



Kentucky Woodlands Magazine Volume 1 Issue 2
November 2006

Kentucky Woodlands Magazine

**Managing for Woodland
Wildlife**

**Forest Opportunities
Initiative**

**Kentucky Forest
Stewardship Program**

**Sustainable Management—
One Acre or a Thousand**

Kentucky Woodlands Magazine

Promoting stewardship and sustainable management of Kentucky's non-industrial private forests.

From the Editors of Kentucky Woodlands Magazine

Nearly 80 percent of Kentucky's 12 million acres of woodlands is considered private non-industrial forest and is owned by more than 423,000 individuals. This magazine is dedicated to these owners, who are stewards of one of our greatest natural resources. They provide the Commonwealth and its citizens with a wide range of economic, social, and environmental benefits.

The challenges of owning, managing, and protecting 47 percent of the state's land area are immense and varied. The aim of Kentucky Woodlands Magazine is twofold:

- to provide information vital to sustaining the health and productivity of our native woodlands for owners and the natural resource professionals who support stewardship of our woodland resources
- to ensure that woodland owners have the ability to make the best possible choices for themselves, their families, and ultimately for all of us.

On behalf of the University of Kentucky's Department of Forestry and the Kentucky Division of Forestry, the editors of Kentucky Woodlands Magazine commend you for the effort you put forth to manage our woodlands, and we hope that this magazine will help make your efforts more rewarding.

Jeff Stringer,
University of Kentucky,
Department of Forestry

Diana Olszowy, Kentucky
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Kentucky Woodlands Magazine
www.ukforestry.org

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Proofreading and Web Support Provided By
University of Kentucky
Agricultural Communications Service

Vol. 1 No. 2

Kentucky Woodlands Magazine is published under the direction of University of Kentucky's Department of Forestry Extension and the Kentucky Division of Forestry and is sponsored by the Kentucky Forest Stewardship Coordinating Committee. Kentucky Woodlands Magazine is supported by funds from the Kentucky Forest Stewardship Program, U.S. Forest Service, Renewable Resources Extension Act, and the Cooperative Extension Service. Views and opinions expressed in Kentucky Woodlands Magazine do not necessarily represent the opinions of its editors, the UK Department of Forestry or the Division of Forestry. The appearance of a logo, organization, manufacturer or product within the Kentucky Woodlands Magazine does not constitute an endorsement by the editors, the University of Kentucky Department of Forestry or the Kentucky Division of Forestry.

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About the Cover:

Thomas Barnes, UK Extension Wildlife Professor, and award winning wildlife photographer and author contributed the cover photograph of Robinson Forest. Robinson Forest, managed for research, teaching and Extension education by the University of Kentucky Department of Forestry, is one of the largest research and educational forests in the eastern United States. Robinson Forest is a collection of seven tracts totaling 14,800 acres, and is located on the Cumberland Plateau in southeastern Kentucky. <http://www.ca.uky.edu/forestry/robfor.php>



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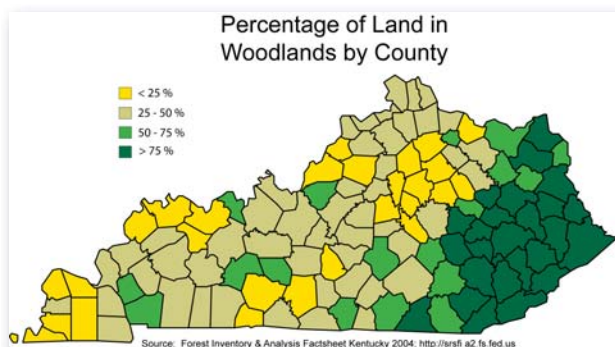
Kentucky Woodland Facts

by Billy Thomas and Jeff Stringer

Kentucky's woodlands have always occupied a significant portion of our landscape. Woodlands is the term we use to describe all of our wooded areas, whether it is a small woods surrounding a house or a vast forest covering hundreds of thousands of acres. Regardless of the size of the woodlands, all are important, and new surveys indicate changes in this valued resource. This article highlights some of these changes, focusing for now on the area of Kentucky covered in woodlands as well as their distribution and ownership, and the diversity of tree species in our woodlands. Obviously, there are many more Kentucky woodland facts, and they will be discussed in future articles.

Kentucky's Woodland Landscape

Kentucky is 47% woodlands, a higher percentage of woodlands than occurs overall in the United States (33%) or the entire world (30%). While Kentucky's woodlands are a dominant part of our landscape, this fact is changing. The most recent survey of Kentucky's woodlands (referred to as forests in these surveys) completed by the Kentucky Division of Forestry and the U.S. Forest Service shows that Kentucky lost more than 700,000 acres of forest between 1988 and 2004. Although this loss was not unexpected, the most striking fact is that for the first time these losses were not due to converting forests to farms but rather to development. The growth of urban areas and the urbanization and mining of rural Kentucky have taken a toll on the land area occupied by woodlands.



Kentucky's Forest Ownership and Distribution

Kentucky's woodlands, like those of many other states in the eastern United States, are overwhelmingly privately owned. This is in stark contrast to states in the West that have more than 50% of the woodlands in federal ownership. Eighty-nine percent of Kentucky's woodlands are privately owned. This ownership represents individuals and their families (78%) as well as privately owned corporations (11%). The remainder of Kentucky's woodlands is owned by the wood industry (2%), national forests (5%), and other public entities (4%).

Trees, Trees, Trees

Kentucky has some of the most diverse woodlands in the nation. Our temperate climate and varied land-

forms play a large role in that diversity. The eastern part of the state is home to the mixed mesophytic forest that is one of the most biologically diverse temperate regions on the planet. There are a large

number of trees native to Kentucky. Although many of the different types of trees can be found across the state, others are very limited in their distribution.

According to the Kentucky State Nature Preserves Commission, there are 120 native tree species in Kentucky. The list includes 19 different oak species and 10 different hickory species. You can find the complete list at www.naturepreserves.ky.gov/inforesources/factsheets.htm. The dominant forest type in Kentucky is oak-hickory.

Forestland vs. Timberland

We expect our woodlands to provide us with a wide range of uses from the aesthetic backdrop for our many state parks, lakes, and homes to the backbone of our rural forest industry. Because of the significance of our woodlands to provide a renewable and sustainable economy, the forest survey differentiates between forestland (or woodland) and timberland. The U.S. Forest Service defines the terms this way:

- Forestland is land at least 10% stocked by forest trees of any size or formerly having had such tree cover and not currently developed for non-forest use. The minimum area considered for classification is one acre at least 120 feet wide.
- Timberland is forestland that is capable of producing 20 cubic feet of wood per acre annually and not withdrawn from timber utilization.

In Kentucky, the vast majority of our woodlands are considered timberland. In fact, more than 97% of Kentucky's 12 million acres of woodlands are classified as timberland; this acreage has decreased 6% since 1988. For more information about Kentucky's forests, visit www.ukforestry.org and www.forestry.ky.gov.

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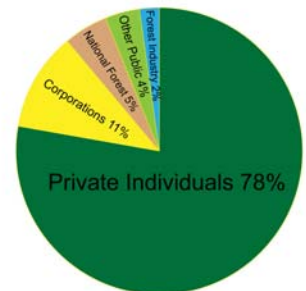
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Ownership of Kentucky's Woodlands



Source: Forest Inventory & Analysis Factsheet Kentucky 2004. <http://fsrfsi.a2.fs.fed.us>

Managing for Woodland Wildlife

By Clay Smitson

Ask any Kentucky woodland landowner “Why is it important to you to actively manage your woods to make them as productive as they can be?” and you will get many different answers. Some folks want to maximize timber production. Others want their woods to be as healthy and aesthetically pleasing as possible. A large number would probably tell you they want to encourage the presence of more wildlife to enjoy by viewing or to harvest during the hunting seasons. Which answer is the right one?

