

FORESTRY, WILDLIFE & FISHERIES UPDATE NEWSLETTER

NOVEMBER 2012

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BETTER TIMES AHEAD FOR THE WOOD INDUSTRY

Adam Taylor, Associate Professor, Forest Products

The past few years have been hard ones for the forest products industry. Rapid globalization, the bursting of the housing bubble and the economic recession combined to result in record-setting losses in jobs and production in the wood industry. However, an improving economy and housing market are leading to increased demand for wood products. At the same time, the contraction of the industry over the last few years has reduced the supply infrastructure, which should result in better pricing and business opportunities for the wood industry in Tennessee and the United States.

The Hardwood Review publishes prices and industry analysis for the hardwood lumber industry. They have been reporting strong demand for hardwood lumber, both domestically and for export, and are forecasting further demand increases. They cite increased activity in housing starts and building permits and growth in remodeling activity and non-residential construction. Exports have become an increasingly important part of the wood business in Tennessee and hardwood lumber exports have increased 10% overall this year, with increased demand seen throughout Europe and in Asia. All these trends suggest that demand for wood products in general, and hardwood lumber in particular, will continue to grow in the coming years.

Tennessee has abundant, and increasing, wood resources and the hardwood species that grow here are highly-esteemed throughout the world. However, the terrible economic conditions in the wood products industry over the past few years resulted in the closure of about 1/3 of the mills and the loss of about 2/3 of the jobs. In addition, credit for wood products producers is more difficult to obtain than it was in the past. Thus, although some of the mills will restart and rehire their workers, it is forecast that it will be difficult for the supply of lumber products to keep up with increases in demand. This should result in price increases for wood products and better business conditions for the forest landowners, loggers and sawmillers in Tennessee.

WHERE IS THE EMERALD ASH BORER AND WILL IT AFFECT ME?

Larry Tankersley,

Emerald Ash Borer is gradually working its' way into Tennessee. It was first detected in Knoxville in the summer of 2010. Trapping using "purple survey traps" was used to detect the insect in additional counties this summer. Fortunately the insect is not active in the winter, so we have some time to consider our response.

As a forest owner my first question is, will it affect me? The answer is how close is it to you, and how much ash do you own?

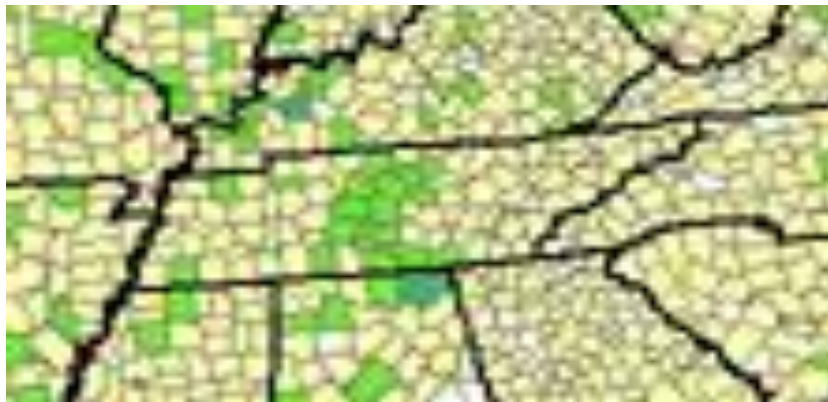
How close is it to you? It is difficult to tell exactly where the insect is in Tennessee, this is why there was a broad scale trapping effort this summer that will likely continue. The insect by nature does not seem to spread rapidly averaging a mile in a year, but with assistance from people the pest can move pretty far.

The insect was first detected at a truck stop in Knoxville, right along Interstate-75. It is suspected that it rode down from Michigan, Ohio, or Indiana where it is currently more prevalent. Quarantines in those states and in other areas are designed to "slow the spread". Limiting the movement of ash logs or firewood that might harbor the hitch-hikers is also advised. Tennessee has quarantined counties where the pest has been detected to assist in slowing the spread. The most recently quarantined county is Smith County which is of great concern as this is the upper edge of the ash concentration in Tennessee.

