

Kentucky

Woodlands

Magazine

Vol 17 Issue 1



Kentucky Woodlands Magazine

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Volume 17 Issue 1

Cover photo courtesy: Jacob Muller

From the Editors of the Kentucky Woodlands Magazine:

We are excited to share another issue of the Kentucky Woodlands Magazine with you! In this issue, we cover a wide variety of forestry topics including articles from Billy Thomas and Laurie Thomas that highlight the importance, and prominence, of maple trees in Kentucky. Dr. Ellen Crocker provides us with several insights into common oak issues that woodland owners may face, and I, Dr. Jacob Muller, discuss changing climates and some future challenges we might face as woodland owners. Additionally, we will hear from Pam Snyder from the Kentucky Division of Forestry regarding the Forest Inventory and Analysis (FIA) Program where she highlights several online tools that anyone can utilize to learn about forestry trends across the Commonwealth. We will also hear from the Daniel Boone National Forest, which is planting the "seed" for engaging youth in land management as part of the Youth Conservation Corps. And finally, in our Research in Brief, Drs. Steve Price and Sarah Tomke shares new and exciting research on Kentucky's renowned salamander, the eastern hellbender. We are so excited to share these articles and more with you. And as always, thank you for being a part of the Kentucky Woodlands community and we hope you enjoy this issue!

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Kentucky Forests and Climate Change

by Jacob Muller

The forests of Kentucky are some of the most diverse and ecologically important forests in the United States. Spanning nearly 50% of the total land area in Kentucky, these forests play a key role in everything from the state's economy to the overall health and wellbeing of all Kentuckians. However, changes in the climate are creating unique management challenges and pose threats to the forests we all care so much about, from the overall health of the forest to the habitats wildlife call home.



Kentucky's forests truly are special and often characterized by their vast diversity. The state is home to over 100 tree species including prominent species such as white and red oaks, hickories, maples, and of course our state tree, the yellow-poplar, also known as tulip poplar. These forests and woodlands provide critical ecological functions as well, such as providing clean water, controlling erosion, providing habitat for a wide variety of wildlife species, and storing large amounts of carbon. Additionally, the forests of Kentucky are so important to the state's economy, supporting timber products, recreation, and tourism. The health and wellbeing of these forests directly impact the quality of life for all of us who call Kentucky home, and we benefit from their natural beauty and the vast resources they provide.

What about climate change?

Climate change will impact forests in one way or another and these impacts will create unique management challenges for foresters and natural resource professionals. Increasing temperatures, changing precipitation patterns and intensities, and increased frequency and severity of extreme weather events are impacting the forests and how they function on the landscape.

-Increasing temperatures

Warmer temperatures appear to be one of the most obvious impacts of climate change. For the forests here in Kentucky, this will result in warmer, longer growing seasons while also increasing heat stress to many tree species. It is likely that some species will have a difficult time adapting to these changes, which may lead to a shift in the location and species composition of the forest. For example, certain species that are more tolerant to heat (such as many of our oak species) may become more prevalent, while cooler adapted species such as sugar maple may decline in numbers, particularly the further south you travel within its natural range.

-Changing precipitation patterns

Changes in precipitation, including increased rainfall amounts in some areas and extended droughts in other areas, may affect the overall forest health and productivity. Episodic and intense rainfall events can lead to several problems including soil erosion and increased runoff, which in turn can harm the tree's root system and decrease the forest's capacity to naturally regenerate. On the other hand, prolonged droughts can also stress trees making them more susceptible to several disturbances, including competition for invasive plants and weakened defenses to pests and pathogens.

-Pressure from pests and pathogens

Changing climates directly influence the distribution and prevalence of many forest pests and pathogens. Warming temperatures can extend the range of invasive plants and pathogens, which can adversely impact native trees on the landscape. As an example, the emerald ash borer (EAB), a destructive beetle that has devastated ash populations across the east, tends to thrive in warmer climates and, as a result, could further threaten ash trees as temperatures continue to rise.

-Increased frequency of extreme events

Extreme events such as severe storms and tornados, hurricanes as they make their way inland, and intense ice storms are all becoming more prevalent in Kentucky due to changing climates. These extreme events result in significant damage to trees and forests, such as broken crowns, uprooted trees, and the overall loss of canopy structure. Recovery from extreme events can take a long time, disrupting the forest function, wildlife habitat, and timber productivity.

