

**Kentucky
Woodlands**
Magazine

Volume 8 Issue 1

**Forest*A*Syst
Selecting a Logger
Kentucky Snakes**

Kentucky Woodlands

Volume 8 Issue 1 Magazine

April 2013

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

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Editors's Note: We are also pursuing the use of SFI paper produced on SFI certified and American Tree Farm System certified land.

From the Editors of the Kentucky Woodlands Magazine:

This issue of the Magazine, as with most issues, contains a wide variety of information from snakes to streamside management zones and everything in between. The issue is particularly focused on woodland owner assistance especially as it relates to management planning. Kris Irwin with the University of Georgia provides an overview of his award winning work with Forest*A*Syst, a system that allows woodland owners to determine management options. In conjunction with this article is information on using the USDA Natural Resources Conservation Service's Web Soil Survey and information on web resources for woodland owners.

If you are not into that check out Kentucky Snakes, Resources for Dealing with Invasive Plants and Selecting a Logger in Kentucky, or a summary of the 2012 economic statistics associated with Kentucky's forestry sector, \$9.9 billion in 2012, enough said. Kentucky's legislation has met and we have updates in News to Use as well as information on the Kentucky Division of Forestry's reorganization. We have our usual slate of departments (Big Trees: Ohio buckeye), information from our Tree Farm Committee and KWOA. We hope you enjoy this issue and please provide us feedback.


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About the Cover:

The cover image was supplied by Dr. Tom Barnes, Extension Wildlife Professor, UK Department of Forestry. This waterfall, Wrigley Falls, can be found along the roadside of Kentucky 711 in northern Morgan county just west of the town of Wrigley. It drops approximately 30 feet and is visible from the road. This is one of the approximately 175 waterfalls that will be included in the forthcoming coffee-table book on the Waterfalls of Kentucky by Dr. Barnes. If you know of a scenic waterfall you might like to have included in the book project, please contact Dr. Barnes at Tom.Barnes@uky.edu. Some of the images from this book project will be shown in the forthcoming webinar as part of the UK Forestry Extension Fall Webinar Series.

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Eastern redbud.

Photo courtesy: Reneé Williams



Editor's Note: The use of FSC mixed source paper indicates Kentucky Woodlands Magazine's commitment to sustainable woodland management.

Forest*A*Syst:

A Web-based Tool for Woodland Owners

by Kris M. Irwin

As a woodland owner, you may or may not have a management plan for your property. For those who do have a plan, I'm sure you have found it to be a valuable resource as a guide to scheduling management activities. A good management plan is one that is reviewed annually. Don't let your plan sit on a shelf too long.

If you do have a management plan already, are you interested in learning about other management options for your woodlands beyond the focus of timber, wildlife, and protecting water quality? If you don't have a plan, do you need help finding a professional resource manager who can help you create a plan tailored to meet your specific management objectives? Do you wish to print an aerial photo of your property with just a few clicks of your computer mouse? If you answered yes to any of these questions then you should check out the Forest*A*Syst Web site (www.forestasyst.org).

Forest*A*Syst was developed with three objectives in mind:

- To educate woodland owners about woodland-management activities they can implement on their land
- To encourage woodland owners to articulate their land-management objectives in a written management plan
- To facilitate communication between the woodland owner and a natural resource professional (e.g. forester, wildlife biologist, or state extension professional)

A Page at a Time

As a woodland owner you most likely have one or more objectives that guide the management activities on your property. If you do not have objectives, don't worry, keep reading because you will discover how

Forest*A*Syst (FAS) can facilitate the process of helping you to identify one or more objectives that can meet your needs.

The FAS Web site is populated with eight content-rich, topic-specific pages that educate you about predominant woodland management alternatives (see above). The topics are timber management, wildlife management, recreation, forest health, soil and water quality, agroforestry, invasive species, and Firewise. The Management Plan page outlines the value of writing a plan that addresses your specific objectives and the Glossary page provides an alphabetical listing of technical terms and concepts used within FAS Web site. The Profile Your Land and Contact a Professional pages are the interactive pages of the FAS Web site. Let's explore each page to learn more about what you'll find and how you can use the information.

Home Page

The home page is your gateway to the FAS Web site. You are greeted with a short video delivered by the FAS project manager. You are encouraged to listen to the video the first time you visit the Web site. Many options are available for you to navigate from the home page. If you click on "Start Forest*A*Syst," in the middle of the page, you will be directed to the Introduction page where you can start viewing the entire Web site from beginning to end in consecutive order. Or you can select and view any of the topic pages listed in the column on the left-hand side of the page. The home page also gives you the option of going directly to the interactive Profile Your Land page. You'll learn more about how this page functions later in this article.

HOME ABOUT FOREST* A *SYST CONTACT FOREST* A *SYST SEARCH

Introduction
Timber Management
Wildlife Management
Recreation
Forest Health
Soil & Water Quality
Agroforestry
Invasive Species
Fire Wise
Management Plan
Profile Your Land
Glossary
Contact a Professional

Welcome to Forest* A *Syst

00:10 01:13

Forest*A*Syst is a self-assessment guide, designed for a national audience, with the goals of helping new forest landowners articulate their objectives in a written management plan and foster a working relationship with a resource professional who can provide them with technical assistance. The national document was intended to serve as a protocol for state forestry agencies to follow as they developed their own state-specific Forest*A*Syst document and programming. Only a few states adopted the concept and produced their own printed version of Forest*A*Syst.

START FOREST*A*SYST

Click here to start the Forest Landowner's Assessment Guide

Introduction

The FAS Introduction page sets the stage. The text on this page is intended to get you to think. When you finish reading this short narrative, it is anticipated that you will ask yourself, “What do I want to gain from my woodland property?”

Timber Management

The content of the Timber Management page is broken into three categories: the young stand, the middle-aged stand, and harvesting the mature forest. Using a combination of photos and short descriptive narratives, you will build your working knowledge about timber management.



must be followed. Ask your extension forester for more information about the BMPs in your state.

Agroforestry

Agroforestry is the intentional combination of trees, crops, and/or livestock. This page describes the various agroforestry practices used by woodland owners in North America. If you want to learn more about agroforestry, contact the USDA National Agroforestry Center (www.nac.unl.edu).

Invasive Species

Land-management practices used for forestry, wildlife, and recreational habitat management involve periodic disturbances that have the potential to introduce and/or spread invasive species. This page will help you develop your level of awareness of invasive species and describe appropriate control measures.

Firewise

This page was recently added to the FAS Web site. From this page, you are encouraged to link with the national Firewise documents that address the risks and learn how to protect your property from wildfire.

Management Plan

This page stresses the importance of developing and following a management plan. Unless you have the knowledge and skills to manage natural resources, you are encouraged to seek the advice and guidance from a skilled natural-resource management professional.

Profile Your Land

This page is filled with interactive opportunities. After selecting the state and then the county where your property is located, you receive information about the eco-region and predominant forest cover type for the county you selected. At the bottom of this page is the Find Your Property section. Read the instructions, and with a few clicks of the mouse, you will be printing an 8.5-by-11 inch aerial photo



Wildlife Management

The wildlife found in your woodlands have four basic requirements to survive and reproduce: food, cover, water, and space. This page provides a few examples of the interactions and what you can do to integrate wildlife management and timber management.

Recreation

An often overlooked management objective is recreation. This page illuminates how you can simultaneously manage your forest for profit while increasing your wildlife habitat and enjoying the beauty of your woodlands. You will learn about common management activities that can enhance the visual appearance of your woodlands.

Forest Health

You must be vigilant and protect your woodlands from forest insects, invasive species, and diseases. While the amount of text on this page is limited, you are provided with a link to the Forest Pests of North America Web site.

Soil and Water Quality

The take-home message for this page is that you, as the woodland owner, have a responsibility to use best management practices (BMPs) to protect water quality and control soil erosion. Each state has an established set of BMPs that

of your property. The self-assessment questionnaire requires your input by asking a series of “yes,” “no,” and “don’t know” questions. You can connect with the USDA Natural Resource Conservation Service Web Soil Survey and print a map of the soils on your property (see the Web Soil Survey article on page 4 for more information).

Contact a Professional

Forest*A*Syst is designed to connect you with a natural-resource professional who can help you put your management ideas into practice. From this page, click on the state where



Forest*A*Syst provides access to aerial imagery of your property.

your property is located, and a listing of state and federal agencies and university contacts will appear. The links on this page will connect you with the Web page for each contact.

Forest*A*Syst is a tool that can help resource professionals,

too. The Web site can be used to educate new woodland owners who are interested in learning more about natural resources and management objectives. The answers provided in the self-assessment questionnaire can guide you toward selecting the management objectives best suited for your property.

Get Started!

Forest*A*Syst is a tool for woodland owners like you. It was created for woodland owners and resource professionals. How you use the Web site depends on your level of technical knowledge, complexity of management objectives, and if you have a management plan or not. You can use Forest*A*Syst to learn more about agroforestry, or a professional forester may use it to help his/her client understand how the soils found on their property are capable of supporting timber production. There is something for everyone at www.forestasyst.org.

About the Author:

Kris M. Irwin, Ph.D., is an Environmental Education & Instructional Design Specialist, with the University of Georgia and a leader in K-12 and woodland owner education efforts.

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How It All Began...

Forest*A*Syst was created in the late 1990s by Rick Hamilton, an extension forester with the North Carolina State University Cooperative Extension Service, and Larry Biles, National Program Leader-Forest Management with the USDA Cooperative State Research, Education, and Extension Service (CSREES). The Forest*A*Syst program was modeled after the existing Farm*A*Syst and Home*A*Syst extension programs. Hamilton is now retired, and Biles is the state forester for Kansas.

While the paper-based version of Forest*A*Syst was in its early stages of adoption, the World Wide Web technology was steadily increasing the ability of state and federal natural resource agencies to reach more and more woodland owners across the country. Internet technology and graphical design software provided an effective mode of creating and delivering interactive and dynamic educational materials that allowed users to read text, view videos, and access additional resources. These positive characteristics associated with the Web were the driving force behind the decision to create a Web-based version of Forest*A*Syst.