That’s an easy one, all of them! Woodland management can involve many overlapping goals that will often merge and, with small adjustments, lead landowners to use nearly the same woodland improvement techniques on their property.

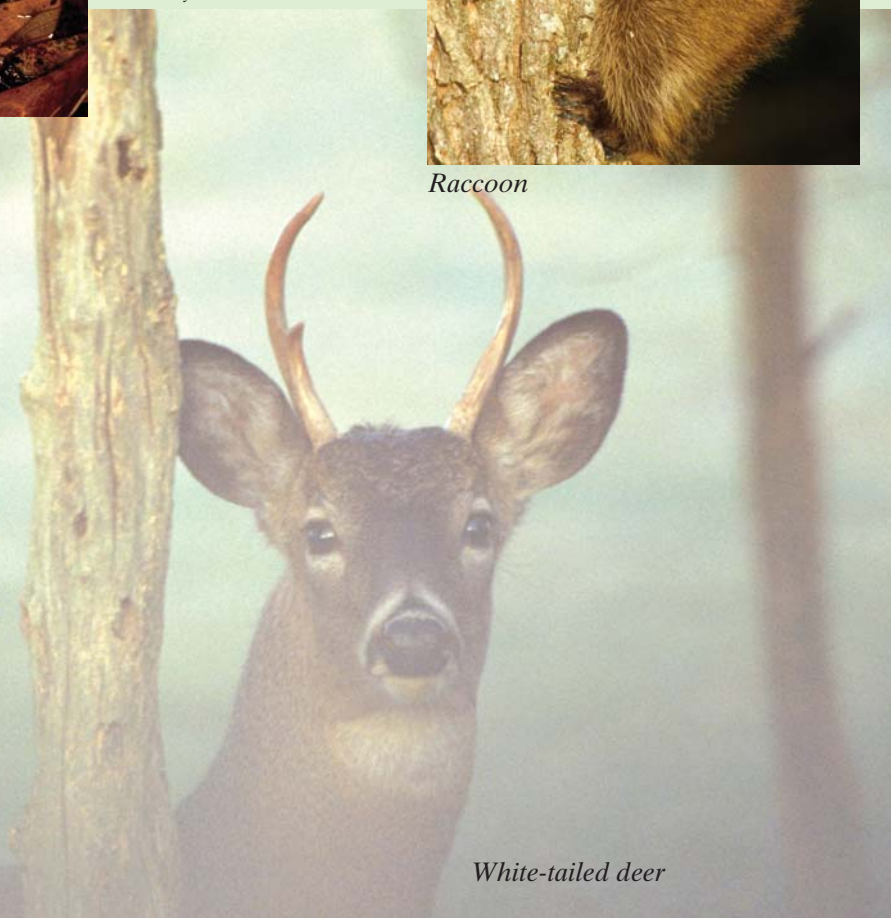


Red-backed salamander

Photos by Thomas G. Barnes



Raccoon



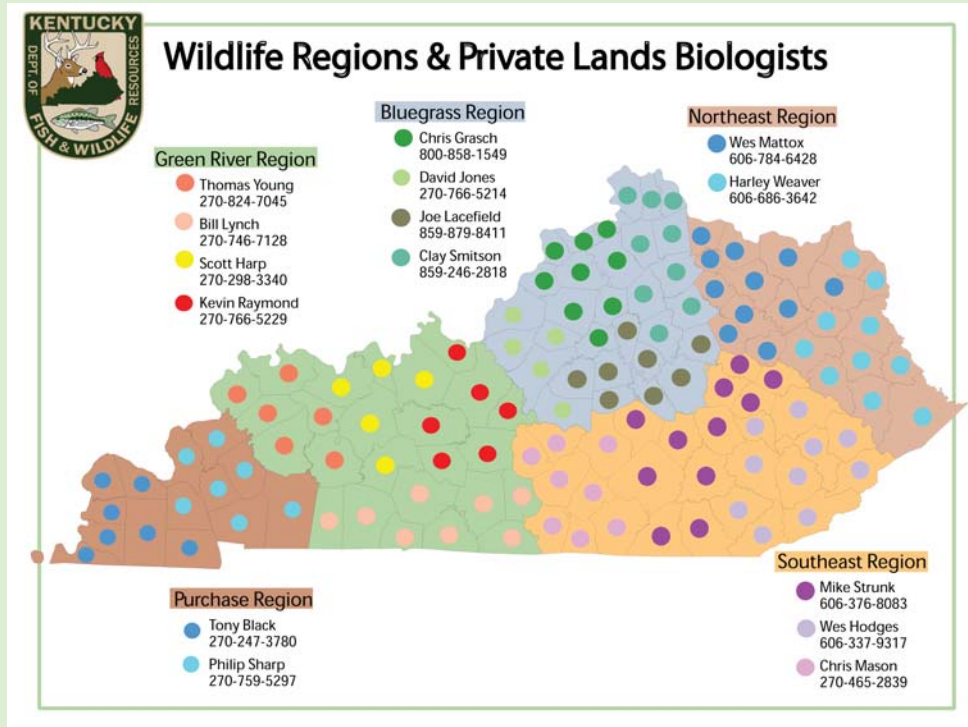
White-tailed deer

While most landowners can identify their primary goals, many are not exactly sure of how to get there, or who can give them advice. From the fellow down the road hanging at the country store to the gentleman logging the neighbor's property, lots of folks have their own opinions of the best thing a person can do for or

To learn more about the Kentucky Department of Fish and Wildlife Resources please visit the website at www.fw.ky.gov.

to their woodlands. Another alternative for woodland improvement guidance, which you can read more about in this issue, is the Forest Stewardship Program. The price for both forms of advice is the same, it's free! At no cost or obligation, owners of at least 10 acres of woodland can get professional assistance from the Kentucky Division of Forestry. The Forest Stewardship Plan landowners receive is full of great how-to guidance that helps landowners move from a list of goals to a healthy, productive woodland that supports a wide array of wildlife species.

If you, as a woodland owner, decide to pursue a Forest Stewardship Plan keep in mind you can also request more in-depth assistance on improving wildlife habitat by requesting that a Private Lands Biologist, from the Kentucky Department of Fish and Wildlife Resources accompany the Forester on their visit to your property. There are fifteen Private Lands Biologists in Kentucky to offer technical guidance, equipment loans, and even possibly the provision of some herbicide and seed to help complete wildlife habitat improvement projects. We can also focus on any woodland openings or open fields on the property and help convert them into places where wildlife will



Copperhead snake



Photo by David S. Maehr



Black bear with cubs

flourish. Biologists can also help guide landowners through the "acronym soup" of federal Farm Bill cost-sharing opportunities and direct them to the program that best suits their needs. What you'll soon find out during the property visit is that many woodland improvement practices will be recommended, and agreed on, by both Forester and Private Lands Biologist to help insure that we'll have healthy forests and wildlife populations across the Commonwealth far into the future.

To locate your local Private Lands Biologist, see the map in this article or call 1-800-858-1549. To learn more about the Kentucky Department of Fish and Wildlife Resources please visit the website at www.fw.ky.gov.

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Mr. Smitson is one of fifteen Private Lands Biologists available to work with woodland owners on their wildlife management practices.

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Math In Forestry

When we were in high school math classes many of us asked the question, “When will this ever be used in the real world?” Foresters use real world math everyday. Math comes into play in making management recommendations, diagnosing your woodlands health, growth, and value. How do you “measure up” on everyday forestry math?

