of nature.

**70-7-105. Duty of care; waiver**

Any person eighteen (18) years of age or older entering the land of another for the purpose of camping, fishing, hunting, hiking, dog training, cutting or removing firewood, recreational non-commercial aircraft operations or recreational non-commercial ultra light vehicle operations on private airstrips, for such person's use for a consideration may waive, in writing, the landowner's duty of care to such person for injuries which arise from camping, fishing, hunting, hiking, dog training, or cutting or removing fire wood, recreational non-commercial aircraft operations, or recreational non-commercial ultra light vehicle operations on private airstrips for such person's use, if such waiver does not limit liability for gross negligence, or willful or wanton conduct, or for a failure to guard or warn against a dangerous condition, use, structure or activity.

## DETERMINING SITE PRODUCTIVITY WITH SITE INDEX

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

Site index is one of the more easily measured indicators of the productive capacity of an area for a given species. In mixed species stands, site index of one species can be used to predict the site index of another. Site index also illustrates growth differences among species.

The definition of site index is as follows: Average height of dominant and codominant trees that have been free-to-grow (not suppressed) in a stand at some base index age (usually 50 years for hardwoods and 25 years for southern pine) for a particular species. The primary components of the definition are

- Average height of dominant and codominant trees in a stand
- Trees have been free-to-grow and not inhibited during their lifetime
- A standard base age
- Particular species, i.e., different species have different growth rates

For example, a site index of 80, base age 50 means that the average height of dominant and codominant trees on a site will be 80 feet when they are 50 years old. Higher site indices indicate greater site productivities for a given site and species. Trees will grow faster on a site with higher site index than one with lower site index.

Unfortunately, trees chosen to measure site index directly often do not meet these standard definitions/parameters yielding inaccurate information on potential tree growth and site productivities. Trees that remain in stands that have been disturbed or cutover usually possess properties that violate the definition. Mostly these residual trees are not similar in age to those removed or have been inhibited during some period of their lifetime. The estimation of site index is often misused and gives erroneous estimates of site index because the trees sampled are not the best representatives of trees that fit the definition. Usually productivity is underestimated greatly with sampling these poorer performing trees.

If the trees are not available (do not meet the definition) for directly estimating site index, more indirect values may be used. County soil survey reports have estimates of site productivity by soil series, landforms can also be used to give an indication of site productivity as well as indicator species which only occur on certain soils or landforms. These productivity estimates have a wider range of variance than direct measurements of tree height and tree age.

To directly measure site index, the following procedures should be used.

### 1. Select stands that are

- Even-aged with less than a 10-year age difference among the overstory trees
- Fully stocked with a closed canopy
- Mostly free of damage from wind, insects and disease
- Not disturbed by fire, grazing or heavy thinning from above since stand establishment
- At least 20 years old and preferably more than 50 years old at ground line. Site index estimates in younger stands are not as valid because tree heights and growth rates vary more
- Representative of a relatively uniform topographic area

2. Select at least 5 sample trees of the same species to collect age and height information for site index. Sample trees should be
  - Dominant and codominant crown class
  - Average diameter or above for the stand
  - Single stemmed and not a sprout clump
  - Straight without a pronounced lean
  - Full-crowned without dead tops and large forks
  - Total age should be taken with an increment borer as close to the ground as possible. Be careful to count every ring (use a magnifying glass or microscope to account for periods of slow growth) where rings are closer together.
  - Measure total height of the sample trees with a clinometers or similar instrument.
  
3. Calculate average height and age for the stand (from your sample trees) and determine site index for a particular species from site index curves. Site index curves are widely available. Try to use those curves that are appropriate for your geographic location. If site index curves are not available, use curves that best represent growing conditions for your area.

The following website (<http://www.treesearch.fs.fed.us/pubs/10192>) has many site index curves that are appropriate for most of the eastern United States. Make sure that the sampled measurement trees are those that fit the site index definition to give a more accurate assessment of site productivity.

## **WILDLIFE MANAGEMENT CALENDAR FOR JANUARY**

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*Craig A. Harper, Professor, Wildlife Management*

### **Wildlife Notes**

White-tailed deer bucks begin to shed antlers  
 Great horned owls begin nesting  
 Red-tailed hawks are paired-up and looking for nest sites  
 Mourning doves are pairing up  
 Gray squirrels begin mating  
 Waterfowl numbers may peak in January, according to the weather

### **Habitat Management**

Do **not** mow (bushhog) old-fields if you have any interest in wildlife

- mowing at this time destroys much needed winter cover
- mowing accumulates thatch, limits mobility, and suppresses the seedbank
- wait until late March/early April and burn and/or disk the field
- if you just can't burn or disk, at least wait until early April (just prior to nesting seasons) before mowing
- burning or disking are preferable strategies for setting back succession and maintaining old-field early successional areas
- 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