A collaborative team was formed to build the Forest*A*Syst Web site. The team included the original authors—Hamilton and Biles—and three service and outreach faculty from the University of Georgia—Dr. Kris Irwin, Dr. David Moorhead, and Chuck Bargeron. The goal for the new Web site was for it to be interactive, allowing users to assess their management priorities, print documents, search other Web sites, and develop a line of communication with natural-resource professionals. Converting the paper version of FAS to a Web site was made possible with grants from the USDA CSREES and Forest Service, Forest Stewardship programs.



Web Soil Survey

An Online Tool to Assist in the Development of Your Woodland Management Plan

by Doug McLaren

Soils found on your property eventually define your individual land-use planning options, which can include woodland management. Many individuals beginning the process of developing a woodland plan usually have visions that far exceed most woodlands potential, so it is important to understand the correlation between soils and the trees growing on them. Making a complete plan for your woodlands should incorporate as many resources as possible and the Web Soil Survey (WSS) is that online tool that can assist in designing a woodland plan that relates soils with trees.

The Web Soil Survey provides data and information concerning soils and is operated by the USDA Natural Resources Conservation Service (NRCS). The information found at the Web site is the same contained in the older paper version referred to as the “soil survey.” They both contain information and predictions of soil behavior for selected land uses. The online version of the WSS has the same information but provides more illustrative “what-if” examples.

The WSS provides numerous options for land-use planning, especially for woodland management. Comparisons of species production potential versus site provides the user some insight as to which species are best suited for future management opportunities simply based on soil characteristics. Trees and their future potential have a direct correlation to the soil resulting from geology, landforms, relief, climate, and the natural vegetation of the area.

The WSS requires only several steps in the development of a plan for the location of interest. The first step requires you to locate and define the property boundaries on an aerial photograph or a topographic map. Secondly, WSS will overlay soil delineation lines within these property boundaries. Area calculations are made for the total property as well as for each soil group. At this point, you will be able to view the detailed soil descriptions concerning each of the soil groups.

The last descriptive piece of the WSS is for you to explore and evaluate the options in the Soil Data Explorer. You are provided access to soil data for your property, and WSS will list the suit-

ability of the soils for a particular use. The options created are saved in a report format that can be checked out and printed to your local printer.

The Web Soil Survey is a tool. The information that is generated from your inputs will help you determine the potential and limitations of the area of interest. The results do not replace careful on-site observations, but can be used to better equip you with an understanding of your options in woodland management.

Map Unit Symbol	Map Unit Name	Acres in AEE	Percent of AEE
Dnd	Dudman-Hamblin-Latham complex, very rocky, 8 to 70 percent shale	36.8	33.8%
G	Grigo-Awley complex, frequently flooded	6.0	5.6%
Sd	Shawnee-Glen-Houston complex, 20 to 70 percent shale	21.4	19.9%
SdE	Shawnee-Glen-Kemper complex, 20 to 70 percent shale	44.3	41.2%
Totals for Area of Interest		108.5	100.0%

<http://websoilsurvey.nrcs.usda.gov/app/HomePage.htm>

The Web Soil Survey tool can be accessed at <http://websoilsurvey.nrcs.usda.gov/app/HomePage.htm>. This useful application includes all the valuable information in the printed Soil Surveys and much more to aid woodland owners in the management and care of their property.

About the Author:

Doug J. McLaren is an Area Extension Specialist with the University of Kentucky Department of Forestry. He is involved in forest management educational opportunities for the forest landowners of Kentucky.

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The soil-tree relationship is important because it is a major factor in which trees will not only grow in a particular area but also have a chance to be successful.

Photo courtesy: Matt Barton



Kentucky Wood Expo coming to Lexington, KY

You and your family are invited to attend the 2013 Kentucky Wood Expo that will celebrate the 30th show sponsored by the Kentucky Forest Industries Association (KFIA). The Wood Expo will make its debut at Masterson Station Park located in Lexington, Kentucky on Friday, September 20, and Saturday, September 21. The show offers the entire family a chance to see different types of demonstrations and equipment related to the wood industry. Everything from logging to sawmill equipment to finished wood products by Kentucky craftsmen will be on display. You don't have to work for the wood industry to attend or enjoy the show.

So What Will I See?

The IronJack Traveling Shows and Competitions (aka Lumberjack Feud) from Pigeon Forge, TN will be performing live lumberjack competitions both days. The lumberjacks will compete in sawing, pole climbing and log rolling competitions, three times a day. Chain saw carvers will also be there sharing their love of carving and sculpting some of the most amazing chain saw carvings ever seen. Carvings will be auctioned at the show both days and bidding is open to the public. Also on Friday from 6 -7 p.m. come see local celebrities test their hands at lumberjack competitions.

In addition to the many inside and outside exhibits, Friday will feature an educational program for area students. Local FFA students and surrounding areas will compete for prizes in forestry-related events and learn about the importance of the wood industry. A large number of educational events will take place both days dealing with all types of forestry and wildlife topics.

On Saturday, an assortment of activities will continue for everyone. The University of Kentucky Forestry Extension will have several educational booths from nature photography to antique wood furniture identification not to mention the annual Woodland Owners Short Course will be held that day.

Anyone over the age of 18, can participate in the Skidder and Knuckleboom competitions. A skidder is any type of heavy vehicle used in a logging operation for pulling cut trees out of a forest. Skidding is the way in which the logs are transported from the cutting site to a landing. Early logging was done by horses. Today's are pulled by horse power. Participants in this contest will be asked to drag logs through an obstacle course of cones without knocking them over. Participants in the Knuckleboom competition must stack logs in a designated area (see photo to right).

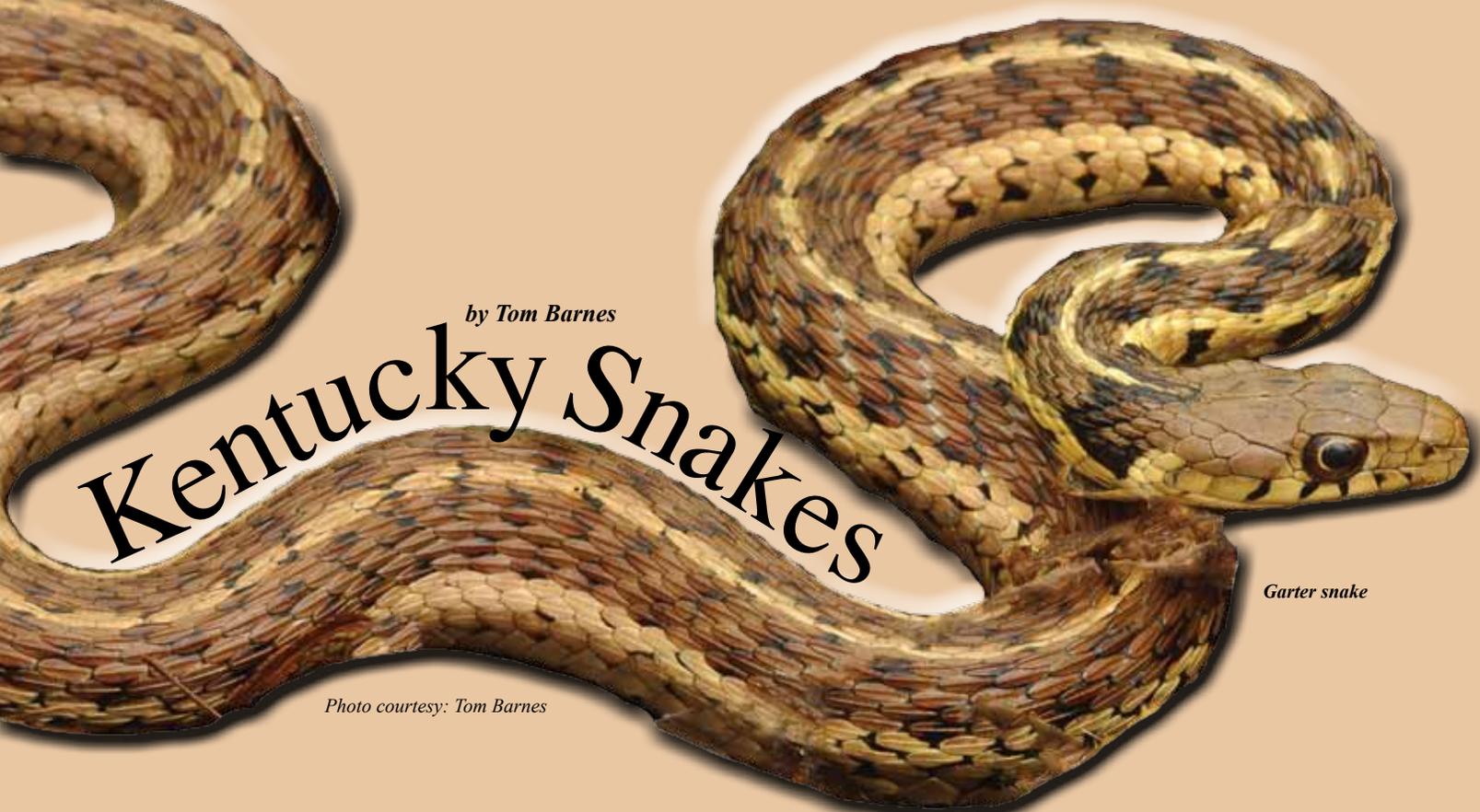
Since the Expo is in September, this allows you also to get an early start on your Christmas shopping while supporting a great cause by participating in the Silent Auction that benefits the Kentucky Children's Hospital. Several different Kentucky crafts will also be available for purchase.