Tree Diameter

It is easy to determine the circumference of a tree by measuring the outside. But foresters use diameter not circumference. How do you determine the diameter of a tree? The diameter of a tree, or cylinder, is directly related to the circumference. If you know the circumference, divide this number by pi (3.14”). This will provide you the distance through the middle of the tree, or the tree diameter.

Foresters use a tool referred to as a diameter tape to make this measurement. The diameter tape is actually wrapped around the tree but each of the one inch intervals is 3.14 inches long – the value of pi. The reading that a forester gets from the “d-tape” provides an immediate reading of diameter even though the tape was wrapped around the circumference of the tree. You can easily make a foresters “d-tape” for yourself by taking a string and marking off 3.14 inches and indicate them as one inch intervals. If you want or need a very rough estimate of the diameter, simply divide the circumference by 3.

Acreage

Foresters usually work with more than one acre. Many of the 423,000 woodland owners in Kentucky own acreages over 10 acres in size. When a management plan is designed, many practices and statistics will be made based on one acre. Do you know how many square feet are contained in one acre?

There are 43,560 square feet in one acre. By the way, one acre equals approximately a square 209 feet on each side or a circle with a 236 foot diameter. Let’s look at a common acreage math question that is used by foresters. Determining how many seedlings to order is based on the acres you are planting and the spacing between the trees. If the spacing is 6 ft by 6 ft, then each tree has $6 \text{ ft} \times 6 \text{ ft} = 36 \text{ ft}^2$ of growing space. Dividing 36 into 43,560 tells you that you will need 1,210 seedlings per acre.

Forestry 101 Math Quiz

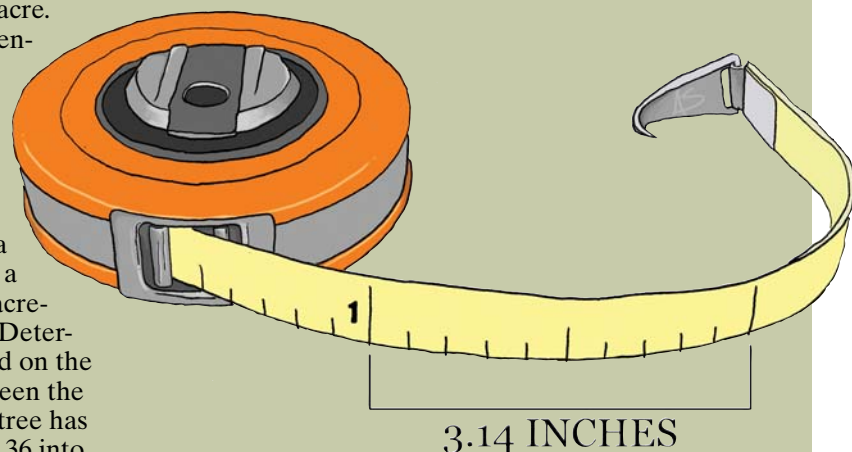
Here are a few forestry math questions. Use your forestry math skills to determine the correct answers. Answers can be found on the inside back cover of this issue.

1. Did you know that the champion white oak in Kentucky is in Logan County and has a circumference of 270 inches? What is the tree’s diameter?
2. There is a sale on water front acreage! The frontage is 500 feet and it runs 1000 feet deep. Your bank will allow you \$1,200 per acre capped at \$15,000. Can you afford the purchase?
3. A tree planting is being established in an old field. The spacing of the trees is 8 x 8 feet or 64 square feet per tree. How many trees will be required to plant one acre?

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Forest Opportunities Initiative

Photo by Thomas G. Barnes

by David Jackson

Since 1976, the Mountain Association for Community Economic Development (MACED) has developed partnerships with individuals and businesses to create economic opportunities that work for the people and communities of Appalachian Kentucky. MACED has spent many years working to enhance benefits derived from the region's diverse forests.

Throughout most of its 30-year history, MACED has made investments in Kentucky's wood-related enterprises and conducted considerable applied research on issues involving wood product marketing and forest certification.

MACED will soon launch its Forest Opportunities Initiative (FOI), a new approach to practicing forestry designed specifically for private, nonindustrial landowners in Appalachian Kentucky. Its primary goal is to help create sustainably managed "working forests" that promote increases in economic value and forest health, consistently generate ongoing income to landowners, enhance wildlife habitat, and protect soil and water quality. The Initiative is based on MACED making available to landowners a combination of loan capital, high quality forestry services, and educational outreach activities. MACED will offer these services as a compliment to existing forms of assistance provided by the state, consulting foresters and other associations representing forest landowners.

MACED will employ site specific long-term management strategies that support forest health and vigor while favoring tree species whose economic value is relatively high. Uneven-age silvicultural methods that emphasize retention of a healthy, fully functioning residual stand will be used to help achieve this objective. Dr. David Jackson was hired in May 2006 to lead the newly emerging program. Jackson brings more than 25 years of forestry experience acquired in industrial and academic settings.

MACED will inventory the economic value and ecological health of landowners' forest properties. Based on these assessments, loan capital may be extended to landowners interested in better managing and conserving their forests. Eligibility for the loan will be contingent on the landowner's willingness to follow a forest management plan prepared specifically for them by MACED or its partners. Loans will be tailored uniquely to each individual property.

Loan terms are unlikely to extend beyond 10 years but will depend on each site. Ordinarily, loan recipients may use their funds in whatever manner best fits their individual circumstances. For each landowner, MACED will plan and administer a timber harvest used to repay a landowner's loan. Timber harvest and other stand improvement activities will also be used as tools to help create future stand conditions supporting a sustainably managed, working forest.

MACED believes there is a substantial number of forest landowners in eastern Kentucky who will choose to practice sustainable, long-term forest management if they are provided the necessary financial and professional assistance needed to do so. Among MACED's goals is the desire to help such owners restore the overall health, integrity, and value of their forest properties for themselves and future generations.

Timberland owners in Appalachian Kentucky are encouraged to contact David Jackson at MACED's office in Berea (telephone: 859-986-2373; e-mail: djackson@maced.org or www.maced.org) and discuss in greater detail how MACED's Forest Opportunities Initiative can be applied to their forest properties.

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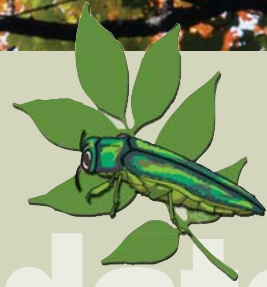
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Kentucky Forest Health Task Force



Update

Members of the Kentucky Forest Health Task Force have prepared its first annual report on the health of Kentucky's woodlands and threats to maintaining healthy forests. The Kentucky Forest Health Task Force (www.KyForestHealth.org) was established in 2004 to address issues threatening Kentucky's forest resources (see *Kentucky Woodlands Magazine* 1(1) July 2006). To serve our long-term goal to foster sustainable forests, our immediate goal is to enhance awareness and increase communication regarding forest health issues.

This first annual report summarizes the current forest health conditions of Kentucky's forests, describes activities that help maintain the health of these forests, and attempts to predict potential effects of the arrival of several invasive species. In addition, the members of the task force have described Kentucky's pest monitoring and mitigation programs and made recommendations for additional activities to mitigate the effects of these invasive species.

The task force recommends that the following actions be taken to improve the health of Kentucky's forests:

- Improve detection of exotic species before they become widely established in Kentucky.
- Improve detection, monitoring, and management of exotic invasive pests that are present in Kentucky.
- Protect Kentucky's forests by finding ways to reduce the explosive growth of invasive pests.

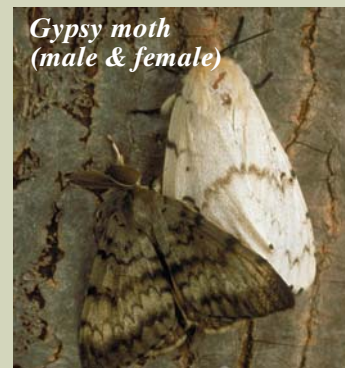
- Improve the health of Kentucky's private and public forests by implementing management practices that preserve native species diversity and improve the vigor of our forests.