-Species composition shifts

As a result of changes to the climate, the habitat suitability for tree species also changes. Historically, this has led to shifts in species composition, with some species moving northward or to higher elevations where conditions are more favorable; other species may disappear altogether if competition is too great. We have evidence of species movement across the landscape over the past several thousands of years. However, the greatest risk comes from the rate of change, where rapidly changing temperatures and precipitation patterns result in conditions in which tree species can't naturally migrate to find suitable habitat. Further, shifts in the species composition can significantly disrupt the forest ecosystem and, particularly, impact species that have a narrow range and are specialized to particular habitat conditions.

So what can we do?

To address the impacts of climate change on Kentucky forests, managers will need to employ a combination of adaptation and mitigation strategies.

Adaptation is the adjustment of forest systems in response to climate change. Adaptation actions are designed to intentionally address climate change impacts and vulnerabilities in order to meet management goals and objectives.

Mitigation is managing the forest to help reduce the amount of carbon in the atmosphere and reduce the overall potential of climate change impacts through increasing carbon sinks within the forest itself.

-Promote forest diversity

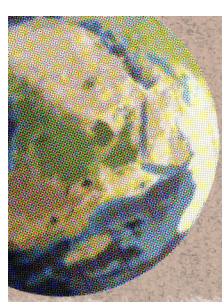
One of the most documented approaches to increasing forest resiliency to climate change is through increasing species diversity within the forest. By managing for a range of species based on their ability to adapt to future conditions and planting a mix of species more aligned with future conditions (heat, drought, and fire tolerant), managers may be able to help forests better adapt to changing conditions. Additionally, maintaining genetic diversity within a particular species can increase its capacity to handle environmental stresses.

-Sustainable forest management practices

Sustainable forest management practices are critically important and

Photo courtesy: Jacob Muller





CLIMATE *change*

How Can you Help?



Enhance Forest Diversity

Increase the variety of species found within your forest.



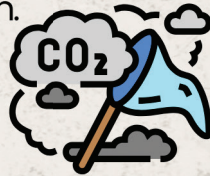
Sustainable forest management practices

Carefully manage forests to ensure health, encourage diverse ecosystems, implement best practices during harvesting, and continuously assess overall forest vitality.



Reforestation and Afforestation

Practices to help fight climate change by capturing carbon. They also promote forest diversity and enhance the benefits that forest ecosystems offer.



Community involvement, education, and Extension

Engaging communities and landowners in forest conservation efforts.



can help the forest both adapt to and mitigate the effects of climate change. Sustainable forestry includes managing forests to preserve and enhance their overall health, promoting diverse forest ecosystems, using best management practices (BMPs) during harvesting, and monitoring forest health. Ultimately, promoting healthy productive forests and ensuring their long-term sustainability is the most important thing landowners and managers can do to prepare for changing climate conditions.

-Reforestation and afforestation

Sometimes forest cover has been removed and converted to other land use type. Other times forests are clear cut, removing all trees without any consideration for the future forest. When this occurs, landowners and managers may consider reforestation and/or afforestation strategies. These strategies are not only important for the forest, but also increase the capacity of the forest to store carbon in the long term. These practices not only help mitigate climate change by sequestering carbon, but also promote forest diversity and enhance forest ecosystem services.

-Community involvement, education, and Extension

Not surprisingly, engaging communities and landowners in forest conservation efforts are crucial. Through Extension efforts and educational opportunities about the benefits of forests, the impacts of climate change, and the importance of sustainable forest management practices, we can create a community of forest stewards who work together to enhance and promote healthy, sustainable forests across Kentucky.

Some final thoughts

Kentucky's forests are such an important resource for the citizens of the Commonwealth. These forests are an invaluable resource that contribute to the culture, the economy, and the ecology of Kentucky. However, the impacts of climate change do pose a threat to these forests and it's important that we understand those vulnerabilities and make proactive decisions when managing our forests and woodlands. This article only scratches the surface of forest adaptation and mitigation to climate change, but my hope is that we can introduce issues that concern researchers and managers, and ultimately, may help start a conversation with neighbors, community members, and those in the forest management sector. By implementing adaptive management approaches, promoting species diversity, and supporting community and policy efforts, we all can help ensure that Kentucky's forests continue to thrive long into the future, and the beauty and benefits we glean from these forests is preserved for generations to come.

About the author: **Jacob Muller**, Ph.D., is an Assistant Professor of Hardwood Silviculture Extension with the UK Department of Forestry and Natural Resources. He is also the senior editor of the Kentucky Woodlands Magazine.

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Maples are some of the best known and most loved hardwood trees of North America. They are economically important, and they typify autumn with their beautiful reds, oranges, and yellows. The maple family Aceraceae* consists of two genera—*Dipteronia* that has two species exclusive to China and *Acer*, which comprises up to 200 species worldwide. The *Acer* genus is a mix of trees and shrubs scattered throughout the northern hemisphere. They grow from Alaska and Canada to the mountains of Guatemala in North America, with 13 species indigenous to the United States and six maple species that grow to tree size in Kentucky. In fact, red maple (*Acer rubrum*) is the most numerous tree in Kentucky's forests, making up 12.2% of all trees in the state.