For a full schedule of events or to order advance tickets contact KFIA at 502.695.3979. The Expo is open from 9 a.m. to 7 p.m. on Friday and from 8:30 a.m. to 4:30 p.m. on Saturday. Admission is \$7 (\$5 in advance) at the gate for adults and \$5 for children 6-12 (under 6 is free). For more Expo information visit www.kywoodexpo.org



September 20 - 21, 2013
Masterson Station Park -
Lexington, KY
www.kywoodexpo.com





Garter snake

by Tom Barnes

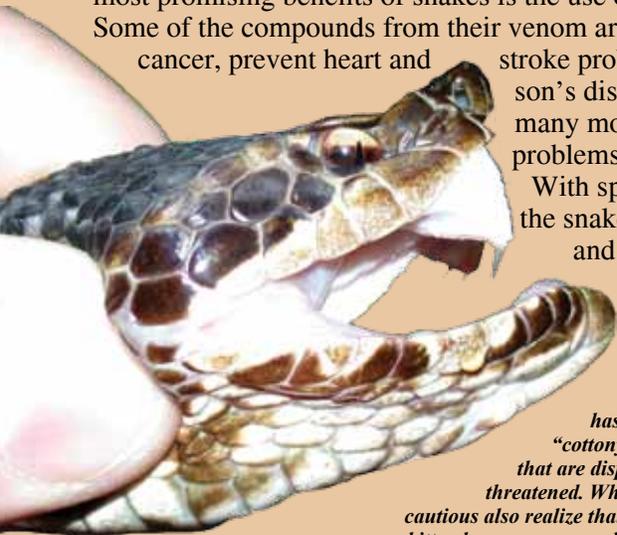
Kentucky Snakes

Photo courtesy: Tom Barnes

Few animals elicit the irrational fear response in humans as do snakes. Typical responses include: "I hate snakes," "I am scared of snakes," or the best one, "The only good snake is a dead one." These highly beneficial animals have gotten a bad rap in popular media, which perpetuates the stereotypes about this misunderstood group of animals. Snakes provide both direct and indirect benefits to woodland owners by being part of the balance of nature and serve as both predator and prey. Some common snakes such as the rat snake, corn snake, milk snake, or garter snake eat destructive insect and rodent pests. King snakes eat other snakes including venomous ones; queen snakes eat crayfish; and hognose snakes eat toads. Some of the smaller snakes such as the red-bellied, ring-neck, worm, and brown snakes eat earthworms and soft-bodied insects such as grubs in the soil. One of the most promising benefits of snakes is the use of their venom. Some of the compounds from their venom are used to treat cancer, prevent heart and

stroke problems, Parkinson's disease, and many more health problems.

With spring upon us, the snakes will be out and about, and woodland owners will likely see



The cottonmouth has a distinctive white "cottony" mouth and fangs that are displayed when it feels threatened. While you should be cautious also realize that people are rarely bitten by venomous snakes in the U.S.

Photo courtesy: John Willson, University of Arkansas

them if they spend time in the forest and fields or even around their barns or outbuildings. While snakes are highly persecuted, they should in general be left alone. However, you can reduce their abundance by picking up metal, boards, tires, and other debris lying on the ground. One of the absolute best places to find snakes is under roofing tin that has been lying on the ground for years. If you clean up around your property you are most likely going to see a reduction in snake numbers. The other thing to reduce snake numbers around out buildings, barns, and other structures, is to reduce the rodent population. This can be accomplished in a variety of ways, but most rural folks use baits or glue traps. The keys to using these products is to make sure you follow the label and do not put out more than is directed by the label and make doubly sure that any domestic animals, including pets, cannot access the baits because there have been numerous instances of dogs dying as a result of eating baits or rodents that have died from poison baits.

One of the great concerns of many woodland owners is the prospect of having a venomous snake on their property. Yes venomous, not poisonous. Poisons are either ingested or absorbed and venom is injected. In fact, there is evidence that if you have no open sores or other open wounds in your mouth and or digestive tract that you can actually swallow snake venom and it will do no harm, while if you ingest a poison it will affect you and make you sick or kill you.

So what venomous snakes do we have in Kentucky? We have four venomous snakes and the copperhead is by far the most common of all the species found in the woods pretty much all across Kentucky with the exception of the inner Bluegrass. Timber rattlesnakes

are becoming rarer and can be found across much of the state except Central Kentucky. The pygmy rattlesnake is considered a state threatened species and can only be found in the Land between the Lakes Area of far Western Kentucky. That leaves one other venomous snake, the cottonmouth or water moccasin. This species occurs in wetlands and swamps and is only found in the western third of Kentucky.

How concerned should you be that you will be bitten by a venomous snake? The chances are almost zero. There are 7,000-8,000 venomous snake bites annually in the United States and only 1 in 50 million people will die from snake bite. You are more likely to die from a spider or other insect bite, dog bite, or lightning strike than from a venomous snake.

How can you tell what a venomous snake looks like in Kentucky?

There are some easy ways to tell, and body color is not one of them. Nor is head shape. All snakes can vary in coloration, copperheads can be almost completely black and are light with little typical banding. Because all of Kentucky venomous snakes are “pit vipers” they have a distinctive nostril-shaped opening located directly between the eye and the nostril on the side of the head. This is used to detect warm-blooded prey and it allows the snake to strike with deadly accuracy, even in total darkness. The second, and very reliable, and perhaps easiest feature is the shape of the eye. Pit vipers have cat-shaped or elliptical pupils and non-venomous snakes have round eye pupils. Finally, venomous snakes have a single scale in rows on the underside of the tail that proceeds from the anal plate to the tip of the tail. Non-venomous snakes have two or more scales in a row preceding the entire length of the tail. This feature is even distinguishable on a shed skin.

In addition to these anatomical characteristics, habitat differences can also be used for cottonmouths, which live near or are associated with wetlands and water and are only found in the western part of the state. The common northern water snake is often mistaken for cottonmouths in the rest of the state because they superficially look similar, live in a similar habitat, and are aggressive. Generally speaking, rattlesnakes are most often associated with rough, rocky terrain and the most commonly encountered venomous snake is the copperhead and copperhead bites are rarely fatal.

For those interested in learning about which snakes live in Kentucky and identifying the various species, check out the Kentucky Snake Identification page at www.kentuckysnakes.org.

About the Author:

Thomas Barnes, Ph.D., is an Extension Professor and Extension Specialist with the University of Kentucky Department of Forestry. His specialties are wildlife ecology, biodiversity, wildlife management, and ecosystems management.

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Characteristics of venomous snakes in Kentucky:

Pupil shape: The black part in the center of the eye (pupil) of harmless snakes is round. Poisonous snakes have egg-shaped or cat-like (elliptical) pupils.

Pit: Poisonous snakes in Kentucky also have a very conspicuous sensory area or pit on each side of the head.

www.kentuckysnakes.org



Timber rattlesnake

Photo above and below courtesy: Tom Barnes



Copperhead



Pygmy rattlesnake

Photo above and below courtesy: John Willson, University of Arkansas



Cottonmouth

Kentucky Forestry Economic Impact Report 2012-2013 Executive Summary

The University of Kentucky Departments of Forestry and Agricultural Economics developed the Kentucky Forestry Economic Impact Report 2012-2013 to provide up-to-date economic statistics and information for Kentucky's forest and wood industries and associated forestland. This executive summary covers the highlights of the report; the complete report is available at www.ukforestry.org

2012 Economic Importance of Kentucky's Forest and Wood Industry

\$9.9 billion total economic impact with \$6.3 billion in direct revenue

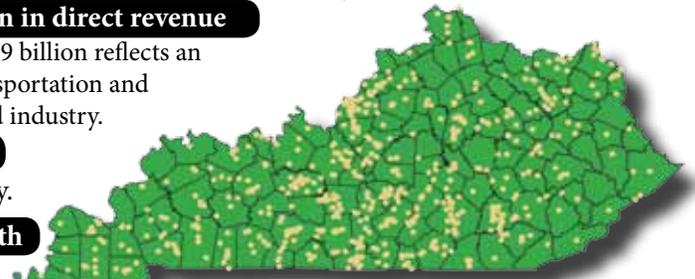
The \$6.3 billion in direct impact is revenue while the \$9.9 billion reflects an additional \$3.6 billion in economic activity such as transportation and associated industries directly tied to the forest and wood industry.

51,928 total jobs with 24,262 directly employed

This represents 2.7% of all employment in Kentucky.

Leading producer of hardwood sawlogs in the South

593 million board feet of logs and 992 thousand tons of pulpwood was harvested in 2012.



Distribution of Wood Industries in Kentucky
Source: Kentucky Forest Products Industry Directory

Direct Impacts (\$ millions) and Jobs		
Sub-sectors	Revenue	Jobs
Logging	\$164	2,276
Wood Residue	\$368	714
Primary Wood	\$578	2,955
Pulp and Paper	\$900	1,210
Secondary Wood	\$1,540	10,199
Paper Converters	\$2,807	6,910

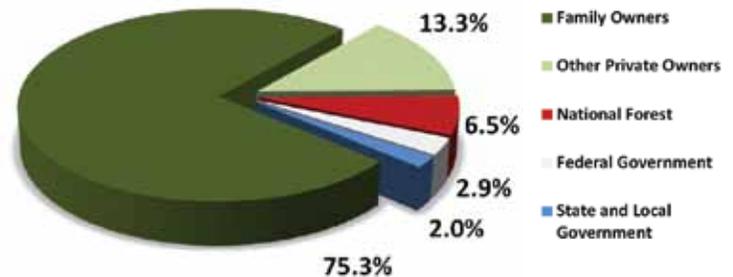
Forestry Sub-Sectors

The forestry sector encompasses a wide range of industries including logging and wood and finished product manufacturing. Primary manufacturing includes lumber, cross-ties, pallet material, barrel staves, veneer, and a multitude of other primary products. Finished or secondary manufacturing encompasses firms that make furniture, trim, flooring, and barrels and a host of other finished products. Paper production and paper conversion (ex. packaging, industrial and writing paper) are also significant revenue generating sub-sectors. The table provides direct revenue and jobs data for each sub-sector of forest and wood industries in Kentucky.