The attached website shows the counties currently under quarantine,

http://www.tn.gov/agriculture/publications/regulatory/eab_map.pdf

How much ash do you own? There are ash species in most counties in Tennessee with the largest concentrations in Middle Tennessee from Sumner County down to Lawrence County east to the Plateau. This map, though marginal in quality, indicates where most of the ash trees are in Tennessee's forests



It is important for forest owners to determine how much ash timber they have and the relative value of that timber. The more dollars at stake will determine the level of potential damage that you are likely to sustain if your ash timber is ultimately threatened by the Emerald Ash Borer.

Dr. Wayne Clatterbuck, my Extension colleague, reminds us that ash is rarely found in pure stands. Mostly, it is a component of our mixed species forests and for the most part, only 2.5% of the trees in our Tennessee forests are ash. Ash already has a complement of insect pests that are currently as likely to have your ash as the EAB.

If Emerald Ash Borer reaches statewide infestation levels, most ash will succumb, if experience in the North is any indication. Our primary emphasis in controlling the insect is to slow the spread.

Recommendations largely adapted are similar to those adopted in Michigan.

1. Don't plant ash
2. Reduce the amount of ash in your forest. "Fire" sales should be avoided as the insect is not widespread at this point, but where large volumes of high quality ash are identified we should begin a strategy to capture that value according to a sound marketing program that includes provisions for future timber production from other non-ash species.
3. Monitor the progress of the EAB in Tennessee by regularly checking with the Tennessee Division of Forestry.
4. Support quarantines and efforts to limit the movement of potentially infected ash especially from areas known to have the ash borer.
5. Learn about the EAB at numerous websites including UT Extension and educational opportunities online.

I recently enjoyed some quality time at the following website which is a self-study course with some good information for owners of ash in Indiana.

<http://extension.entm.purdue.edu/eab/index.php?page=industries/selfstudy>

These invasive forest pests are on-going risks to our forests, but with knowledge we can lower the level of anxiety and maintain the beauty and profitability of our forests.

Special thanks to Wayne Clatterbuck for the preparation of this article.

THE SHAPE OF TREE CROWNS

David Mercker, Extension Specialist, Forestry

The *crown* of a tree or woody plant is that portion that contains live branches and foliage. Crown shape will vary according to tree species. McCurdy, et al. (1972) identified six distinct crown shapes: *oblong, round, oval, vase, pyramidal, and weeping*. In forested settings, the crown shape is influenced by a tree's position within the canopy. Crown shape is of interest to foresters because it indicates the amount of growing space (or stocking) that is needed to maximize lumber production. Crown shape should be considered around buildings and in urban settings, because it influences contrast, view, shading, and screening. Although the basic shape is characteristic of a species, branch growth and death is modified by the environment, so trees grown in close proximity to others can have vastly different crowns than those grown in an open setting.

Perhaps most influential in determining crown shape is differences in the degree of *apical dominance*. Apical dominance is the upward growth of the leader, at the expense of lateral shoots. Flushing and growth of lateral shoots is inhibited by hormones produced by the apical bud on the leader. As a result, crowns of trees with strong apical dominance grow in height much faster than in width. Typically these species will have a single, dominating central trunk and leader. Lateral branches often grow outward, rather than upward. Such trees are said to have an *excurrent* crown that favors oblong or pyramidal shapes. Forks in the central trunk are rare, usually forming only when the leader has been damaged or destroyed. Sweet gum (*Liquidambar styraciflua* L.), tulip poplar (*Liriodendron tulipifera* L.) and many conifer species exhibit strong apical dominance.

In contrast, in tree species with weak apical dominance, crown width grows nearly as fast as crown height (especially when open-grown). Such species have no particular prevailing leader, but rather multiple ones. The leader with the most access to sunlight normally prevails, and sometimes compromises tree form (Oliver 1996). Such trees are said to have a *decurent* crown that favors round or oval shapes. Forks in the central trunk are common, even exacerbated when the leader(s) have been damaged. Oaks (*Quercus* spp.) and maples (*Acer* spp.) are examples.