Importance of Maples

Environmentally

Maples are often a foundational species of ecosystems and a major component of the northern temperate forests. Not only do they provide a variety of economically important

FORESTRY 101

by Laurie Taylor Thomas

Maples of Kentucky

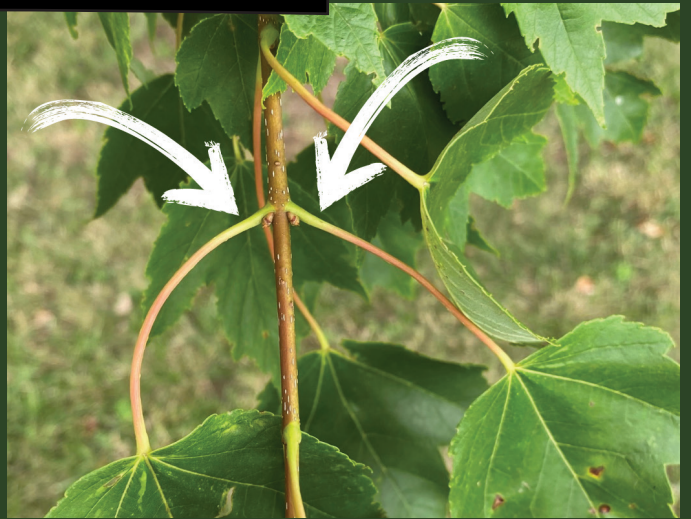


forest products, they also provide food, shelter, and other benefits for many organisms. Maple buds, twigs, and fruits are a food source for birds and mammals including northern cardinal, rose-breasted grosbeak, white-tailed deer, and squirrels. The trees also provide nesting cavities for birds such as screech owls, pileated woodpeckers, common flickers, and wood ducks. Additionally, the leaves host around 300 species of moths and butterfly larva.

Economically

Maples are economically important for both their wood products as well as their non-timber forest product of maple syrup. The wood of sugar maple is the most valuable of the maples; it is also referred to as hard maple because the wood is hard, durable, and strong. It is used for furniture, veneer, flooring, sporting goods such as bowling pins and baseball bats, and musical instruments. This hardwood is widely used for collegiate and professional basketball courts. The wood of red maple as well as boxelder and silver maple is much lighter in weight and softer in texture and is commonly referred to as "soft maple." The wood of these species is used for boxes, rough construction, pallets, and crates. All maples can be tapped to produce maple syrup, but sugar maple sap generally has the highest sugar content, which makes it important to the maple sugar and syrup industry of eastern North America.

Leaf Arrangement



Maple Identification Tips

Red maple and sugar maple are two of the most numerous trees found in our forests in Kentucky, however there are several more maples we can find in our forests including, silver maple, boxelder, black maple, and striped maple. Learning some basic identification tips for maple can be handy when out in our woodlands.

Leaf Arrangement

Maples have oppositely arranged leaves and buds. Other trees in our forest with oppositely arranged leaves and buds are ash, dogwood, and buckeye. The mnemonic MADBuck (maple, ash, dogwood and buck-eye) helps us remember trees with oppositely arranged leaves and buds.

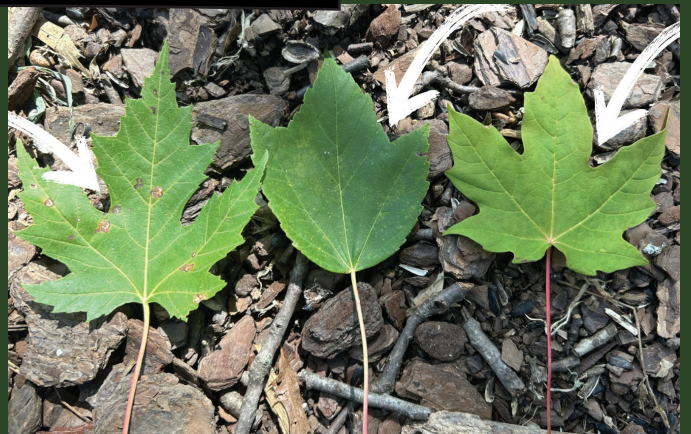
Leaf Margins









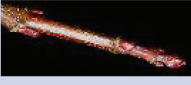








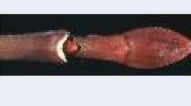
Maples have leaves with lobed margins. The number of lobes varies with maple species. Sugar and silver maple generally have five lobes, and red, black, and striped maple generally have three lobes.