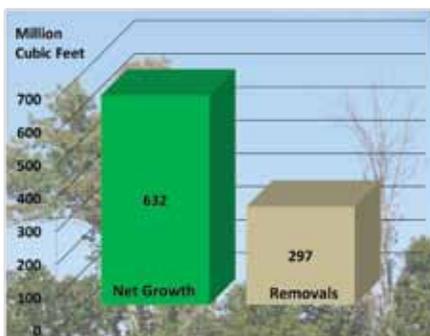
Forestland of Kentucky

- **12.5 million acres of forestland** in Kentucky representing 49% of the land cover in the state
- **473 thousand private forest owners** in Kentucky with 168 thousand owning more than 10 acres
- **89% of Kentucky's forestlands are privately owned** and they supply more than 90% of all wood harvested in Kentucky
- **Net timber volume growth exceeded the volume removed** through harvesting and land clearing by 2.13 to 1 in 2011

Ownership of Kentucky's Forestland



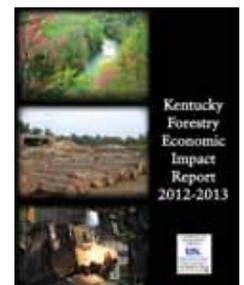
Source: U.S. Forest Service Forest Inventory & Analysis Data



Timber Volume Growth and Removals
Source: 2011 U.S. Forest Service Forest Inventory & Analysis Data

2013 Outlook

Several forestry sub-sectors are poised to improve in 2013 particularly primary and secondary wood manufacturers that will respond to the improving U.S. economy and housing starts. Logging will continue to be fragile and susceptible to fuel and parts costs. U.S. paper usage is projected to decline in 2013 and this may negatively affect paper converters. There are several threats to Kentucky's forests including the continued presence of insects and diseases, and reduction in higher quality timber. Also reductions in budgets to key organizations such as the Kentucky Division of Forestry will have consequences for forest productivity and Kentucky's ability to generate much needed information about the condition of the forest and statistics related to Kentucky's forest industries.



The complete report is available at www.ukforestry.org

About the Authors:

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Woodland Partners

www.kwoa.net

by Henry Duncan, KWOA/KWOF Past President

Serving on the Kentucky Woodland Owners Association (KWOA) board for the past seven years, including three years as president, has been a great experience. Woodland owners have much in common, and we find opportunities to learn more about and experience together the woodlands. Woodland owners have personal and individual experiences and connections to their woodlands; KWOA provides us with opportunities to learn and share together. I look forward to supporting the newly elected KWOA leaders this year.

Our Tree Farm in Logan County, Kentucky, located along the Muddy River, can be traced back to 1803, when Duncan ancestors settled in Western Kentucky and proceeded to accumulate hardwood timberland to support a vast leather-processing tan yard. Over the years we have derived income from the managed, sustainable harvests; in addition our family forests offer private, scenic spaces to relax and places to hunt and fish. We have a personal commitment to preserving this heritage.

Few people realize that Kentucky is one of the leading hardwood producing states in the country. We are blessed with abundant forest resources with the most diverse temperate deciduous forests in the world: black walnut, white oak, and northern red oak are the most valuable followed by yellow poplar and sugar maple. Our partner, the Kentucky Forest Industries Association, represents a thriving wood industry that employs people from cutting and sawing trees to building furniture parts to assembling cabinets to making charcoal. Kentucky is known to rank as one of the top hardwood lumber producing states in the U.S.

University of Kentucky research shows that our forests have many other economic values. It is the backbone of the \$12 billion tourism industry in the state and provides the habitat for wildlife, which is worth \$2.95 million to the economy and is enjoyed by 44 percent of the people of this state. Forestry is also important to Kentucky because it generates billions of dollars in revenue and employs nearly 25,000 people. Nearly one-half of the state is forested, and contributes significantly to biodiversity, clean air and wa-

ter, carbon storage, and climate regulation. KWOA events expound on these programs.

The Kentucky Division of Forestry has a program to provide technical assistance to landowners and other programs protect the public from wildfire, monitor the forests for invasive species, assist with the control of those species, and work with the industry. The division is under budgetary pressures to reduce these important programs. The Kentucky Woodland Owners Foundation (KWOF) works to preserve these and other needed programs.

The KWOA, one of 37 found across the United States, seeks to promote good woodland management and sustainability for future generations. We promote economically and environmentally sound forest management among landowners. We study and support all of these woodland causes. Large numbers of woodland owners are needed to be successful through networking and communications. Please join KWOA today. Visit our Web site at www.kwoa.net, or call us at 606.876.3423.

KWOA Working for You...

KWOA offers sharing and networking opportunities for fellow woodland owners, forestry agencies, consultants, loggers, and others in the forestry community. KWOA was founded in 1994 with directors elected from the four regions of Kentucky. The KWOA board meetings are held the third Thursdays of February, May, August, and November. Any KWOA member is cordially invited to attend the board's meetings and participate in the business of the organization. We are excited about the many educational programs and issues initiated and supported by KWOA. Please view our website www.kwoa.net for more details. If you are not already a KWOA member, please join us and become part of an organization that is dedicated to improving the woodlands of Kentucky and assisting those who own and care for them.

For more information log on to www.kwoa.net

FORESTRY 101

Selecting a Logger

by Jeff Stringer

Timber harvesting is one of the most significant activities that many woodland owners undertake and one that can have the biggest impact on the long-term quality and health of the woods. Ensuring that the harvest is completed properly is important for anyone who is interested in maintaining or improving their woodlands. There are a number of concerns that most woodland owners have about conducting a harvest, including obtaining a fair price for their timber, making sure the woods are treated properly, and making sure liability issues and laws are being addressed. Ultimately the woodland owner is responsible for dealing with these concerns. While woodland owners can obtain assistance (see Getting Assistance) in dealing with some of these concerns selecting a qualified professional logger is critical.

Professional Loggers

It is ultimately the competency and professionalism of the logger that can make or break a timber harvest. The logger's job is to cut and skid the timber that is designated for harvest by the woodland owner (or a forester who is working on behalf of the woodland owner). Professional loggers are those who are in the logging business for the long-term. They have the proper equipment to log safely and have experience and training that allows them to do a good job for woodland owners.

They care about their reputation and the viability of their business. Professional loggers can harvest efficiently and safely obey all laws and regulations while protecting the remaining trees, soil, and water. The following are reasonable expectations of any logger.

Merchantable Timber

The logger has the responsibility to ensure that all of the timber or pulpwood that is designated for harvest is cut and removed. When a tree is cut, all merchantable parts of the trees should be removed; not doing so is wasteful. Not every part of Kentucky has the same markets for all trees, and professional loggers know the local markets and what parts of the tree are marketable. Woodland owners are the beneficiaries of this knowledge. If the logger has purchased the timber lump sum, knowing the markets means that all the trees that are supposed to be cut are cut, which can benefit the health of the woods. If the woodland owner is getting paid as a percentage of timber or pulpwood that is being delivered to the mill, then leaving merchantable material in the woods reduces the amount of money the woodland owner is receiving. Either way, removing all merchantable and agreed-upon timber is good logging practice.

Photos courtesy: Jeff Stringer



Protecting Trees

If the logger is not clear cutting, then trees are left (residual trees) that have to be protected from both top damage and from bark being torn from their base (basal damage). The University of Kentucky conducted a research study to look at harvesting damage to residual trees. The results showed that the amount of damage was from either improperly felling trees into residual trees, resulting in top damage, or from improperly skidding trees next to residual trees, leading to basal damage. Further the study showed that the size of equipment was not important, nor was size of the timber or terrain they were working in. The two most important factors were whether or not the logger cared about the job and the logger's competency in directional felling and skidding. Research found that loggers that are competent in cutting and skidding and care about protecting residual trees can conduct a harvest and harm less than 10 percent of the residual trees greater than 8 inches in diameter (smaller trees are susceptible to damage, and most woods have enough smaller trees to adequately respond to some being damaged).



Knocking the bark off of trees that are left standing during a harvest creates internal rot reducing their long-term value. Thoughtful and technically competent loggers protect these trees from skidding and felling damage.

Protecting Soil and Water

Professional loggers do a good job with implementing Best Management Practices (BMPs). BMPs are a set of practices that are designed to reduce or eliminate water pollution including the erosion of soil that ultimately can cause muddy water. The practices include: leaving some standing trees next to streams and other water; properly crossing streams; properly draining skid trails and logging roads; and correctly retiring the logging operation by removing ruts, constructing permanent water control structures, and seeding appropriate areas when done. The use of BMPs is required by Kentucky's



Photo courtesy: John Auel

Professional loggers are competent in the use of Best Management Practices (BMPs) to protect soil from eroding and reducing or eliminating water pollution. Water bars and revegetation as shown above are commonly used BMPs to close out skid trails and logging roads. The water bars stop gully formation and the grass holds the surface soil in place. No erosion results in clean streams.

Forest Conservation Act, a state law that makes Kentucky Division

Getting Assistance from Foresters

Foresters can make recommendations that are helpful to most woodland owners, including determining if the woods are ready for harvest and determining which trees or types of trees should be cut. They can also provide other information that can be helpful to those wanting to conduct a harvest.

Both consulting foresters—private individuals or companies—as well as foresters with the Kentucky Division of Forestry (KDF) commonly provide woodland owners with recommendations on whether a harvest is recommended and how it should be conducted. KDF foresters provide these services free of charge, and for a small fee, the Division can mark woodlands for harvest. However, they cannot directly provide woodland owners with assistance in selling their timber. Consulting foresters provide their services for a fee, including providing all of the services needed to sell timber. Consulting foresters work solely on your behalf protecting your interests and woodlands. Most consulting foresters in Kentucky are certified through the Association of Consulting Foresters.