An understanding of tree growth characteristics is beneficial for the management of trees in both forested and urban settings. This knowledge can aid in maintaining proper forest stocking, in pruning and limb manipulation, in making aesthetic choices, and monitoring individual tree growth and forest health. For more information on this subject, see:

Franklin, J. and D. Mercker 2009. Tree Growth Characteristics. University of Tennessee Extension. W227.

<https://utextension.tennessee.edu/publications/Documents/W227.pdf>

THE ROLE OF DISTURBANCE IN FOREST DYNAMICS

Wayne Clatterbuck, Professor, Silviculture and Forest Management

That forests have always been subject to disturbance tends to be the norm rather than the exception. Without human influence, forests have experienced fire, insect and disease outbreaks, drought, flood untimely frost, ice storms, and varied effects of the wind. With human influence, forests have also experienced varied cutting practices and conversion to other land uses. The longevity of forests increases the risk of forest damage through these disturbances. However, despite that disturbances are frequent and rampant on the landscape, forests persist. Forests are resilient and adaptable, but they do change based on disturbances.

Factors which affect response to disturbance include the history of the forest, the timing of the disturbance, the extent and intensity of the disturbance, and the climatic, soil and plant regenerative conditions following the disturbance.

The history of the forest can have a major impact on its response to disturbance. A mature or overmature forest responds more slowly than a younger forest. A vigorously growing forest under management generally responds better than a poorly managed degrading forest. A recently thinned forest responds differently than does an overstocked forest. Normally, the better managed, healthier forest will be more resilient in its response to disturbance than an unhealthy, poorly managed, or stressed forest, regardless of the type of disturbance.

Most natural disturbances (flood, drought, frost, ice, insects and disease outbreaks) are unpredictable. The normal energy budget for trees, and therefore the forest, involves energy initially for root growth in the early spring, followed by emphasis on shoot elongation and height growth in late spring to early summer, with stem and diameter growth in mid- to late summer, and roots having a second opportunity to grow when the photosynthetic system shuts down in late fall. Roots can continue to grow during the winter if available moisture and moderate temperatures prevail. The same disturbances occurring at different time of the year have different influences on forests because different aspects of tree growth are affected.

For example, floods that occur during the dormant season can impact root growth and tree health affecting shoot growth the following year. Floods occurring during the growing season can stress and kill trees because of oxygen being limited in the soil that is needed by roots and the respiratory system in addressing the demands of tree foliage. Late season defoliation by insects has less effect on same year's growth, but could influence subsequent year's growth. Although acorns of both the red and white oak groups fall from trees in the autumn, acorns for the white oak group germinate immediately while those in the red oak group require a period of cold stratification over winter before germinating in the spring. Disturbances in late fall could impact white oak acorn germination more than that of red oak, while the reverse is true for disturbances in the spring.

Combinations of disturbances (e.g. drought and insect attack) add more stress to the health of the forest and make the forest less able to resist further future impacts. The late season freeze during Easter weekend in 2007 when buds and leaves were expanding depleted energy reserves affecting tree health, especially when trees tried to releaf afterward. Seed production declined or was non-existent because the freeze also affected flowering. Subsequent crowns were sparse. Many trees died the following three or more years because they could not overcome the stress from the initial freeze disturbance and their inability to replace these energy reserves in subsequent years.

The growing conditions following the disturbance will affect both regeneration and growth of remaining trees. After a complete disturbance where most of the trees are felled and removed, the regeneration conditions for seed, sprouts and advanced growth (existing small seedlings) can influence the species that become the next forest. Usually those trees that are shade intolerant (ex. pines, yellow-poplar, cherry) will proliferate compared to those that are intermediate (oaks) or more shade tolerant (beech and maple). During an incomplete disturbance where some standing trees remain, the size of the gap will influence the amount of sunlight for the regenerating trees. Crowns of adjacent trees will expand to utilize the additional growing space. Wider gaps support trees that are more shade intolerant, narrower gaps support those that are more shade tolerant.