Fruit

Maples have a double samara, which is a winged fruit. The size of the samara, its attachment, and when it ripens varies with maple species.

Leaf Margin



Maple	Leaves	Fruit/Samara	Bud
Sugar Maple	 <ul style="list-style-type: none"> • 5 lobes • Entire margins • Rounded sinuses 	 <ul style="list-style-type: none"> • Horseshoe shaped • Ripen in fall 	 <ul style="list-style-type: none"> • Brown, slender • Pointed • Lenticles
Red Maple	 <ul style="list-style-type: none"> • 3 lobes • Serrated margins • V-shaped, shallow sinuses 	 <ul style="list-style-type: none"> • Wide V-shaped • Ripen in spring 	 <ul style="list-style-type: none"> • Red shiny • Blunt • Lenticles
Silver Maple	 <ul style="list-style-type: none"> • 5 lobes • Serrated margins • V-shaped, deep sinuses 	 <ul style="list-style-type: none"> • V-shaped • Ripen in spring • 2 1/2" or bigger 	 <ul style="list-style-type: none"> • Like red maple but stouter • Red, shiny • Lenticles
Boxelder	 <ul style="list-style-type: none"> • Compound leaf • 3 to 5 leaflets • Serrated margins 	 <ul style="list-style-type: none"> • V-shaped • Ripen in fall 	 <ul style="list-style-type: none"> • Green to purple, stout • Fuzzy buds
Black Maple	 <ul style="list-style-type: none"> • 3 lobes • Entire margins • Shallow sinuses • Wilted look 	 <ul style="list-style-type: none"> • Horseshoe shaped • Ripen in fall 	 <ul style="list-style-type: none"> • Like sugar maple • Brown, slender • Pointed • Lenticles
Striped Maple	 <ul style="list-style-type: none"> • 3 lobes • Serrated margins • Goose-foot 	 <ul style="list-style-type: none"> • Wide V-shaped • Ripen in late summer/early fall 	 <ul style="list-style-type: none"> • Reddish/brown • Red bud scales • Bud scales valvate

Kentucky Maple Specifics by Species

Sugar Maple (*Acer saccharum*) is slow growing and can live to 300 to 400 years old and grow 80 to 120 feet tall and up to three feet in diameter. It grows best in moist woods, lower slopes in coves, and ravines with moist, well-drained loamy soils. It is shade tolerant but sensitive to urban pollution. Sugar maple is the state tree of New York, West Virginia, Wisconsin, and Vermont.

Red Maple (*Acer rubrum*) is one of the most widely distributed trees in eastern North America and the most numerous tree in Kentucky. It can thrive on a wide range of soil types, textures, moisture, pH, and elevation. Trees reach maturity at 70 to 80 years, and it seldom lives longer than 150 years. It is relatively fast growing and shade tolerant; it is commonly used in urban environments as a shade tree.

Boxelder (*Acer negundo*) is the most widespread maple tree in the United States. Trees typically have poor form with many sprouts along the trunk and the only maple with a compound leaf form. It is fast growing and short-lived, typically living only 75 to 100 years. Boxelder grows on a wide variety of sites, but mostly is found in riparian communities along streams, rivers, and ponds.

Silver Maple (*Acer saccharinum*) is a bottomland species; found growing along large rivers and on river islands, but unlike red maple, it does not grow well on dry sites. Silver maple is also known as river and water maple. It is moderately tolerant to intolerant of shade, fast growing, and has been widely used as an urban shade tree. Trees can grow up to 100 feet tall.

Black Maple (*Acer nigrum*) resembles sugar maple in habit, range, quality and use of wood. It grows rapidly in early life, then slowly and may live 200 years. It is less common than sugar maple in Kentucky.

Striped Maple (*Acer pennsylvanicum*) is widely distributed over the northeastern quarter of the United States and southeastern Canada, and along the Appalachian Mountains, it is found at higher elevations in Eastern Kentucky. It is a small tree to large shrub and can grow 30 to 50 feet tall with leaves that resemble a goosefoot.

For more information and identification tips about maple species found in Kentucky, check out the University of Kentucky Forestry and Natural Resources website for Common Trees of Kentucky: https://forestry.ca.uky.edu/common_ky_trees. The webpage has short videos for many trees found in Kentucky.

Photo courtesies: Sugar Maple: Jason Sharman, Vitalitree, Bugwood.org; Red Maple: Royal Tyler, Pro Pest and Lawn Store, Bugwood.org; Boxelder and Silver Maple: Shutterstock; Black Maple: Rob Routledge, Sault College, Bugwood.org; Striped Maple: Rob Routledge, Sault College, Bugwood.org
*Aceracea is now included in the Sapindaceae family.