In some areas, foresters working for industries such as sawmills or pulpmills can provide similar assistance. Regardless, the University of Kentucky Cooperative Extension Service recommends that woodland owners get assistance from foresters who can provide up-front advice on harvests and direction for conducting timber sales.

of Forestry's county ranger/technicians responsible for inspecting logging jobs that they find or are notified of for the use of BMPs. All commercial logging sites (with the exception of those using animals) are required to have a Kentucky Master Logger on-site and in charge. The Kentucky Master Logger designation means that they have been trained in logging safety, water quality, and BMP use. Go to www.masterlogger.org to search for Kentucky Master Loggers. KDF rangers check to see if there is a Kentucky Master Logger present and for the use of BMPs. If logging operations don't have a Kentucky Master Logger on-site, they can be shut down. If they have been found not to have followed BMPs, the logging firm can be designated as a Bad Actor unless they ultimately correct the BMP problems (see Bad Actor sidebar on page 12).

Trash, Debris, and Aesthetics

All logging jobs can look messy to the untrained eye. However, professional loggers keep trash picked up. Logging debris such as

tops and "cut offs"— short portions of logs that are generated at the log deck—are kept out of sight or neatly organized at the landing. Further, loggers can maintain uncut buffers next to roads to provide for better aesthetics.



Professional loggers use practices like an aesthetic buffer zone that improves the appearance of a timber harvest.

Safety and Protection

Professional loggers have adequate insurance and use federal- and state-approved safe logging practices. This includes keeping their personnel away from dangerous situations, and working around equipment safely. Professional loggers use required personal protective equipment, such as hardhats and chainsaw operators also wear foot, leg, eye, and ear protection. It is important to remember that active logging jobs are inherently dangerous, and all those entering the woods during harvesting including woodland owners are at risk for injury. Professional loggers also will be mindful of protecting your property (fence, gates, fields, and driveways) as well as keeping mud off of paved roads.

Tips for Selecting the Right Logger

Woodland owners should ask about each of the issues discussed above. Professional loggers will have no problem with providing references of woodland owners they have worked with in the past; ask for these. Further, many of these issues can be dealt with in contracts, something that consulting foresters typically provide for woodland owners. Consulting foresters know who the professional loggers are in your area and can also ensure that a professional logger is working on your property. Check the Kentucky

Master Logger Web site (www.masterlogger.org) to see if the logger is a Kentucky Master Logger and whether they are designated as a Bad Actor. There are also loggers that are members of the Certified Master Logger Program (www.certifiedmasterlogger.com) who are available in some parts of Kentucky. These loggers are certified through



Bad Actors

If loggers are found not to have followed the appropriate use of state mandated Best Management Practices (BMPs), they can legally be designated as a Bad Actor under the Kentucky Forest Conservation Act. Check the Kentucky Master Logger Web site (www.masterlogger.org) or contact your local County Cooperative Extension Agent or KDF forester to check for Bad Actors. The Bad Actor designation is only given to a logger if he or she fails to correct BMP problems over the course of many months and a four-step process that provides ample opportunity for loggers to fix problems. Receiving the designation typically means that the loggers are having trouble technically completing the BMPs or they are disregarding their use. There is a provision in the law that allows for loggers to get their Bad Actor designation removed. This involves reporting their logging jobs for a two-year period and successfully implementing and being inspected for BMP use by KDF. Loggers can also receive more than one Bad Actor designation if they are repeatedly harvesting and not using BMPs. If they have repeated violations (which can be seen on the Web site) it means that they have more than one instance of not using BMPs. This is a clear indication that they have not met some of the minimum requirements of a professional logger.



Rainforest Alliances' SmartLogging Program and are audited regularly to see that they are abiding by good logging standards. Regardless, there are a number of ways to ensure that you have a professional logger working on your property. Taking the time to ensure that this is the case will go a long way in conducting a successful timber harvest.

About the Author:

Jeff Stringer, Ph.D., is a extension professor at the University of Kentucky and is responsible for continuing education and research in hardwood silviculture and forest operations. He is also an editor of the Kentucky Woodlands Magazine.

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Forest Health



Dealing with Nonnative Invasive Plants in Your Woodland by Billy Thomas

Your woodlands are changing. This has been and always will be the case because woodlands are dynamic ecosystems with different plants coming and going over the years. While this change may be difficult for us to notice sometimes, it is still occurring. However, the rate of change is being sped up by nonnative invasive plants as they become more prevalent across the state. These plants displace and out-compete native plants oftentimes forming dense monocultures that degrade the value of the property. If you are not dealing with nonnative invasive plant problems on your property, you likely will be in the future. This article covers steps that woodland owners can take to address nonnative invasive plants on their properties and highlights resources available to assist.

Steps to Dealing with Nonnative Invasive Plants in Your Woodland

Nonnative invasive plants will be an ongoing issue that woodland owners will be forced to address. With the right mix of information, vigilance, and dedication, woodland owners will have a better chance of combatting nonnative invasive plants on their property. Regardless of whether you are dealing with nonnative invasive plant problems now or you have yet to discover them on your property, the following steps will help you meet the challenge they pose.

Early Detection

The sooner the presence of nonnative invasive plants can be detected the better. It is much easier to treat a few plants before they spread, requiring a larger response. Make a point to observe the plants on your property with an eye out for anything that appears new or different. Many times nonnative invasive plants will grab a toehold along property boundaries, fence lines, roads, trails, or areas that recently have been disturbed, so these areas should receive extra scrutiny. Vary the times of year you go on your scouting trips as the various seasons can reveal characteristics of nonnative invasive plants that may be harder to see the rest of the year. Many of the nonnative invasive plants will leaf out earlier and retain their leaves longer than our native plants. Also, don't forget to look for plants that have escaped yours or a neighbor's yard; ornamental plants such as bush honeysuckle, privet, burning bush, Callery pears, and Chinese silver grass are quickly escaping into natural areas and are a serious threat—even if you are used to seeing them in residential areas.

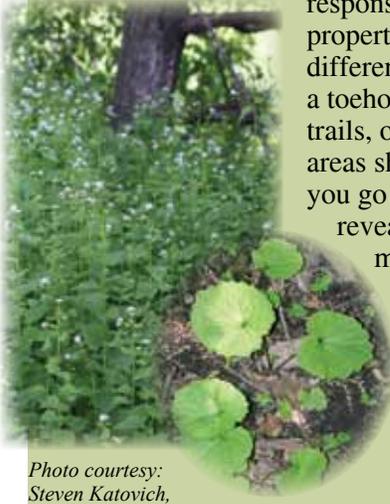


Photo courtesy: Steven Katovich, USDA Forest Service, Bugwood.org

Right photo courtesy: Chris Evans, Illinois Wildlife Action Plan, Bugwood.org

Finding and treating nonnative invasive plants before they can set seed will make controlling them much easier. Garlic mustard above is a biennial that spends its first year as a low rosette but in its second year it grows to approximately three feet in height and is capable of producing over 7,000 seeds per plant that can remain viable for five years!



Addressing nonnative invasive plants before they dominate your woodland like those in the photo above will save you a great deal of work and expense.

Identification

Once you think you have discovered a nonnative invasive plant on your property, the next step is to learn its identity. Many nonnative invasive plants will have characteristics that stand out from our native plants but some have a close resemblance to native plants. The U.S. Department of Agriculture, Forest Service has developed an outstanding publication



The flowers, large leaves, and seed capsules of paulownia are characteristics that aid in identification.

Photo courtesy: Songlin Fei

Photo courtesy: James R. Allison, Georgia Department of Natural Resources, Bugwood.org

titled *A Field Guide for the Identification of Invasive Plants in Southern Forests* available at www.srs.fs.fed.us/pubs/gtr/gtr_srs119.pdf. Also available is a companion management guide, and both are combined into an iTunes application that is available free at <https://itunes.apple.com/us/app/invasive-plants-in-southern/id495852751?mt=8>. Another option is to take the plant or a sample of it to your local county Extension agent; if they do not know what the plant is, they can send it to the University of Kentucky for identification.

Appropriate Control

Selecting and using the right tool for the job will save you money, time, and frustration. There are multiple ways to treat these invaders depending on the type of nonnative invasive plant, their development stage, density, and location. The two methods that are most often used by woodland owners are manual and herbicides or a combination of the two. Manual treatments include: pulling, mowing, cutting, and girdling to name a few. These manual methods can be labor intensive and vary greatly in their effectiveness—one benefit of this method is that it typically involves readily available tools and can limit non-target damage working well in sensitive areas. The herbicide method is the most widely used method to control



the tree-of-heaven leaves are not toothed and have a foul smell when they are bruised.



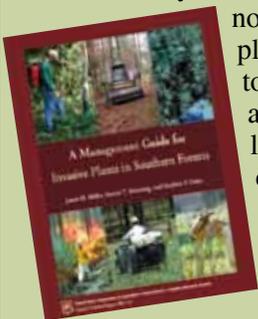
Tree-of-heaven (left) and staghorn sumac (above) may have similar leaves but they are certainly not the same plant. Tree-of-heaven is a serious problem in many woodlands. Staghorn sumac has toothed leaflets and red hairy stems while

Photos courtesy: Paul Wray, Iowa State University, Bugwood.org



The appropriate use of herbicides is often required to adequately control nonnative invasive plants. Remember to always follow the label when using herbicides.

Photo courtesy: Renee Williams



non-native invasive plants. When using herbicides, it is critical to match the right product with the plant, applying it in the appropriate way, and following all label directions. All the details can be found in *A Management Guide for Invasive Plants in Southern Forests* by the U.S. Department of Agriculture, Forest Service, available at www.srs.fs.fed.us/pubs/gtr/gtr_srs131.pdf.

Follow-up

Some nonnative invasive plants are easier to control than others. Unfortunately, you typically cannot treat them once and walk away. Inevitably, you might have missed a few plants or there could have been something that did not go just right during the first control attempt that will require a retreatment. The good news is that these follow-up control treatments are often just spot treatments here and there as opposed to a complete redo. If you are going to go through the effort of trying to control them in the first place, then it is worth it to go ahead and do the follow-up as needed. Make sure to visit the treated areas in subsequent growing seasons to make sure the situation stays under control.