Although, we cannot control the timing, extent or intensity of natural disturbances, we should be able to assess the impacts of the disturbance and take subsequent management actions that are beneficial for future growth of the forest. Man-made disturbances should be scheduled at times to fulfill management objectives. For example, a forest should be harvested with a regeneration plan in place. Forests harvested during poor seed years may not produce a forest that is desired. If advance regeneration is present and the harvest is conducted after a good seed year, regeneration success is usually ensured. However, if the harvest is conducted in a year of poor seed production, the disturbance may compound the stresses already present and the likelihood of successful regeneration of desired species is diminished.

Forests are amazingly resilient and adaptable to a range of disturbances. Forests endure. Forests may change based on the growing and regeneration conditions before and after disturbances. Most all forests in Tennessee will incur one or more natural disturbances in our lifetime. Our ability to attend to and accept forest changes and promote healthy forests following disturbances will challenge us in taking full advantage of the benefits offered by forests.

A TIMBER HARVESTING CHECKLIST

Wayne Clatterbuck, Professor, Silviculture and Forest Management

If you are contemplating a timber sale, make sure that the following checklist items are assessed prior to the timber sale.

1. Contact a knowledgeable and reliable source: A professional forester.
2. Establish property lines and determine the timber sale area.
3. Develop a forest management plan that includes assessing future regeneration.
4. Appraise the timber to be harvested to determine market value
4. Know tax codes and how your timber sale may impact your taxes.
5. Protect water quality through implementation of best management practices.
6. Formulate a written contract before the timber sale.
7. Plan for your new forest before harvesting your timber.

Consideration of these guidelines will assist in having a successful timber sale that meets your needs. For more information, refer to UT Extension publication PB1790 .

<https://utextension.tennessee.edu/publications/Documents/PB1790.pdf>

GUIDELINES FOR A SUCCESSFUL TIMBER CONTRACT

Wayne Clatterbuck, Professor, Silviculture and Forest Management

A successful timber contract that protects both the buyer and the seller should have the following elements:

- Hire a consulting forester to represent your interests in the sale.
- Consult with an attorney for counsel and advice.
- Always put any and all agreements with foresters, timber buyers, mills, and loggers in writing.
- Remember when it comes to settling legal disputes, written agreements supersede oral ones.
- Signing under duress or fraud voids a contract.
- Consent (promise, money, property, services) must be given by both parties to have an enforceable contract.
- Make sure you understand all parts of the contract, or courts will interpret them for you.
- Contracts entered into for illegal purposes are void.
- The buyer is usually liable for not performing as specified by the contract, when it is due to his/her own carelessness. When performance is beyond the buyer's control, the contract may not be enforceable, unless the buyer accepts responsibility.
- Make sure each party has a copy of any and all written agreements.
- A contract which gives the seller all the advantages and/or has too many provisions will probably not be accepted by the buyer.
- If the buyer is providing the contract, be concerned about what is included. Do not sign the contract just to get the sale completed.

For more information about timber sale contracts, refer to UT Extension publication PB1607

<https://utextension.tennessee.edu/publications/Documents/pb1607.pdf>

WILDLIFE MANAGEMENT CALENDAR FOR NOVEMBER

Craig Harper, Professor, Wildlife Management

Wildlife Notes

White-tailed deer breeding season peaks in most areas on TN during November

Wild turkeys form winter flocks

Groundhogs begin to hibernate

Ducks begin to migrate through in substantial numbers

Sandhill cranes and an occasional rare whooping crane migrate through east TN

Owls and hawks increase vocalization and begin establishing territories just prior to mating season