Assessment of forest health activities in 2005/06 and specific recommendations for 2007 can be found in the annual report at www.kyforesthealth.org.

Detection Survey for the Gypsy Moth

The current level of activity focused on the gypsy moth is comprehensive; multiple federal and state agencies place more than 10,000 pheromone traps in Kentucky each

year to detect gypsy moth males. Since 1985, three localized infestations of the gypsy moth in Kentucky have been eradicated. Current level of preparedness and eradication: excellent.



Gypsy moth (male & female)

USDA APHIS PPQ Archives

Detection Surveys for Sudden Oak Death

Surveys in 2003, 2004, and 2005 have focused on nurseries and limited forested areas. While no sudden oak death (SOD) has been detected in Kentucky, annual surveys for the SOD pathogen are needed in Kentucky because our forests contain highly susceptible hosts and our climactic conditions favor pathogen development. Current level of monitoring and preparedness: inadequate.



SOD bleeding necrosis

Photo by Joseph O'Brien, USDA Forest Service





Update

Kentucky Forest Health Task Force



Hemlock woolly adelgid

Photo by Chris Evans, The University of Georgia, www.insectimages.org

Infestation of Hemlock Woolly Adelgid Found in Kentucky in Spring 2006

The exotic hemlock woolly adelgid was first reported in Kentucky in Harlan County in March and has since been reported in another county. Development of a management plan is under way including systematic surveys of hemlocks for the hemlock woolly adelgid, and the distribution of hemlocks is being mapped. Priority lists of old growth and other hemlock stands that should be protected with insecticide treatments need to be developed. Rearing and release of predatory beetles for biological control of the adelgid in Kentucky should be evaluated. Current level of resources and monitoring and preparedness: inadequate.

Detection Survey for the Emerald Ash Borer

Due to infestations of the emerald ash borer in Indiana, Michigan, and Ohio, surveys in Kentucky need to be expanded. In 2006, selected areas along the Ohio River and state campgrounds along I-65 and I-75 are being surveyed for the emerald ash borer using stressed ash trees. Current level of monitoring and planning: inadequate.

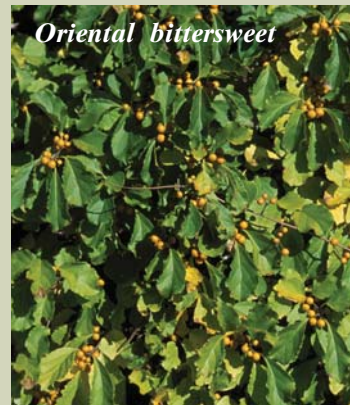


Emerald ash borer

Photo by Howard Russell, Michigan State University www.forestryimages.org

Detection and Management of Invasive Plant Species

More attention on invasive plants is needed on a number of fronts, including information on current and impending threats, distribution of known invasives, effective control methods, and sources for native species alternatives for use in forestry and landscape applications. Additional support is needed to implement an invasive species management plan including updating the state's list of noxious weeds, improving statutory requirements for listing and control, and identifying key personnel to carry out an early detection and rapid response system. Current level of activity: inadequate.



Oriental bittersweet

Photo by James H. Miller, USDA Forest Service

Copies of the report are available from John Obrycki, State Entomologist, Department of Entomology, University of Kentucky, Lexington, KY 40546. E-mail: john.obrycki@uky.edu.

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Lynne Rieske-Kinney, Ph.D.

Forest entomologist at the University of Kentucky. Her research program examines interactions among forest arthropods and forest regeneration, restoration, and sustainability and includes studies on the effects of invasive species on the health of Kentucky's forests.

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(www.KyForestHealth.org)

Kentucky Forest Stewardship Program

By Diana Olszowy

No one needs to tell you how beautiful your woods are, or how much cleaner they make the air and water—or that they are home for wildlife or a wonderful place to relax and unwind. And no one needs to tell you that, if you wish, they can provide you with firewood for the stove, maple syrup for the table, and lots of other products. If you're like most people, these are the joys and motivations that made you a woodland owner in the first place.

Unfortunately, there is no guarantee that our heirs will be able to enjoy these blessings as we have. In Kentucky today, insects and diseases brought here from other continents are killing trees by the thou-

sands. Invasive, exotic plants are outcompeting and taking over native forests. Wildlife species are slowly declining as their habitats change, shrink, and disappear. And with increasing frequency, heirs are forced to sell off timber, or even their land itself, simply to pay estate taxes. As these pressures mount, the future of our forests lies with those who own 78% of them, the private individual or family woodland owner.

The Kentucky Forest Stewardship Program recognizes the importance of these private forestland owners by providing them with information, education, and technical assistance in managing their

Photo courtesy of Kentucky Division of Forestry



woodlands. Developing a Forest Stewardship Plan is easy, and it's a great way to accomplish three things:

First, it ensures that you will get the maximum possible enjoyment from your woodland, since you decide what the goals of your plan will be. Do you want to know what kinds of wildlife live in your woodland and where? Do you want to make your wildlife habitat better and get a few cords of firewood at the same time? Do you want interesting, beautiful trails your family and friends can enjoy? Do you want to be sure that the stream in your woodlands stays clean and is the best fish habitat it can be? Whether you want to pursue active management of your woodlands, or simply wish to know more about the land you live on, stewardship planning can turn your goals into reality.

Second, stewardship planning can ensure that your heirs will be able to enjoy the woodlands as you do. A stewardship plan takes the long view, anticipating and watching for problems like foreign insect and disease attacks or unwanted changes in habitat conditions. It can also include estate plans, such as helping your heirs avoid unnecessary estate taxes or growing some high-value timber that can be sold and harvested in an environmentally sound manner when some dollars are really needed.

Finally, stewardship planning is more than words—it is action. By protecting and enhancing your woodlands, you are creating environmental benefits like clean air, water, and wildlife habitat that make the entire community a better place. Your Stewardship Plan demonstrates to your family, your friends, and the entire community that you are a responsible and proactive conservationist.

The Stewardship Plan

A Forest Stewardship Plan is an actual document developed by you and a professional forester. If you own 10 acres or more and follow a few simple guidelines, you are eligible for the Forest Stewardship Program. A typical plan has four basic parts:

Stewardship Goals: Deciding on and articulating your stewardship goals are the essential first steps, and no one can do them but you. This statement defines where you want to go so the plan can take you there. Your goals need not be elaborate but must communicate the essence of what you care about and want from your forest. The Kentucky Division of Forestry has professional foresters who are available for no charge to come out to your property and help you identify options, alternatives, and potential forest stewardship goals.

Maps: Maps are valuable products of a stewardship plan.

A typical plan includes an in-depth map that identifies the forest cover types that occur on your property and also adds features like woodland

The Kentucky Forest Stewardship Program



The wise use and management of our Commonwealth's greatest renewable resource for our benefit and for generations to come.



A cooperative effort of Kentucky's environmental community.



Photo courtesy of Kentucky Division of Forestry

Kentucky Division of Forestry District Offices



roads, existing or proposed trails, and the locations of various habitat or conservation activities your plan calls for. Many woodland owners find themselves making photocopies of their stewardship maps and taking them on walks through the forest. They are amazed at how these maps allow them to see their forest with new eyes, to learn about and enjoy their forest in whole new ways. For many families, as time passes, their stewardship maps become irreplaceable family treasures.