Ongoing Woodland Management Strategies

Consider how management decisions can create potential nonnative invasive plant problems. For example, prior to timber harvesting or implementing practices that open up the canopy and cause more light to reach the forest floor, make sure to treat any invasive plants in the area that could thrive once they are released. You may have a neighbor who has invasive plants on their property that are seeding in onto yours. They are likely not aware there is an issue. A friendly discussion or offering to help them control it on their property may help your control efforts.

Steps discussed in this article can help you to successfully meet the challenge that nonnative invasive plants pose to your woodland. In addition to the resources mentioned previously, there are numerous other sources of assistance to help you deal with nonnative invasive plants on your property. Working with a professional forester or other natural resource professional is highly recommended as their knowledge and technical expertise will be invaluable as you manage your woodlands. They may also be able to direct you to financial assistance that is available from time to time to control nonnative invasive plants. Additional information can be found at the Web sites listed below. Start scouting your woodlands now as the best time to control a nonnative invasive plant infestation is before it starts or gets out of hand.

Online Resources:

- www.invasive.org
- www.ca.uky.edu/forestryextension/publications_foresthealth.php
- www.fws.gov/invasives/staffTrainingModule/index.html

- www.invasivespeciesinfo.gov/index.shtml
- www.se-eppc.org/ky/

About the Author:

Billy Thomas is an Extension Associate with the University of Kentucky Department of Forestry. He works primarily on non-industrial private forest issues and is the associate editor for the *Kentucky Woodlands Magazine*.

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Protecting Water Resources with Streamside Management Zones

by Chris Barton, Emma Witt, and Jeff Stringer

In the steep sloping hills of Eastern Kentucky, water resource issues abound. As Mark Twain is credited with stating so poignantly: “Whiskey is for drinking; water is for fighting over.” And fight they do. Whether the culprit is coal mining, timber harvesting, straight piping of sewage or any number of construction or agricultural activities, discussions on the impact of land use on water quality and quantity in the region are often emotionally—and sometimes politically—fueled. Take for instance a study performed at Robinson Forest that created quite a stir from groups such as Kentucky Heartwood, the Kentucky Resources Council, the Sierra Club and the Kentucky Waterways

Alliance. The study’s aim was to provide critical information needed to determine the effectiveness of forestry best management practices (BMPs) for Eastern Kentucky, but some voiced concern that the potential degradation to water resources from the study outweighed benefits that may be gained by conducting the experiment.

Forestry Best Management Practices

The Commonwealth of Kentucky has established forestry BMPs that are designed to reduce nonpoint source pollution (NPSP). When asked whether Kentucky’s BMPs are sufficient for protecting water resources, our answer has been, “We think so.” The reason for the wishy-washy response is two-fold. First, few studies have been performed to examine specific BMP guidelines and test their effectiveness. Second, recommendations for many BMPs that are employed in Eastern Kentucky were developed from information gathered outside the region. For example, Kentucky forestry BMPs addressing riparian streamside management zones (SMZs) were developed in part from demonstrations in New Hampshire in the 1950s. Given that the forest industry in Kentucky has experienced considerable growth over the past few decades, the need for establishing BMPs specific for Eastern Kentucky forests is essential for ensuring the protection and preservation of water resources in the region.

Forested watersheds play an important role in main-



Photo courtesy: UK Department of Forestry

View of Streamside Management Zone (SMZ) research harvest showing the uncut SMZ along the stream in the middle of the photo surrounded by harvested side slopes.

taining water quality. Nationally, forests comprise one-third of the land area but provide two-thirds of our water supply. Undisturbed forests have several characteristics that promote high surface-water quality, but forest harvesting operations can result in negative impacts to water quality. Increases in erosion, litter disturbance, flow duration, nutrient export, temperature, and connectivity between road networks and stream channels have been associated with timber harvesting. Streamside management zones are utilized to provide a buffer between upland forest harvesting operations and the stream. The importance of SMZs for filtering erosion, utilizing nutrients, maintaining in-stream and near-stream temperatures, and providing habitat and corridors for aquatic and terrestrial fauna has been identified but not well quantified.

Most states in the Appalachian Region have two specifications associated with SMZs—one related to the distance of the nearest severe disturbance (e.g. roads or log landings) and a second relating to the allowable harvest within the SMZ. For perennial streams, the distance to severe disturbance increases as the upland slope increases due to the higher potential of surface runoff impacts with higher upland grades. Within the SMZ, most states allow some amount of overstory removal. For example, Kentucky allows 50 percent overstory removal. Intermittent streams are not considered to have the same potential NPSP impact as perennial streams,

so the distance to disturbance is shorter relative to perennial streams and 100 percent harvest is allowed within the SMZ. Finally, no SMZ (width or canopy retention) is required for ephemeral streams in Kentucky. Other SMZ requirements vary considerably among states. For example, North Carolina requires 75 percent of the trees remaining in the perennial and intermittent riparian zone, while West Virginia and Pennsylvania allow 100 percent harvest within the riparian zone on both perennial and intermittent streams. The differences in SMZs among states do not necessarily reflect best available knowledge but are the culmination of battles among forestry groups, environmental groups, and policy makers within each state. The region needs better information on the effectiveness of SMZs. Given these conditions, despite the protest, we moved forward with our study to provide the needed information.

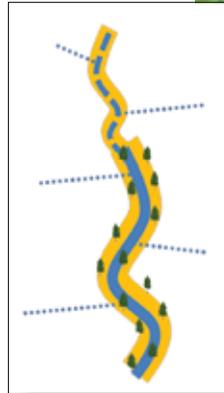
SMZ Study Design

Eight headwater watersheds were included in the study. Each was located in the 3,800 acre Clemons Fork watershed at Robinson Forest (in parts of Breathitt, Knott and Perry counties) and all were outfitted with a weir or flume to monitor flow continuously. Watersheds ranged in area from 70 to 275 acres. Water quality and quantity monitoring began in 2004. Six watersheds were harvested from June 2008 to October 2009. The remaining two watersheds were not harvested to serve as controls. Both control watersheds (Falling Rock Branch and Little Millseat Branch) are listed as exceptional waters by the Commonwealth of Kentucky. Treatment watersheds were harvested using a shelterwood with reserves, or two-aged deferment, harvest method with a target post-harvest basal area of approximately 15 square feet per acre. Harvesting equipment included wheeled cable and grapple skidders, tracked dozers, and tracked feller-bunchers. Skid trails were constructed along hillslope contours, where feasible, at various intervals from the top to the bottom of slopes. The skid trail system comprised 6 percent to 12 percent of the watershed area.

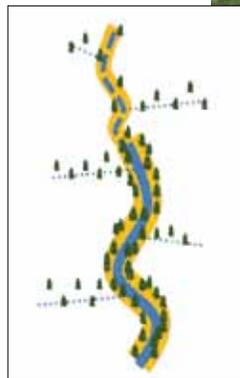
The six harvested watersheds were treated with one of three SMZ combinations. Treatment 1 was based on the Kentucky SMZ guidelines and included a 55-foot perennial SMZ with 50 percent overstory retention and a 25-foot intermittent SMZ with no overstory retention requirement. Treatment 2 maintains the 55-foot perennial SMZ but requires 100 percent canopy retention and 25 percent canopy retention in the 25-foot intermittent SMZ. In addition, improved crossings were used in ephemeral stream crossings and the nearest channel bank tree was retained. Treatment 3 increased the perennial SMZ width to 110 feet with 100 percent canopy retention and the intermittent SMZ width to 55 feet with 25 percent canopy retention and included a 25-foot SMZ around ephemeral streams. The nearest channel bank tree also was retained, and improved stream crossings were used in the ephemeral streams. For Treatment 1, ephemeral streams were crossed at right angles using unimproved crossings (fords). Improved crossings in Treatments 2 and 3 included portable wooden skidder bridges, steel pipes/culverts, and PVC pipe bundles.



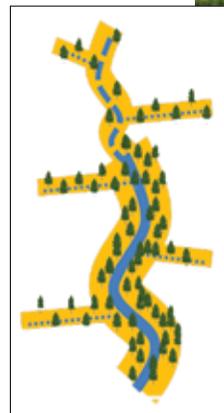
Treatment 1 established by leaving 50 percent of the overstory trees within 55 feet of the streambank. Note the fairly open canopy and light infiltration. This treatment is what currently is required by Kentucky's Forestry Best Management Practices.



Treatment 2 leaves all of the overstory trees within 55 feet of the streambank providing more shade on the stream than Treatment 1.



Treatment 3 retains all of the trees within 110 feet of the stream bank providing more shade and keeps sources of sediment (skid trails) farther away from the stream than treatments 1 or 2.



Photos courtesy: Matt Barton

Stream Crossings and Ephemeral SMZs

Stream crossings are generally considered as the primary avenue for sediment delivery to streams. Our results showed that the use of any improved crossing type significantly decreased sediment production and transport

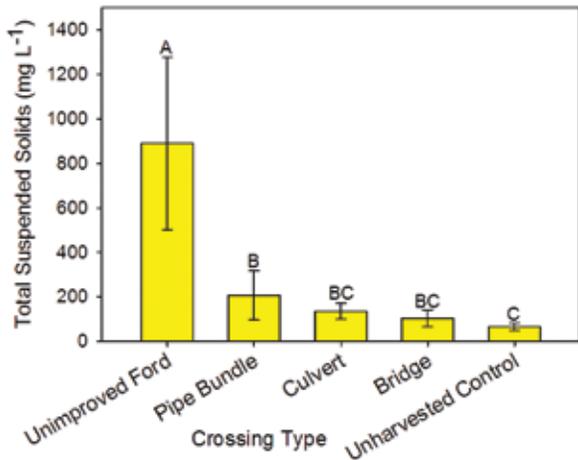


Figure 1. Average suspended sediment in storm flow from ephemeral streams with differing crossing treatments. Bars with similar letters are not statistically different. Unimproved fords produced significantly greater amounts of sediment than other crossing types that provide an elevated surface for equipment to travel.

ever, while limiting equipment operations and ground disturbance around channels can help in reducing TSS, the importance of appropriate crossing selection, construction, maintenance, and removal cannot be overemphasized. While the appropriate use of crossings is paramount to limiting sediment production, providing canopy retention around ephemeral channels can also offer thermal protection, maintain coarse woody debris inputs, influence carbon and nitrogen dynamics, and retain some habitat characteristics. These findings suggest that the extension of forestry BMPs to ephemeral streams is effective in reducing sediment from harvesting operations. In states that already have recommendations for ephemeral stream protection, mandating improved crossing use for all ephemeral crossings is prudent. When further improvements in sediment reduction are warranted, as would be the case with streams containing flora or fauna particularly sensitive to sedimentation, additional canopy retention and equipment limiting zone recommendations could prove valuable.