Blackbirds form large winter flocks

Marbled salamander eggs hatch in ephemeral forest pools

Habitat Management

Spray non-native perennial cool-season grasses (such as tall fescue and orchardgrass) to improve/establish early successional areas

- November is the optimum time to kill these grasses!
- spray to release the seedbank or in preparation to plant native warm-season grasses
- use 1.5 – 2 quarts per acre of a glyphosate herbicide (such as Roundup) with a surfactant
- using glyphosate to kill cool-season grasses after a killing frost will not harm desirable warm-season grasses and forbs as they will be dormant
- refer to **Native Warm-Season Grasses: Identification, Establishment and Management for Wildlife and Forage Production in the Mid-South**, PB 1752, for additional information on eradicating non-native perennial cool-season grasses;

<http://www.utextension.utk.edu/publications/wildlife/default.asp>

Disk areas within old-fields to enhance brooding cover for wild turkeys and bobwhites

- will stimulate desirable forb growth next spring
- will reduce grass dominance where needed
- will reduce woody encroachment by sweet gum, elms, maples and other undesirable woody saplings in the field

Disk firebreaks around fields and woods before the ground freezes so they'll be ready to burn next March/April

- disking now will stimulate forbs next spring
- winter wheat can still be sown, if desired, or leave fallow
- don't disk firebreaks immediately adjacent to the woods; come out beyond the drip line of the trees, 50 feet from the trees, and allow a soft edge to develop

Begin dormant planting native warm-season grasses

- don't plant too deep – no more than ¼ inch!
- don't forget pre-emergence weed control next spring

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 AC
- use 2 quarts Garlon 3A and 12 ounces Arsenal AC filled to 1 gallon of water
- dead standing trees (snags) provide perching, roosting, denning, feeding sites for many wildlife species
- increase groundcover is stimulated by the additional sunlight, improving forage and nesting cover for many wildlife species

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
- wild plum, crabapple, persimmon, elderberry and others are good choices
- refer to *Improving Your Backyard Wildlife Habitat*, PB 1633 for a list of other trees and shrubs to consider

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 to strip-mow or silage-chop dove fields to provide seed and hunting opportunities

- strips can be disked and top-sown with winter wheat (2 bushels per acre) to provide additional forage opportunities
- 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**, PB1769, for specific information

Soil test now for spring plots

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

Flood waterfowl impoundments

- a depth of 8 – 12 inches is ideal for dabbling ducks

Continue watching and identifying good acorn producers

- one third of the oak trees produce roughly 70% of all the acorns
- if you are interested in improving acorn availability in your woods, distinguishing good producers from poor producers will help you identify which trees to favor
- once acorns begin to fall, walk through the woods and mark trees with good acorn crops with aluminum tags or tree marking paint near the bottom of the tree
- continue this for at least 3 years and a pattern will begin to develop identifying those trees that do not every produce many acorns (even in a good acorn year)
- good producers can be released by killing or removing unwanted adjacent competitors, allowing the crowns of favored trees to expand and produce more acorns

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

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 cover (native forbs and grasses with scattered brambles and shrubs)
- 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

Clean out blue bird boxes to allow more room for roosting bluebirds when cool weather arrives

- 10 or more bluebirds may roost in a single box on cold nights

Clean out wood duck boxes and replace old wood shavings with fresh shavings

- screech owls and squirrels may use the boxes through fall and winter
- repair/install predator shields if necessary

Put out bird feeders and keep them full – it's not too early

- 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
- glue-boards 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

Deer season is underway

- allow hunters access to your land if you have a problem with too many deer
- shoot females (does); concentrating on bucks does little to control overpopulation
- in many overpopulated areas, it may be necessary to kill 1 doe per 10 acres (sometimes more) before the population is reduced to acceptable levels
- where Quality Deer Management is desirable, the population should be maintained with the carrying capacity of the property to provide adequate forage and cover; bucks should be allowed to reach 3 years of age before shooting them
- refer to **Quality Deer Management: Guidelines for Implementation**, PB 1643, for additional information
- remember to take a kid hunting!

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

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