Forest Inventory: As part of the planning process, your forester will conduct a professional forest resource assessment, resulting in a wealth of important, useful information. You will know what plant species occur in each plant community, their ages, overall health, and history of the site and how the site has changed over time. You will know where your high-quality wildlife habitats are and where opportunities exist to make habitat better. You will know more about your stream and wetland resources, including vernal pools and fish habitats. And you will learn more about special areas of your forest with unique plant communities, potential scenic vistas or trail sites, and more. If you want your stewardship plan to include timber management, you will also receive detailed information on stand density, timber volume, and other important planning data for those cover types involved.

Recommended Stewardship Activities: Once the inventory is done, your forester will match your goals to your forest and begin to identify opportunities you can do to make your goals a reality. This step is the real meat of the planning process and one you will probably want to actively participate in. By taking advantage of your resource assessment and your forester's knowledge, you can develop a list of activities you hope to complete over the next few years that are feasible and that will truly allow you to enjoy your forest more.

Once completed, your Forest Stewardship Plan will provide you with both knowledge and direction. No longer will you have to make your best guesses as to what to do or not do in the forest. Every decision you make will be an informed one, and every action both positive and productive. Your Forest Stewardship Plan will attest that you are an informed and responsible steward of the land.



Photo courtesy of Kentucky Division of Forestry

How Do I Apply?

The Kentucky Division of Forestry has professional foresters who can visit your property and discuss forest stewardship options with you for no fee. Other professional forestry assistance is available from private consulting foresters with the Kentucky Association of Consulting Foresters. Whichever professional assistance you choose, for most woodland owners, this is the ideal first step to begin your stewardship planning process.

Some stewardship activities (such as the harvest of firewood, timber, maple syrup, or other products) can earn you an income if you choose to build them into your plan. Others do not, however, and can take time, effort, and even some dollars. Often, government cost-share programs are available to assist with the cost of these kinds of stewardship practices. By keeping you informed about these opportunities, the Forest Stewardship Program remains your partner throughout the life of your stewardship plan. Forestland owners who follow their plan are eligible to become a Kentucky Certified Stewardship Forest. This honorary program recognizes forestland owners who demonstrate a stewardship ethic on their properties.

Clean air, clean water, wildlife, and forest products are important entities that all of society needs, and yet they are dependent on private, family-owned woodlands. Making wise decisions in the management of your woodland can greatly increase its long-term timber value and overall health. The Forest Stewardship Program recognizes that when forest owners like you practice sound stewardship, everyone benefits.

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Sustainable Management- One Acre or a Thousand

A Checklist for Kentucky Woodland Owners

By Jeff Stringer

***Aesthetics:** A tree farm near Berea College Forest using an aesthetic buffer zone (AMZ) to visually shelter a small regeneration harvest along a much traveled county road.*

Photo by Jeff Stringer

Sustainability is the buzz word in forestry and woodland management. Today's society is increasingly focused over "green" issues, as illustrated by *Newsweek* magazine's August 14, 2006, cover story titled "The Greening of America." The greening of America certainly includes woodlands, and society is concerned over how woodlands, even private ones, are being managed. All forestry organizations and industries have agreed, to one degree or another, that sustainable management of woodlands is a must.

Certification systems for private woodlands have arisen over the last 10 years, all touting aspects of sustainability. Even the respected American Tree Farm system recently reworked its framework, broadening the definition of

Today's pressures on our woodlands means that the owner of every acre must be a good steward of the resource, realizing that it is becoming scarce and coveted by society. The landowner is seen as responsible to ensure that the woods are managed sustainably.





Protecting Water: Protecting water is a critical part of sustainable management. Here rock and a PVC pipe are used to cross a small woodlands stream in western Kentucky.

Photo by Tim Queary

good forestry and of sustainability. The United States has signed onto the Montreal Process, a global agreement that defines sustainable woodland management. This resulted in the development of a “Roundtable on Sustainable Forests,” which is furthering the discussion of what good woodland management means here in the United States. Whether you like it or not, these big picture issues are changing how you will manage your woodlands.

What Is Sustainable Management?

First, it is important to note that sustainable management applies to one acre or to a thousand. In its simplest form, sustainable woodland management means that you are using the woods today in a manner that does not impair its future use. This is not fundamentally different from the age-old definition of conservation that we have used for decades as our standard for proper woodland management. Today, nothing stays that simple. In the past, sustainable forest management meant that you were cutting timber in a manner that would allow for future timber production. Now, sustainability means that you are managing your woodlands in a manner that maintains ecosystem function and sustains a wide host of current and potential uses. In a recent article titled “Are Our Forests Sustainable?” in *National Woodlands* magazine, the authors provide a more current view of sustainable woodland management: woods are managed “. . . so that the results of management are ecologically sound, economically viable, and socially desirable.”

Consider how the use and management of your woodlands stacks up to this definition of sustainability. While many would believe that if you are not cutting timber, then you should not be worried or that if you only own five acres, this issue does not apply to you. With today’s threats from invasive species and urbanization of our woodlands, nothing could be further from the truth. Today’s pressures on our woodlands means that the owner of every acre must be a good steward of the resource, realizing that it is becoming scarce and coveted by society. The landowner is seen as responsible to ensure that the woods are managed sustainably.

The characteristics of ecologically sound, economically viable, and socially desirable cover a lot of

Unfortunately, many think that leaving the woodlands alone is good management. This is commonly referred to as benign neglect management and can be fatal to the health of a woodlands with today’s threats from invasive exotics.

ground, and the term “socially desirable” is not well defined. However, these characteristics of sustainability do have some common elements that most everyone agrees upon. The following will help you determine whether the use and planning for your woodlands are sustainable.

Checklist for Sustainable Management

Progressive management of Kentucky’s woodlands requires plans to deal with a number of woodland issues including maintenance of tree and woodland health, protection from fire and unapproved uses, maintenance of wildlife habitat, protection of soil and water resources, protection of special ecological and historic/pre-historic sites, timber harvests that provide for proper regeneration or maintenance of the proper number of healthy trees, and proper maintenance of boundaries, trails, and roads. Does your management include consideration of all of these attributes of sustainability?

1. Up-to-Date Written Management Plan. If you don’t have one, you need one. The Kentucky Division of Forestry and approved consulting foresters can help landowners develop a Stewardship Plan for their properties greater than 10 acres in size, free of charge. The Stewardship Plan incorporates many aspects of sustainability covering a wide range of woodland attributes. A little known fact is that the Division will also help develop a plan for woodland owners who own less than 10 acres. For example, the Division would help a landowner develop a plan for the removal of invasive exotic species from a 2 acre woodland.

2. Tree and Woodland Health. You should have a good handle on the health of your trees. Many aspects of tree health relate to age, species, and the soils they are growing on. Foresters can help alert you to char-



Protecting Soil: Simple techniques such as using hay bales to control erosion on woods roads are a part of sustainably managing your woodlands.

Photo by Charlie Blinn, University of Minnesota

acteristics of poor health that you should be aware of and can manage for. Management is needed if you want to maintain a vigorously growing woods for many wildlife or timber species or to properly manage for an old growth forest. The latter will include a plan to deal with tree death as it naturally occurs and protect the woods for the inevitable invasion from invasive exotics. Unfortunately, many think that leaving the woodlands alone is good management. This is commonly referred to as benign neglect management and can be fatal to the health of a woodlands with today's threats from invasive exotics. Generally, the smaller the woodlands, the worse the threat from invasion. Do you have a plan to scout for invasive exotics and to deal with them when they occur?

3. Protection and Maintenance. Do you have proper boundary markings, and are trails and roads in your woodlands maintained to prevent erosion? Do you have adequate forest fire protection in the form of fire breaks or maintained roads, and is the local fire department and Division of Forestry aware of your property and your concern over arson? Intrusions from unwanted

uses, including four-wheeling, dumping, and other illegal activities, are a problem for many woodland owners (large or small). There are some practices that can help with these problems, are you aware of them?