Perennial SMZ Effectiveness

Findings from the study showed that the Kentucky guidelines for SMZ width and canopy retention (Treatment 1) are just as effective at maintaining

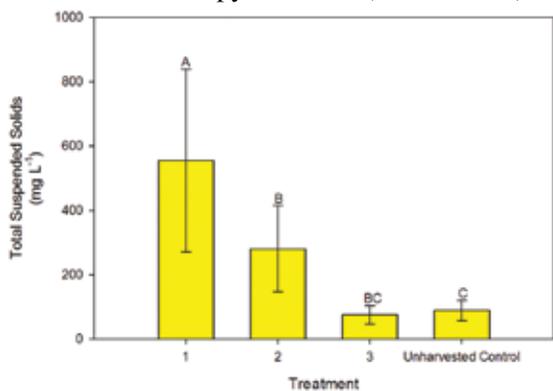


Figure 2: Average suspended sediment in storm flow from perennial streams with differing SMZ treatments. Bars with similar letters are not statistically different. Treatment 1 yielded significantly higher sediment amounts than the other treatments, while treatment 3 exhibited similar suspended sediment concentrations as observed in the unharvested control watershed.

over a ford in ephemeral streams (Figure 1). Results also indicated that limiting equipment disturbance on or directly adjacent to the stream channel can result in suspended sediment concentrations similar to those measured in unharvested ephemeral streams. Operationally this can be accomplished by increasing the amount of residual overstory trees left next to ephemeral channels and/or by restricting the operation of equipment next to channels. How-

ever, while limiting equipment operations and ground disturbance around channels can help in reducing TSS, the importance of appropriate crossing selection, construction, maintenance, and removal cannot be overemphasized. While the appropriate use of crossings is paramount to limiting sediment production, providing canopy retention around ephemeral channels can also offer thermal protection, maintain coarse woody debris inputs, influence carbon and nitrogen dynamics, and retain some habitat characteristics. These findings suggest that the extension of forestry BMPs to ephemeral streams is effective in reducing sediment from harvesting operations. In states that already have recommendations for ephemeral stream protection, mandating improved crossing use for all ephemeral crossings is prudent. When further improvements in sediment reduction are warranted, as would be the case with streams containing flora or fauna particularly sensitive to sedimentation, additional canopy retention and equipment limiting zone recommendations could prove valuable.

to control watersheds (not harvested) in both base flow and storm flow conditions. Similar was true between Treatment 3 and the control for most parameters examined. While Treatment 1 was found to be statistically higher than the other treatments it is important to note that the increase found by this study does not warrant concern for the majority of streams in Kentucky that are warm water aquatic habitats.

The differences observed between Treatment 1 and Treatments 2 and 3 are due to use of improved crossings at ephemeral streams and increased canopy retention in perennial, intermittent, and ephemeral segments. While the exact contribution of improved crossings versus increased canopy retention to sediment reduction at the perennial outlet may not be determined from these data, the combination of minimizing the hydrologic and sediment connectivity of the skid trail system and stream network and maximizing the amount of undisturbed forest floor near streams has a definite impact of sediment transport.

Path Forward

The large watershed-scale study proved valuable for meeting our objective to examine BMP effectiveness in Eastern Kentucky. Not only were we able to examine water quality and quantity responses to harvesting, but the study design allowed us to examine many other important aspects of the forest. On-going studies include: an examination of the influence of these treatments on biota (aquatic insects, salamanders, snakes, birds); an assessment of invasive species occupancy and pathways for colonization; sediment source tracking; and an economic and environmental examination of harvest trafficking patterns. Long-term monitoring will continue and much more information from the study will be shared with the forestry community in Kentucky and elsewhere.

About the Authors:

This research project was overseen and directed by Dr. Chris Barton (barton@uky.edu), Professor, and Dr. Jeff Stringer (stringer@uky.edu), Extension Professor, of the University of Kentucky Department of Forestry. The research also served as the Ph.D. project by Emma Whitt (witt0287@umn.edu), who is currently a Post/Doctoral Associate at the University of Minnesota.

Online Resources for Woodland Owners

by Billy Thomas

It is easier than ever to learn about the care and management of your woodlands from the comfort of your own home or wherever your laptop, tablet, or smart phone takes you. The Internet and the promise of all the information it can make available can be an important woodland management tool. However, separating the good information from the bad or even finding the information in the first place can take some time, so using informational resources from universities or government agencies is a good place to start.

Over the last few years, webinars (seminars on the Web) from forestry, wildlife, and other natural resource professionals have become a valuable source of information that can help you to better care for your woodlands. UK Forestry Extension started offering webinars in 2009 but other

universities and organizations were doing them before and many more are offering them now. Most webinars are recorded for viewing at your convenience but you also have the opportunity to participate in live webinars, which will offer you a greater deal of interaction and the opportunity to ask questions during the webinar. Many of the webinars are free but some require a free registration or have a small registration fee. Reliable information and advice can help you achieve your woodland management goals quicker and with less expense.

The forestry webinar sites listed below provide a great starting point and while not every forestry webinar site is included in the list below many of them do include links to other forestry and natural resources related webinars.



<http://forestrywebinar.net>

The Forestry Webinar Portal is supported by many universities and government organizations and serves as a launching point for numerous current and archived forestry, conservation and natural resource webinars.



www2.dnr.cornell.edu/ext/forestconnect/web.htm

The ForestConnect Forestry Internet Seminar Series out of Cornell University provides research-based and unbiased information to forest owners and others interested in private woodland management.



<http://extension.psu.edu/private-forests/tools-resources/webinars>

The Pennsylvania Forests Web Seminar Center provides web-based educational programs and materials for forest owners, extension educators, and natural resource professionals.



www.ca.uky.edu/forestryextension/audio_video.php

The UK Forestry Extension group has some archived forestry webinars and a series is planned for the fall of 2013 which will be announced in the next issue of this magazine.

Additional Online Resources:

Besides forestry webinars there are other online educational resources available to woodland owners, including the National Learning Center for Private Forest and Range Landowners (www.forestandrange.org) as well as the Forest Encyclopedia (www.forestencyclopedia.net). Also visit the Woodland Owners Guide to Internet Resources (<http://na.fs.fed.us/pubs/misc/flg/>), which contains a wide variety of information of interest to woodland owners.

More and more online resources are becoming available to assist woodland owners in the care and management

of their woodlands. Frequently visit the Web sites of UK Forestry Extension (www.ukforestry.org) and the Kentucky Division of Forestry (<http://forestry.ky.gov>) to learn about the latest programs and available resources.

About the Author:

Billy Thomas is an Extension Associate with the University of Kentucky Department of Forestry. He works primarily on non-industrial private forest issues and is the associate editor for the Kentucky Woodlands Magazine.

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Kentucky Tree Farm Committee Newsletter

Lloyd Foe to Assume Role As Kentucky Tree Farm Committee Vice Chair

by David James, Kentucky Tree Farm Committee Chair

The Kentucky Tree Farm Committee (KTFC) is proud to announce Lloyd Foe as the 2013-2014 Vice Chair. Mr. Foe brings a significant amount of knowledge to the KTFC leadership from his consulting business Lloyd A. Foe Consulting Foresters, LLC and previous career as a forester with the U.S. Army Corp of Engineers. Mr. Foe will serve as Vice Chair and later take the helm as KTFC Chair in 2014-2016. Please join the KTFC in welcoming Mr. Foe to his new role and responsibilities.



Lloyd Foe, 2013-2014 KTFC Vice Chair

Kentucky Tree Farm Program Statewide Assessment

by Pam Snyder, Kentucky Tree Farm Committee Co-Chair

The Kentucky Tree Farm Program (KTFP) is undergoing a statewide assessment June 4-7, 2013. Eighteen Kentucky Tree Farmers were randomly selected for the on-site visits and will be visited by foresters hired by PricewaterhouseCoopers (PwC) to complete the third-party certification process. The certification assessment team will include the inspecting forester, landowner, Tree Farm Committee regional representative, and PwC representative. The visit will consist of a quick

walk through of the property and review of the management plan. The PwC representative will be checking for landowner conformity to the requirements of the American Forest Foundation's 2010-2015 Standards of Sustainability. The objective is to highlight that Tree Farmers enrolled in the American Tree Farm program manage their lands to the highest degree of sustainability. The Kentucky Tree Farm Committee thanks all the landowners who are participating in the on-site visits.

Tree Farm National Leadership Conference

by Bob Bauer, Kentucky Forest Industries Association

The National Tree Farm Program hosted the annual Leadership Conference in February, and four people attended from Kentucky to represent our state program. The annual leadership meeting is designed to gather input from the states and provide information on program changes and future direction. The big issue this year was the review of a proposal to implement some type of dues structure for Tree Farm members.

The proposed dues structure was tested over the past year in four states across the country and consisted of four different levels of potential dues. After testing and much discussion, the unanimous conclusion by leadership was to not recommend a charge for Tree Farmers

at the present time. The recommendation will be made to the governing Board of the American Forest Foundation. Other issues discussed at the Conference related to expanding active membership in the program. Increased funding is being made available to state committees to provide educational activities to Tree Farmers and improvements are under way for the quarterly magazine and new ways are being incorporated to reach all Tree Farmers on a regular basis. Forest-certification needs vary throughout the country, so policies are being reviewed that will give states options concerning certification and associated costs. The Tree Farm program continues to look at ways to fund and support the many benefits supplied to tree farmers.