Sugar Maple

Red Maple

Boxelder

Silver Maple

Black Maple

Striped Maple

About the author: **Laurie Taylor Thomas**, is an extension forester at the UK Department of Forestry and Natural Resources and is responsible for providing forestry and natural resource education programs for youth and adults across the state.

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Photo courtesy:
Renee Williams



Kentucky Natural Resources Conservation Service

The Need for a Plan

by Jon Shultz, NRCS Kentucky Forester, USDA's Natural Resources Conservation Service; Jon.Shultz@usda.gov

Land ownership of any kind is a large responsibility, and forest ownership in particular comes with its own joys and challenges. Whether enjoying a crisp fall morning while the leaves are ablaze or the deep shade by a creek on a hot summer day, there are many small moments that can make wonderful memories for any landowner. Forests also need periodic management to ensure you and future generations can continue to enjoy the benefits forest ownership provides, regardless of your personal reasons for owning forestland. Perhaps you desire a forest that can provide future income from harvesting valuable and high-quality timber or to have the best wild-life habitat for a whole host of species. Maybe you enjoy your forestland as a getaway from the daily grind, a place to bring family and friends to surround yourselves with nature, or even as a future place to retire. Your reasons could be these, many more, or even all the above.

A forest management plan is a way to begin to understand the condition of your forest, how your forest grew into that condition, and what conservation activities you can do over the short and long term to reach your ownership goals. Being a steward to the forest is often a lifelong endeavor; having a plan in place that is prepared by a forestry professional and that organizes and prioritizes the actions to take in your forest will make a lasting positive impact.

A forest management plan is organized into three parts. The first section is the most critical, in that it lays out your current and future goals and objectives. This should reflect your vision and the values you place on your proper-

ty. Individual goals are important, but creating a goal that incorporates input from family or other important users of the property and the future stewards of your forest can make a very powerful statement of purpose.

The second section is a brief history of the property, which is important to document so any legacy issues can be identified. Was the forest harvested heavily and certain important species of trees did not grow back? Was the property affected by an ice storm or windstorm? Maybe there was a disease outbreak, coal mining, or a forest fire. These are all disturbances that could shape the forest as it grows today.

This section will also document where roads and trails are located, any issues with access, and identify features that are important to note such as a picnic area, a favorite fishing pond, or a rock outcrop that offers a great view of the surrounding land.

A forestry professional also will inventory the forest itself. This inventory will tell you what kinds of trees you have and in what abundance, the sizes and the ages of the trees, and any specific issues such as disease outbreaks or invasive species that may be present. By having a detailed inventory and a snapshot of the state of the forest, management recommendations can then be made in the third section of the plan.

The final section will detail exactly what actions to take and when to best meet the management goals and vision for your forest you stated up front. Perhaps you

wish to grow the best and highest value timber that you can. By using the inventory information as well as looking at what soil types are present, the forestry professional may recommend that some trees be removed or killed to promote the best trees to thrive. They will tell you exactly how to do this, what trees to remove, and when to do this work.

In a Natural Resource Conservation Service (NRCS) approved forest management plan, there will be a schedule of actions to take and there will be NRCS conservation practices listed. Recommendations in this schedule can be used to apply for NRCS financial assistance, and a forest management plan is a requirement for any forest landowner to receive funding from NRCS to practice conservation in their forest.

In Kentucky, there are multiple ways a landowner can obtain a forest management plan or have an older forest management plan updated to current standards. Perhaps you purchased or inherited your property from someone who had a plan, but your goals are different, or the property has never had a plan prepared of any kind.

NRCS financial assistance is available to help pay for the preparation of a plan by a private consulting forester who is registered with the agency as a Technical Service Provider. These fantastic men and women work directly with you as the landowner and the local NRCS office to write a plan that is technically sound, but also easy to follow and implement.

Kentucky NRCS also has a critical relationship with the Kentucky Division of Forestry. KDF foresters, at the request of the landowner and the local NRCS field office, can write a forest management plan that meets the NRCS requirements. The final option is to arrange for an NRCS forester to work directly with you to craft a management plan.

There are some locations in the state that do not have coverage by an NRCS forester, however, so some options may be limited. Regardless, if you wish to know what condition your forest is in, how it got to that state, and what you need to do to improve and conserve this amazing natural resource, NRCS will assist you in any way to get a plan prepared. To start the process of getting a new plan, updating an older plan, or to answer general questions about NRCS and forestland conservation, please stop by or contact your local NRCS field office to speak with any one of our great conservationists. To find your local NRCS field office or USDA service center, please visit offices.usda.gov.