4. Wildlife Habitats. Maintenance of wildlife habitats for both game and non-game species is a priority for many woodland owners. Often this is for the pure love of wildlife as well as for recreation and hunting. Regardless, does your planning consider what type of habitats you are providing and how they fit into your neighbor's landscape? Do you leave dead snags standing, and have the proper amount of rotten logs for wildlife habitat?

5. Rare Species and Special Areas. Would you know a rare ecological area, plant species, or historic or pre-historic site if it was on your property? For example, do you know what native flowers in your area are rare, or do you know what a glade is and how to manage for it? What about telltale signs of buffalo watering holes, Indian ceremonial grounds, and indicators of historic use? All of these need to be delineated in the management plan and managed for and protected.

6. Proper Timber Harvest. Harvesting timber is one of the more intensive management practices and should be viewed as a tool for achieving multiple management objectives. Foresters recommend harvests to help woodland owners achieve objectives such as providing income, improving forest health, altering wildlife habitats, and improving safety, recreational and aesthetic uses. If harvests are selective, are they improving the woodlands for future use? Are you so scared of a timber harvest that you are not optimizing regeneration of your woodlands and using harvesting as a tool for proper management? All of these issues must be considered. Nowadays foresters know much more than in years past about how to use a timber



Woods Roads: What do your roads look like when a harvest is completed? Proper and complete use of Kentucky's Forestry Best Management Practices is a requirement of sustainable woodland management.

Photos by Jeff Stringer

Historic Preservation: Dr. Greg Kuhns continues to preserve and protect this historic iron furnace on his family's tree farm north of Elizabethtown, KY. They have signed the furnace and it is open to the public.

Photo by Jeff Stringer



harvest to gently encourage proper regeneration and improve the health of your woodlands. Of course, the use of Best Management Practices to protect water quality is required, and woodland owners with 10 or more acres must have a Forestry Water Quality Plan for their property.

7. Your Neighbors and Community. Ensure that your practices are not interfering with your neighbors; for example, use aesthetic buffers where appropriate. Take your planning to the next level, and work with your neighbor to improve your piece of the county or neighborhood. Many ownership objectives can only be maximized by working with your neighbors. Examples include trespass, wildlife management, and control of invasive exotics.

While the checklist above provides woodland owners with general guidelines for sustainability, a thorough evaluation and plan for all aspects of sustainability can be lengthy and involved. Large ownerships have to consider many more societal aspects than small ownerships. Issues of aesthetics, effects on local economies, allowable cut, and monitoring for changes in woodland conditions become important. Regardless, all owners should think hard about their management and ask the question "Am I really managing my one acre or my thousand acres in a way that is sustainable?"



Take your planning to the next level and work with your neighbor to improve your piece of the county or neighborhood.

Resources on Sustainability

Kentucky Division of Forestry: www.forestry.ky.gov

Montreal Process: http://www.mpci.org/home_e.html

Roundtable on Sustainable Forests: <http://www.sustainableforests.net>

National Report on Sustainable Forests-2003: <http://www.fs.fed.us/sustained>

Buck, M., O'Laughlin, J., and A. Robbins. 2006. *Are Our Forests Sustainable?* *National Forestry* 1(1):9-10.

Stringer, J., and A. Thompson. 2000. *Forestry Water Quality Plan: Preparing an Agriculture Water Quality Plan for Your Woodlands (FOR-96)*. University of Kentucky Cooperative Extension Service. 12 pp. Available at: www.ukforestry.org.

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Special Habitats: Betty and Dan Williamson have identified and are actively protecting a limestone cliffline and its prickly pear cactus associated with a glade on their Caldwell County tree farm.

Photos by Aaron Stringer

Non-Timber Forest Products

Non-Timber Forest Products and Agroforestry

Agroforestry is, simply put, the practice of integrating long-term tree crops with annual agriculture crops and/or livestock. This type of integrated agriculture has been successfully practiced for thousands of years in many parts of the world, especially in the tropics. Temperate regions have been a bit slower to adopt agroforestry practices, but in the past decade or so, there has been increasing interest in agroforestry. Use of a long-term tree crop with an annual agricultural crop and/or livestock tends to make the entire farm more sustainable, both from increasing crop diversity and protecting the soil and water.

There are five commonly accepted practices for temperate agroforestry. These are **alley cropping**, **silvopasture**, **riparian buffer strips**, **windbreaks**, and **forest farming**. While alley cropping, windbreaks, riparian buffer strips, and silvopasture may introduce trees into open habitats that are treeless, forest farming starts with a woods and manages it in such a way to produce either short-term (relative to timber production) or annual non-timber forest products.

Most woodland owners or farmers who have woods on their property are not enthusiastic about planting trees in their open areas or implementing new projects that may require time and money without showing a quick return on their investment. It is important to note that each agroforestry practice can and should be customized to meet your personal objectives and work effectively on your land. Since introducing trees is basic to all the agroforestry practices except forest farming, it takes months or years for these systems to develop fully. Forest farming is the one agroforestry technique in which an owner could expect to see some marketable product within a year or two.

In succeeding issues of this magazine, we will discuss in greater detail each of the agroforestry practices and how they might best be adapted to existing agricultural practices here in Kentucky. With the exception of forest farming, all of the practices are straightforward conceptually. Agroforestry practices are advantageous to the landowner both economically and ecologically and should be seriously considered by any landowner who is interested in managing his or her land in a more sustainable way.

There are two Web sites that may be of interest to prospective agroforesters: The Center for Agroforestry at the University of Missouri (www.centerforagroforestry.org) and the National Agroforestry Center in Nebraska (<http://www.unl.edu/nac/>). Both of these organizations have print and video/DVD materials on each of the agroforestry techniques.

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Alley cropping

Photo by Deborah B. Hill



Silvopasture

Missouri Center for Agroforestry



Riparian buffer

Missouri Center for Agroforestry



Windbreaks
National Agroforestry Center,
<http://ncrs.fs.fed.us/res/sites/nac/>



Forest farming

Photo by Deborah B. Hill

Kentucky State Nursery Program



Even though Kentucky is blessed with 11.7 million acres of woodlands, many open areas across the state would benefit from being planted with trees. Often these areas were previously cleared for agricultural uses and are currently growing up in low-quality vegetation. Over time, nature can reforest itself on its own. However, this process can take many years and may result in less than desirable tree species coming back. Tree planting not only saves time but also allows you the opportunity to select the best species for a particular site.

The Kentucky Division of Forestry operates two nurseries where tree seedlings are raised for planting on privately owned lands. These nurseries are located in western Kentucky at Gilbertsville in Marshall County near Kentucky Dam Village State Park and in eastern Kentucky at Grassy Creek in Morgan County near West Liberty. Seedlings grown at these nurseries are from genetically improved seed with superior characteristics, such as fast growth rates, straight trunks, and good natural pruning of limbs.

The nurseries produce a wide variety of native hardwood and pine species suitable to plant in open areas for producing future timber crops, enhancing wildlife habitat, establishing windbreaks and Christmas tree plantations, and protecting soil from wind and water erosion. Even in urban areas, tree planting is a preferred practice in reducing heating and cooling costs, providing privacy and noise barriers, and improving the overall value of the urban landscape.

The division grows between three and four million seedlings per year. The seedlings are bare-rooted and available in quantities of 50 and 500 and are shipped during the tree's dormant season (December to April). Orders are accepted as early as July 1 of each year but will not be shipped via UPS until late fall at the earliest. For more information about the Division of Forestry's nursery program, available tree seedlings, prices, and assistance in species selection, please see the seedling order form in this issue, and check the division's web site (www.forestry.ky.gov/programs/reforestation).