Photo courtesy: National Tree Farm Program

Kentucky Champion Tree Program

The Real Ohio Buckeye – from a Kentucky Perspective

What is a buckeye? If you asked, the responses would probably depend on where the responder lives and what they're interested in. The buckeye to which I'm referring is not a mascot from that university about 200 miles north of Lexington, nor am I referring to natives from the state of Ohio. I am referring to an iconic tree that happens to be the state tree of Ohio—you guessed it—the Ohio buckeye.

This tree is not only native to Ohio and Kentucky, but is frequently found in moist habitats in the southeastern and central United States. It thrives in rich, moist soils but has the ability to grow in a variety of sites including alkaline soils and in full sun to partial shade. The Ohio buckeye is considered a medium-sized tree with a round canopy and usually matures with an equal height and spread of 20-40 feet. Kentucky's champion Ohio buckeye also follows this pattern with a height of 73 feet and a spread of 67 feet, but the circumference measures a whopping 172 inches. Not only is this magnificent specimen Kentucky's state champion, it is also a national co-champion.



Photo courtesy: Kentucky Division of Forestry

Comparison of Ohio buckeye, yellow buckeye and horse-chestnut

Ohio Buckeye				One of the first trees to leaf out in the spring. Each leaf has five elliptical leaflets that whorl out and average 4-6 inches in length. Fruit is a large, brown, spiny capsule with a smooth, oily nut inside that displays a light spot at the point of attachment. Has an unpleasant smell when plant is bruised resembling a skunk's odor.
Yellow Buckeye				A larger species, averaging 60-90 feet in height. Leaves whorled with larger leaflets 4-10 inches in length. The fruit is a rounded, leathery, three-part smooth capsule that usually contains multiple chestnut brown, smooth, and shiny nuts. No unpleasant smell when plant is bruised.
Horse-chestnut				Horse-chestnut usually has a rounded oval shape averaging about 50 feet tall with a similar spread. Leaves are whorled often with seven oval-shaped leaflets. Flowers are white and showy and can be 1 foot in length. The fruit is similar to buckeyes but averages 2 inches in size with a semi-spiny husk that contains a shiny nut. No unpleasant odor is present.

All photos courtesy: <http://www.ipfw.edu> except yellow buckeye fruit which is courtesy Wendy VanDyk Evans, Bugwood.org

About the Author:

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Test Your Knowledge

Submit your answers at www.ukforestry.org. The randomly selected entry of those with the most correct answers will receive a free copy of *Identifying Kentucky's Forest Trees*.



Hint: See article on page 6.

1. How many venomous species of snakes are there in Kentucky?

- a) Seven
- b) Six
- c) Five
- d) Four

2. When observing the husk of a buckeye fruit which distinguishing feature will allow you to know that it is an Ohio Buckeye?

- a) The husks surrounding the Ohio buckeye are smooth and shiny.
- b) The husks surrounding the Ohio buckeye are spiky and ill-scented.
- c) There are NO husks surrounding the Ohio buckeye fruit.



Hint: See article on page 21.

3. Forest*A*Syst is intended only for woodland owners without a management plan.

Hint: See article on page 1.

- a) True
- b) False



4. After you discover that you have nonnative plants on your property the next step is to _____?

- a) Hope they will go away
- b) Find out what it is
- c) Cut it down
- d) Use Round-Up on it

Hint: See article on page 14.



5. The selection of a logger is an important consideration for woodland owners because they can have a significant impact on the make-up of the woodland in the future based on the trees they harvest, leave, and damage. Professional loggers should be capable of protecting what % of residual trees greater than 8 inches in diameter?

- a) 25% Hint: See article on page 10.
- b) 50%
- c) 90%

6. The stream side management zone study reported on in the Research in Brief article showed that the use of _____ decreased sediment production and transport better than a ford in ephemeral streams.

Hint: See article on page 16.

- a) Improved crossings
- b) Choke chains
- c) Small tires



Scan this code with your smartphone or tablet device to submit your answers.



Reorganization of the Kentucky Division of Forestry

The Kentucky Division of Forestry (KDF) has reorganized. This reorganization, driven by budget cuts, includes the combination of nine districts into five regional offices, changes in the division include staffing in the nurseries, and a restructuring of its headquarter operations. Also, the Fire Management Section has been upgraded to a branch because of the importance of the wildfire program and KDF's designation as Fire Department No. 994. The mission of KDF remains "to protect, conserve and enhance the forest resources of the Commonwealth through a public informed of the environmental, social and economic importance of these resources."

KDF will continue to strive to provide essential forestry services to the citizens of Kentucky.



West Region
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 Fax: 270.824.7593
 Seedlings:
 270.247.3913

North Central Region
 P.O. Box 516
 Frankfort, KY 40601
 Phone: 502.573.1085
 Fax: 502.573.1088

Northeast Region
 255 Rodburn Hollow Rd.
 Morehead, KY 40351
 Phone: 606.783.8625
 Fax: 606.783.8628



Central Region
 120 Gaines Drive
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Southeast Region
 P.O. Box 702
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 Phone: 606.435.6073
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Kentucky Division of Forestry Morgan County Tree Nursery to be Rebuilt



Photo courtesy: Billy Thomas

All of Kentucky received some great news recently regarding the Morgan County Tree Nursery. Gov. Steve Beshear has pledged to fully rebuild the state tree nursery that had been destroyed by a tornado. "The nursery is an important resource for our forest industry, mine and stream reclamation efforts, and land owners and it impacts the regional economy all around Morgan County," the governor said. "We are very pleased," said Leah MacSwords, the director of the Kentucky Division of Forestry. Learn more about the state tree nurseries and find species descriptions and fact sheets on available seedlings by visiting <http://forestry.ky.gov/statenurseriesandtreeseedlings>.

Rows of oak seedlings at the Kentucky Division of Forestry Morgan County Tree Nursery before the tornado last year.

Upcoming Dates To Remember:

Date:	Event:	Location:	Contact:
June 1	Woodlands and Wildlife Field Day	Hopkins County, KY	270.821.3650
June 10-14	Kentucky Forest Leadership Program	Jabez, KY	859.257.7597
September 20-21	Kentucky Wood Expo	Lexington, KY	502.695.3979
September 21	Woodland Owners Short Course	Lexington, KY	859.257.7597

NEWS TO USE

Kentucky Forestry Related Legislative Updates

There was definitely some forestry activity in the 2013 regular legislative session. There were a number of pieces of legislation regarding forestry, however several were of specific interest to forest industry and two were of direct interest to woodland owners.

House Bill 111: Property Value Assessment of Woodlands. This was by far the most interesting and impacting proposed legislation for woodland owners driven by the Kentucky Woodland Owners Association and sponsored by Representatives Nelson, Denham and



Kentucky Representative Mike Denham addressing the Kentucky Woodland Owners Association at their recent annual meeting has been a longtime supporter of forestry issues in Kentucky.

Photo courtesy: Billy Thomas

Osborne. The telling of the whole story of the establishment and legislative path of this bill is too cumbersome for this space. The bill was heard in the House Economic Development committee chaired by Representative Palumbo. Testimony was provided by Jim Corum (KWOA board member) representing woodland owners, Hagan Wonn (forester with Kentucky Hardwoods out of Somerset) representing forest industry, and Dr. Jeff Stringer from the Department of Forestry at UK. The bill emerged from committee with some substitutes in essence requiring the Department of Revenue to undertake a study of the assessment of woodland acreage (a far less robust bill compared to the initial version requiring the Department to develop new guidance for the assessment of family owned woodland acreage). The bill also passed the House but died in

the Senate's Appropriations committee (typically a place where bills are sent to unceremoniously expire). Regardless the legislation got more legs under it than many anticipated.

Senate Bill 46: Biomass Energy Bill. This bill was signed into law allowing for cost recovery for the purchase of power from biomass facilities. This means that companies wanting to establish electric generating facilities fueled by woody biomass can do so knowing that the door is open for those wanting to purchase this power to cover the initial costs associated with developing these woody biomass fueled facilities. For example this may allow companies like Eco-Power outside of Hazard to continue development. The end result will mean there is a market for low quality trees that must be removed from the woodlands to provide space for highly valued trees to grow.

House Concurrent Resolution 42: Timber Theft Task Force. This legislation sponsored by Representative Combs has been introduced in multiple sessions over the last few years. It did not pass this year either. It establishes a multi-member task force to study the issue of timber theft and provide recommendations to reduce this problem. The general consensus in some legislative venues is that there is no need for one more task force in Kentucky.

Lookout for a Kentucky Woodlands Magazine Survey this Summer!!!!

Be on the lookout for a survey about Kentucky Woodlands Magazine this summer. The survey will be included in the next issue of Kentucky Woodlands Magazine, online, and by direct mail. When you receive the survey PLEASE take a few minutes to complete and return it! This short survey is important to demonstrate the usefulness of Kentucky Woodlands Magazine. The ability to demonstrate the effec-

tiveness of Kentucky Woodlands Magazine is important as we continue to seek funding sources to keep subscriptions free. We also want to use information collected from the survey to provide readers with the content they want and need to better care for their woodlands. When you receive the survey please let us how we are doing and what we can do better. Thanks in advance!

Answers from
KWM Vol. 7 Issue 2

1. c) 4. b)
2. b) 5. b)
3. a)



Test Your Knowledge Review

Congratulations to M. Brite of Madisonville, KY. He was randomly chosen from the entries from the last quiz. He will receive a free copy of Identifying Kentucky's Forest Trees.



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Kentucky Forestry Economic Impact Report

Dealing with Nonnative Invasive Plants in Your Woodland

On-line version at www.ukforestry.org