We look forward to visiting with you and helping you start your journey to woodland conservation!



What's a forest management plan?

- Considers your ownership goals and capacity of the land
- A first step in managing your land
- An opportunity to connect with natural resource professionals

Connect with a Forester



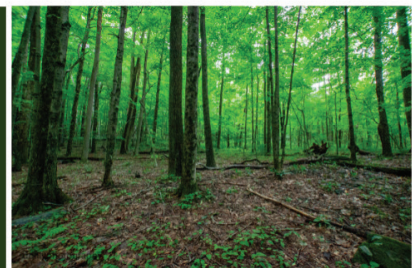
- Forest management plans are developed by qualified foresters
- The forester will work to incorporate your goals for the land in the plan
- Allows you to become aware of programs and organizations who can help you on your land



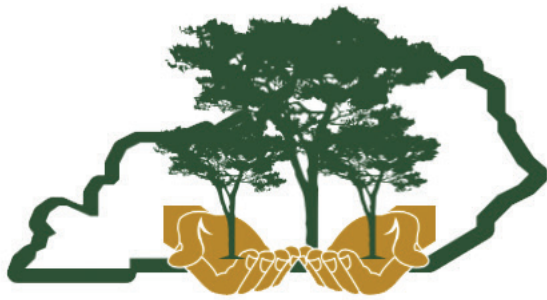
Your forest management plan

- Consists of three main parts, starting with your goals for the land
- Plans contain inventory information as well as natural resource concerns to be addressed
- Plans also contain detailed instructions on conservation practices to improve your land

Manage your land



- With a plan and a forester connection, you are on track to manage your land
- Your forester will show you how to implement conservation practices
- Your land will be healthier, more productive, and more resilient



KWOA
Kentucky Woodland
Owners Association
www.kwoa.net

KWOA and Kentucky Woodlands

by Portia Brown, President of Kentucky Woodland Owners Association (KWOA)

You are reading this article in the Kentucky Woodlands Magazine, which is published collaboratively by the UK Department of Forestry and Natural Resources Extension and the Kentucky Division of Forestry. Many people tell us they are members of the Kentucky Woodlands Owners Association (KWOA) because they receive the Kentucky Woodlands publication. That is not necessarily so. KWOA publishes a quarterly newsletter called the Kentucky Woodlands Newsletter. The operative word is "Newsletter" versus "Magazine." You may very well receive both publications.

So, what's the difference? In a nutshell one is private, and the other is public. KWOA is an all-volunteer organization for private woodland owners funded by membership dues and donations. Our mission is, "Bringing people and woodland sustainability together." KWOA partners with terrific organizations and public agencies, such as those who produce this magazine. Our partners represent a wide range of professional agencies and organizations sharing in the health and productivity of Kentucky's woodlands. Together we work to provide educational information, field days, and opportunities to help owners manage their woods.

So why do you need a private organization? A private organization can do things a public one often cannot. Without constituents to speak up, public and private business leaders lack guidance from those most impacted by their decisions. Individuals can reach out, but having an organization (organized constituency) is a far more effective way to be heard. A legislator may read proposed legislation, but if they do not hear from the people affected they may not understand the full impact of the proposal. Similarly, a business leader may be presented with a project that seems good without being aware of the actual effects. As a membership-based not-for-profit organization, we can and do advocate with legislators, public institutions, and businesses to promote the interest of private, often family-owned, woodlands. A public agency cannot advocate the way we can.

We provide a voice for the collective interest of woodland owners on topics including support for state nurseries, favorable taxation, the farm bill, and other government programs influencing our ability to sustainably manage our woodlands. KWOA has a seat on the Best Management Practices (BMP) Board that sets standards for logging operations to protect water quality for everyone. KWOA strives to stay abreast of relevant legislation, programs, and policies as well as wood industry trends. We share information through various media. Check out some of the events and resources we offer at <https://www.kwoa.net/> which are our monthly E-news: <https://www.kwoa.net/wood-post> and our quarterly Kentucky Woodlands Newsletter: <https://www.kwoa.net/newsletter>

Private woodland owners have the honor and responsibility of caring for this precious resource at a time of increasing threats to the health, productivity, and even the very existence of our forests. We can wait until our resources are depleted, or we can step up now and get involved with KWOA and our partners in making the connections to sustain our woodlands for future generations. Contact us by email at info@kwoa.net, and an officer will get back with you. Scan this code to join us now!