All photos courtesy of Kentucky Division of Forestry



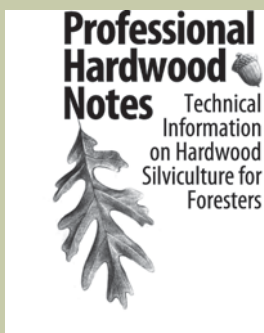
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Hardwood Silviculture

Technical information on hardwood silviculture for foresters



The newly developed “Professional Forestry Notes” is a publication series devoted to professional foresters and advanced landowners providing up-to-date silvicultural information for management of woodlands in Kentucky and the surrounding region. The series is a joint venture of Dr. Jeff Stringer and Dr. Wayne Clatterbuck (University of Tennessee Extension forester) and supports the Professional Forestry Workshops that are run in Kentucky and Tennessee. Six titles have been produced in 2006, and at least three more are planned for 2007. Current publications include these titles:

Oak Shelterwood deals with a newly developed silvicultural method used to improve oak regeneration. This publication outlines the basic ecology of oak regeneration, new research findings, and details on how to properly implement the oak shelterwood method to improve natural oak regeneration. Stringer, J.W. 2006. *Oak Shelterwood: A Technique to Improve Oak Regeneration* (FOR-100). University of Kentucky, Cooperative Extension Service, Lexington. 7 pp.

Two-Age Systems and Harvesting Using a Deferment Cut. This 12-page publication defines the benefits and costs of the two-age system and also covers deferment harvesting as a stand-alone regeneration treatment or for the purpose of initiating a two-age

stand. The publication includes proper selection of reserve trees (species, age, crown condition, topographic location, risks, harvest damage, and the benefits for life boating species at risk). It also includes a checklist of marking guidelines. Stringer, J.W. 2006. *Two-Age System and Deferment Harvests* (FOR-103). University of Kentucky, Cooperative Extension Service, Lexington. 12 pp.

Oak Decline deals with a noticeable problem in a number of oak stands throughout the region. This publication provides information on how to diagnose oak decline and what the options are to help manage the problem. Clatterbuck, W.K., and Kauffman, B.W. 2006. *Managing Oak Decline* (FOR-099). University of Kentucky, Cooperative Extension Service, Lexington. 6 pp.

Hardwood Plantations guides you through a timber investment analysis showing you how to make monetary decisions regarding this significant investment. Tankersley, L. 2006. *Hardwood Plantations as an Investment* (FOR-101). University of Kentucky, Cooperative Extension Service, Lexington. 7 pp.

Gypsy Moth deals with a problem that will soon reach Kentucky. We have plenty of warning, and foresters in Kentucky need to provide competent prescriptions for dealing with this issue and should now be focusing on gearing up their silvicultural arsenal to deal proactively with this pest. This publication provides assessment guidelines identifying stands at risk and silvicultural alternatives to minimize impacts. Kauffman, B.W., and W.K. Clatterbuck. 2006. *Forest Management Strategies to Minimize the Impact of Gypsy Moth* (FOR-102). University of Kentucky, Cooperative Extension Service, Lexington. 8 pp.

Degraded Stand Management is an issue that most foresters have to deal with. The publication outlines assessment procedures and courses of action to bring stands back into acceptable levels of productivity. Clatterbuck, W.K. 2006. *Treatments for Improving Degraded Hardwood Stands* (FOR-104). University of Kentucky, Cooperative Extension Service, Lexington. 11 pp.

How to Obtain the Publications

Each publication has a publication number identifying it as either from the University of Kentucky, University of Tennessee, or Southern Regional Extension Forestry. Each is available from all three sources. Kentucky foresters and landowners can obtain a hard copy (while supplies last) or download the publication in PDF form from www.ukforestry.org.

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Woodland owners may find themselves working with several different types of foresters during the time they own and manage their woodlands. Some types are procurement foresters, service foresters, and consulting foresters.

A *procurement forester* works for a forest product manufacturing company such as a sawmill or a paper company. On behalf of their employers, they purchase standing timber and logs to meet the company's raw material needs. Some forest product companies have foresters who also help landowners with developing management plans.

Kentucky state government through the Kentucky Division of Forestry employs *service foresters* to meet with woodland owners and help guide them toward a sustainable forest management plan for their woodlands, a service that ultimately benefits all the people of the Commonwealth.

**Kentucky Chapter
Association
of
Consulting
Foresters**



The Kentucky Chapter of ACF (KACF) is a non-profit, professional organization representing the professional consulting foresters in Kentucky.

What is a Consulting Forester?
A consulting forester is a privately employed business person with a minimum of a U.S. degree in forestry from an accredited college or university.

What does a Consulting Forester do?
A consulting forester provides professional forestry services to a client for a fee or commission.

www.kacf.org

Kentucky's Consulting Foresters

By Christopher J. Will



Photo by Chris Will



Photo by James Savage

And then there is the *consulting forester*. The consultant is employed by woodland owners to help them carry out a specific forestry activity. The consulting forester represents only the interests of the landowner for whom he or she is working. It is the consulting forester who can provide up-to-date, unbiased timber value information and timber sales expertise to the forest landowner.

A consulting forester is a privately employed businessperson with a minimum of a bachelor's degree in forestry from an accredited college or university. Not all consulting foresters offer the same services, but most provide at least basic services of timber sale administration, timber inventories and valuations, timber trespass appraisals, and forest management planning.

The consultant's knowledge of timber markets and timber values can help the woodland owner make critical management decisions about his or her forest. When it's time to harvest timber, consultants use their experience and the relationships they have developed with timber buyers to get the best available price for the landowner. Once a buyer has been obtained, the consultant can protect the landowner's interests and property with a timber sale contract and harvest oversight.

Timber valuations are often made at the time woodlands are bought or sold. It can also be used for management, tax, and estate planning. By inventorying the timber resource by tree species and size class, the consultant can estimate its financial worth. In the unfortunate situation where a landowner has lost timber to a trespassing neighbor, a consultant can estimate the volume and value of the timber removed. Expert witness testimony is also available.

Woodland management planning provides landowners with a description of their woodlands today and recommendations that should be implemented in order to meet objectives for the future.

The consultant provides these services either for an hourly rate or as percentage of the timber sale proceeds. Contact each consultant to determine the services they provide and the rates that they charge.

Some consulting foresters become members of the Association of Consulting Foresters of America, and they use the ACF designation after their name. ACF membership demonstrates

that a forester has a minimum of a bachelor's degree in forestry, at least five years of experience in practical forestry administration, no interest in a timber purchasing or procurement entity, client references, and is a participant in continuing education. Members must also adhere to a strict code of ethics that protects their clients. A list of consulting foresters can be obtained online at the national Web site (www.acf-forester.com) or at the Kentucky chapter Web site (www.kacf.org).

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Photo by Mark Lee

Kentucky Big Tree Program

You Bet Your Sweet Sassafras



All photos courtesy of Kentucky Division of Forestry



This state and national champion is the largest known sassafras in the world.

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By Diana L. Olszowy

Located near the corner of the 2100 block of South Frederica Street in Owensboro stands the oldest giant sassafras in the country. It is also the largest known sassafras tree in the world. This giant tree, which professional foresters have estimated to be 300 years old, has been saved from destruction on several occasions.

Sassafras belongs to the laurel family, of which most members are tropical, broad-leaved evergreens. Many have aromatic substances in their leaves, stems, and roots. Tropical cousins to sassafras provide a source of spice, cinnamon, and camphor.