Early successional areas may be burned or disked in January, but should be held off until late winter/early spring if possible

- setting back succession later in the season will provide more winter cover through the season
- burning / disking now may be necessary if considerable acreage needs disturbance, but may be difficult pending wet weather
- **do not burn / disk all available cover in one year—leave at least one-third to be managed next year**
- ideally, disturbance, whether burning or disking, should be completed in a block pattern rather than strips

Disk firebreaks around fields and woods (if it's not too wet) before the ground freezes

- disking now will stimulate forbs next spring and will enable you to burn when conditions are favorable

It is not too early to conduct dormant-season burning in woods (hardwoods and pines) to reduce fuel loads and enhance conditions for wildlife; when the weather is right, get it done; this is especially important if you have a considerable amount of acreage to burn; if you wait until March/early April, you may not get it all done, depending on weather

- obtain permit from Tennessee Division of Forestry
- make sure firebreaks are in place
- only burn when duff layer (below leaf litter) is moist (not usually a problem in January)
- remove woody debris from around the base of desirable trees to avoid damaging the tree
- primarily use a backing fire with relatively low flame heights (6 – 8 inches)
- refer to *A Guide for Prescribed Fire in Southern Forests* for additional information on using prescribed fire

Enhance the cover around old-fields by thinning (killing) undesirable trees 100 feet into the woods

- girdle unwanted trees and spray wound with a mixture of Garlon and Arsenal
- a 50% solution of Garlon 3A and water and/or a 25% solution of Arsenal and water work well
- dead standing trees (snags) provide perching, roosting, denning, feeding sites for many wildlife species
- increased groundcover is stimulated by the additional sunlight, improving forage and nesting cover for many wildlife species

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

- don't plant too deep – no more than ¼ inch!
- don't forget preemergence weed control next April
- refer to Chapter 5 of *Native Warm-Season Grasses: Identification, Establishment, and Management for Wildlife and Forage Production in the Mid-South*, PB 1752 for additional information

Continue to strip-mow or silage-chop dove fields to provide seed

- don't cut it all – leave some for late winter
- migrating doves appreciate your efforts and the late dove seasons can offer great shooting

Spray perennial forage food plots for weed control if necessary

- refer to *A Guide to Successful Food Plots: Blending Science with Common Sense*, PB 1769, for specific information

Fertilize winter forage plots containing oats, wheat, and/or cereal rye to improve growth and nutritional content

- 30 pounds of N per acre
- P and K according to soil test

Soil test now for spring plots

- applications of lime require about 6 months before full effect on pH is realized

Plant trees/shrubs for wildlife

- plant trees/shrubs in blocks at end of fields and in “odd” areas
- apple, pear, crabapple, wild plum, sumac, persimmon, and elderberry are good choices
- refer to *Improving Your Backyard Wildlife Habitat*, PB 1633, for a list of other trees and shrubs to consider

Establish hedgerows across fields with soft-mast-bearing trees and shrubs

- hedgerows can be used to break up fields into sections
- hedgerows should be at least 50 feet wide—a single row of planted shrubs/trees with at least 25 feet of fallow growth of blackberry, forbs, etc. on either side
- **spray tall fescue and other undesirable grasses before planting!**

Fertilize/prune trees/shrubs for increased soft mast production

- this is for trees/shrubs 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

Continue Timber Stand Improvement activities

- stimulate growth among oaks, beech, cherry, persimmon, blackgum, and other mast producers by killing surrounding competitors
- girdle unwanted trees and spray wound with appropriate herbicide
- a 50% solution of Garlon 3A and water and/or a 25% solution of Arsenal and water work well

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
- 3% solution of glyphosate herbicide works well for privet

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 good 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

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 winter
- repair/install predator shields if necessary
- bluebird boxes should be no closer than 80 yards apart
- up to 9 or more bluebirds may roost in a single box on cold nights

Keep bird feeders full

- black-oil sunflowers are a favorite of many birds
- thistle seed is preferred by goldfinches
- suet provides energy for lots of birds during winter
- refer to *Improving Your Backyard Wildlife Habitat*, PB 1633, for information on specific feeders and seed for birds

### **Wildlife Damage/Population Management**

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
- rodents are beginning to cache food for the coming winter; take action now to keep them out of your house
- glueboards are very effective in trapping mice, snakes, and lizards looking for a warm place inside your basement or garage

Blackbirds and starlings have gathered into large winter flocks

- 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

Vultures may be problematic around structures and livestock holding areas

- scare tactics using firearms and pyrotechnics are effective—persistence is necessary
- it is against the law to shoot a vulture
- contact USDA-Wildlife Services for severe problems

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

# DEPARTMENT OF FORESTRY, WILDLIFE & FISHERIES

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