For more information visit www.kwoa.net

KWOA



Kentucky Tree Farm Committee Newsletter

The Kentucky Tree Farm Committee consists of individuals representing the fields of forestry, natural resources, and most importantly, woodland owners. The focus of this committee is to provide direction to the 500-plus certified Tree Farms across the state to achieve a balance in timber management for the future, potential wildlife opportunities, recreational interests, and the need to maintain water quality within the woodlands for downstream use. Each landowner can design a workable plan for their woodlands with the guidance of a professional forester for the needs of both the landowner as well as the woodlands potential for the present, but much more importantly, the future. Your woods are part of your family legacy. Being a part of the American Tree Farm System (ATFS) through the Kentucky Tree Farm Committee, you can be assured that your family can continue to enjoy the many benefits that come with woodland ownership.

The Kentucky committee meets twice a year carrying on the work of the Tree Farm program as well as evaluating nominations for Tree Farmer, Logger, and Inspecting Forester of the Year. All three of these individuals are selected annually based upon the efforts they have shown. The awards highlight the Tree Farmer's quality of work managing the land so that it will be better now than when they got it. The logger provides the support of physically harvesting timber while leaving the residual timber for future sustainable growth; and the inspecting forester works with the Tree Farmers and loggers to ensure sustainable woodland management is carried out within the standards the program.

Tree Farm Inspecting Foresters
by Sarah Shewmaker

Foresters work on the front lines with landowners and are often the first contact for landowners along the road to sustainable forest management. This process includes a site visit, when foresters get to know the landowners and gain an understanding of their objectives. When these objectives include wildlife, water, recreation, and/or wood management, a forester may recommend joining ATFS. This community of landowners and Tree Farm

inspectors offers many benefits to woodland owners.

When discussing the ATFS with landowners, I find it best to focus on the program's ability to facilitate and strengthen the relationship between forester and landowner. Required recertification inspections keep foresters coming back to your property to update your management plan, and assist you in maintaining your Tree Farm status. Other benefits of joining ATFS include growing certified wood for the timber industry; being nominated for state, regional, or National Tree Farm of the Year; and having the opportunity to advocate in Washington, D.C., for sustainable forestry practices through the Farm Bill.



Brandon Howard, (right) director of the Kentucky Division of Forestry, and Lowell Hamilton, prominent Kentucky Tree Farmer, greet landowners at a Tree Farm event.

The certification process for ATFS is straightforward for landowners. As a national certification program, there are eight standards of sustainability that are written to accommodate a variety of management objectives and are adaptable for a wide range of forest types. Using the certification form, your Tree Farm inspector will walk you through these standards and offer guidance to remain in compliance with these standards.

For more information as to how you can become a part of the Tree Farm System, contact 502.564.4496.



FOREST



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HEALTH

What's Wrong With My Oak?

What you need to know about common oak issues

by Ellen Crocker

Oaks are vital to Kentucky's forests, contributing to the economic, environmental, and ecological value of your woods. But recent research shows that oaks are struggling for a variety of reasons. For example, a lack of regeneration is a key driver of what experts warn could be a drop in oaks across the landscape. In addition to this seedling-focused oak bottleneck, there are many pests and diseases that can impact oak trees. These can range from minor problems to major threats. Distinguishing these can help you determine if any action is needed to protect these valuable trees.

Galls:

Oak trees host a wide range of galls (abnormal tumor-like growths) that can really stick out. They can come in all shapes and sizes, with different ones growing in different places (e.g. leaves, branches). They are typically caused by insects who lay their eggs in the plant tissues and trigger a range of changes in plant growth as the larvae develop, safely protected inside the plant.



Most galls on oaks are not a health issue for the trees.

Photo courtesy: Steven Katovich, Bugwood.org

Most galls on oaks are not a health issue for the trees. On landscape and nursery trees, sometimes branch galls — specifically horned oak gall and gouty oak gall—can cause problems and should be pruned out when small. But in a woodland setting, galls are not something you need to worry about.

Hypoxyton canker:

Ever noticed a smooth grey patch on the bark of an oak branch (or downed log)? This might be hypoxyton canker. The grey or black patch is actually the fruiting body of a fungus. While a pathogen on its own, hypoxyton canker typically is a sign of tree stress. The fungus is native and widespread, present even in healthy trees, waiting to grow until trees are stressed. Healthy trees and branches typically do not experience problems—even if the fungus that causes it is there—until other health problems trigger a decline.

If you see hypoxyton canker on many branches, it is worth thinking about why your trees are so stressed that this issue has become widespread. Cankers on the main trunk of a tree are a major red flag and a sign that the tree is dead already (or will be soon).



Hypoxyton canker typically is a sign of tree stress.