Sassafras trees growing wild were a blessing for the early settlers, furnishing wood for dugout canoes, a refreshing tea, and a “spring tonic” once thought to be a cure for many ills. Historically, oil extracted from the roots and bark was said to have “magical” medicinal powers that could heal the lame, prolong life, and cure malaria, fevers, colds, headaches, stomachaches, and liver aches. Sassafras extract is still used for tea and has served as a flavoring agent for root beer, sarsaparilla, and other soft drinks. It is also used to flavor candies and medicines and as a perfume for soaps. Louisiana Creole chefs still use dried and crushed young sassafras leaves to flavor filé gumbo, a famous rice and chicken, ham, or oyster dish.

Sassafras bark was one of the first exports of the Jamestown Colony. By the time the merchants marketed their shiploads of sassafras, the price had risen to 335 English pounds per ton, equivalent to more than \$25,000 a ton today. Of course, the bottom fell out of the market when the fanciful claims were disproved.

This state and national champion sassafras in Kentucky escaped the bark and root harvests only to be threatened by the widening of South Frederica Street in 1957. When the bulldozers came, owner Grace Rash was waiting with her shotgun. She held them off at gunpoint until a call to then Governor A. B. “Happy” Chandler resulted in the building of a retaining wall to protect the tree. Governor Chandler pardoned the sassafras, and as the street was widened, the tree was left unscathed.

The American Forestry Association named the tree the “biggest sassafras in the country” in 1951, and today it is an historical landmark.

Each autumn the tree blazes with a fiery cloak of color. It may not cure your rheumatism, but it’s definitely a sight for sore eyes. If you happen to drive past this magnificent tree, look carefully. Oddly enough, the tree is not too apparent in spite of its size. It measures 22.5 feet in circumference and is 77 feet tall!

Making It Local!

by Billy Thomas

Forestry and natural resource organizations in Kentucky have been meeting over the last few years regarding how to best address the challenges facing woodland owners (see Karen Marshall's article in this issue). One of the reoccurring discussions has been the concept of fostering local woodland or forestry organizations that would facilitate more local involvement in forestry-related activities across Kentucky.

These local organizations would be open to everyone, based on local needs, and would be supported by the University of Kentucky Cooperative Extension Service, the Kentucky Woodland Owners Association, the Kentucky Division of Forestry, the Kentucky Division of Conservation, and Kentucky Farm Bureau.

Several states have been working on this idea, and we can learn much from their experiences. Typically, a local organization develops when a core group of individuals and organizations in a particular area comes together to discuss the potential for developing a local organization in that area. If the group determines it has potential and is a worthwhile effort, then a public meeting is held in the area to share the concept. From there, the direction of the local organization is determined by the local organization. They will determine the needs for officers, activities to be pursued, and the frequency of meetings. This can vary from organization to organization.

Local organizations are often made up of woodland owners, loggers, forest industry representatives, local elected officials, supporting agency personnel, and anyone else interested in forestry. Several of these organizations already exist in Kentucky and have been working on woodland field days and educational activities as well as working with their county Agricultural Development Boards to secure funding for forestry-related activities. In a state that is nearly half forested with more than 423,000 woodland owners and a wood industry with an annual economic impact of \$7 to \$8 billion, we believe that there is room for many more.

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KWOA

Five state partners are cooperating in the development of local woodland or forestry organizations. The Kentucky Woodland Owners Association (KWOA) convened a meeting of agency representatives and other interested parties on May 18 in Frankfort to further define the structure and function of these organizations. Representatives of the State Farm Bureau, Kentucky Division of Forestry, University of Kentucky, KWOA, and Soil Conservation Districts provided input on the structure and function of county/regional woodland or forestry organizations.

Less than two out of 10 woodland owners actively manage their forest. Privately owned woodlands are not producing the products, values, or environmental amenities it could. Joe Ball, KWOA president, reminded the meeting participants of the daily struggles at the local level for woodland owners in dealing with sawmills, regulations, and pricing. A KWOA member described how assistance from the association and the university afforded a favorable outcome in his dispute with the local property valuation assessment over taxation of his woodland acreage. Participants concurred that local organizations have great potential to influence public policy from the ground

up. The participants agreed that local organizations should be "independent local groups, with varying levels of organization, created to address woodland and forestry issues in their area."

Issues that local organizations could address include forest health, fire protection, timber management, hardwoods regeneration, marketing of forest products, incentives for woodlands investment, forest wildlife, woodland owners' educational needs, and conservation easements.

Each participating organization has designated a point person to serve on a steering committee related to local organizations and is in the process of developing a list of counties and individuals who may be willing to work on the creation of local organizations. The steering committee will be meeting soon to address issues related to the creation and support of local organizations in Kentucky. Watch for future articles in *Kentucky Woodlands Magazine* for more information about local organizations.

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Larry Turner

On Sunday August 27, 2006 a tragedy occurred. Nearly 50 people lost their lives and countless family members and friends of the deceased will never be the same. When Flight 5191 crashed the Kentucky woodland community also lost a true friend and supporter. Dr. Larry Turner, the Director of the Cooperative Extension Service of the University of Kentucky, was on that fatal flight. Dr. Turner recognized the vital role that Kentucky's woodlands play in our state's economy and way of life. He also believed strongly in grassroots efforts to make Kentucky a better place and supported the development of a Memorandum of Understanding between the Kentucky Woodland Owners Association and the Cooperative Extension Service of the University of Kentucky to work together on woodland related issues in Kentucky. We will be forever grateful to Dr. Turner for his strong support of the woodland owners in Kentucky.

Spread the Word

Please share the magazine with a relative, friend, or neighbor and give them a reader card so they can be added to the mailing list. The Kentucky Woodlands Magazine is available online at www.ukforestry.org. While visiting the Kentucky Woodlands Magazine online give us your feedback and let us know how we are doing and how we can make it better.



Tad Norris Introduction

Vernon "Tad" Norris is a Forester employed by the Kentucky Division of Forestry. He has been a Service Forester since 1992; most of that time spent in the east-central part of the state. He is now the Division's Landowner Outreach Specialist and works out of the Frankfort Office. Tad finished his "formal" education at the University of Kentucky and is continually searching for

ways to help the football team get to a bowl game. He lives just outside of Mt. Sterling with his better half - Dee Norris, one bird dog, and an old blind terrier. He works to support a terrible fishing habit. You can reach Tad at tad.norris@ky.gov or 502.564.4496.

Upcoming Events

Timber Management and Sales Seminars for Woodland Owners

- **January 29, 2007 in Lyon County, KY.** To register and for more information please contact Susan Fox with the Lyon County Extension Office at Susan.Fox@uky.edu, 270.388.2341.
- **February 12, 2007 in Laurel County, KY.** To register and for more information please contact Tad Norris with the Kentucky Division of Forestry at Tad.Norris@ky.gov, 502.564.4496.
- These programs are sponsored by the Kentucky Division of Forestry, Kentucky Association of Consulting Foresters, and the University of Kentucky Cooperative Extension Service. The meetings will be held at the Lyon and Laurel County Extension Offices respectively.

The Kentucky Woodland Owners Association annual meeting will be held on Friday and Saturday March 16th & 17th 2007 at Blue Licks Battlefield State Park in Carlisle, KY. Meet fellow woodland owners and hear expert discussion of forestry techniques and issues. For more information about the Kentucky Woodland Owners Association and their annual meeting please visit www.kentuckywoodlandownersassociation.com.



FOR 101 Math Quiz Answers

1. The Kentucky champion white oak has a diameter of 86 inches. $270 / 3.14 = 86$.
2. Yes, you can afford the purchase.
 $500 \text{ ft} \times 1000 \text{ ft} = 500,000 \text{ ft}^2$
 $500,000 / 43,560 = 11.5$ acres
 $11.5 \times \$1,200 = \$13,800$
3. For a tree planting with a spacing of 8 x 8 feet or 64 square feet per tree, 680 trees will be required to plant one acre.
 $43,560 / 64 = 680.625$.

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In this issue

Kentucky Forest Stewardship Program



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