Photo courtesy: Robert Anderson, USDA Forest Service

Bacterial leaf scorch:

Does your oak tree look like it got too close to a campfire, with leaves that have scorched dead edges? If symptoms like this suddenly come on in late summer, it could be bacterial leaf scorch. While the symptoms of this disease are in the leaves, the problem is that the pathogen that causes it is gumming up the vascular system of the tree, preventing the tree from getting enough water. This is a lethal issue that will



Bacterial leaf scorch is a lethal issue that will cause trees to decline over time.

Photo courtesy: John Hartman, University of Kentucky, Bugwood.org

cause trees to decline little by little (typically one branch or part of the tree at a time) over several years until they die.

While bacterial leaf scorch is a major issue for landscape trees, especially common in street trees, it is not considered an issue for trees in Kentucky's woodlands.



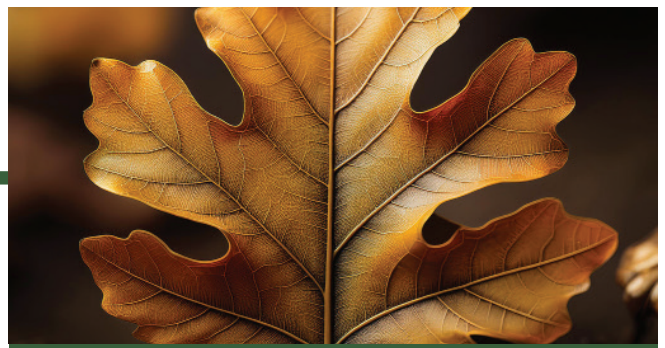
Oak wilt is typically not a serious issue for trees in Kentucky.

Photo courtesy: Steven Katovich, Bugwood.org

Oak wilt:

The symptoms of the disease oak wilt can look similar to those of bacterial leaf scorch, with leaves developing scorched edges. However, oak wilt tends to act more rapidly, with the whole canopy turning brown and the tree dying quickly. Red oak species are most susceptible to this issue, and it can spread from tree to tree through natural root grafts, pruning, and insects.

Fortunately, oak wilt is typically not a serious issue for trees in Kentucky. While it has been noted to occasionally occur in the area for many years, typi-



Learning what is wrong with your oaks is a beneficial part of forest health.

cally it is quite rare. However, when trees are stressed for other reasons (such as droughts), there can be increased cases of oak wilt and several positive cases have been confirmed in the past year.

Root issues:

A wide range of different root rots can impact oaks, including armillaria root rot and phytophthora root rot. Although you typically can't see them, you may notice dieback in a tree's canopy and reduced vigor. Most of the time, healthy trees can defend themselves and outgrow damage. But extensive decay can result in a stressed tree and an increased likelihood of tip-over.

Factors that impact root rot severity include species, damage to trees, site condition, and weather. If a tree is growing in a spot that holds moisture, it may experience more problems, especially considering recent weather patterns that have resulted in more rain. Trees growing in sites that previously were fine now may need to contend with increased root rot. Wounding or compaction of a tree's trunk or root zone invites future issues, so take care to protect remaining trees from damage during harvests or other management.

Oak decline:

Oak decline is a general term used for the progressive dieback and eventual death of oak trees due to compounding stressors. This includes a combination of predisposing issues (such as site, tree age, and species), inciting stress triggers (such as drought), and contributing factors that can act as nails-in-the-coffins for stressed trees (hypoxylon canker, two-lined chestnut borer, and more). While pinpointing individual causes of decline in oak trees is a challenge, it is most common in aging red or black oaks as they naturally reach the upper end of their life expectancy.

While you can't stop oak decline in your woods, knowing that you have susceptible trees can help inform your decision about next steps in your management. For example, if you know that you have many trees likely to decline soon, planning ahead (Potential harvest? Regeneration? Invasive plant management?) can set the stage for success in the future.

And many more...

In addition to these issues, there are many other diseases and insects that can pop up on oak trees. While most of these (like the occasional leaf spot) are minor, some, like bleeding cankers, may be a sign of something more significant. For example...



Anthracnose

Photo courtesy: Joseph O'Brien, USDA Forest Service, Bugwood.org



Bleeding cankers

Photo courtesy: Ellen Crocker, University of Kentucky



Oak shothole leafminer

Photo courtesy: Ellen Crocker, University of Kentucky

Not here yet: Threats to watch...



Spongy moth

Photo courtesy: John Yuschock, Bugwood.org

Spongy moth: Invasive moth that is near Kentucky, but not here yet. Caterpillars gather in large numbers and defoliate trees, especially oaks, and can greatly stress trees.

Sudden oak death: A disease that kills oaks on the west coast, caused by an invasive pathogen. It cuts off circulation in the tree's trunk, resulting in bleeding cankers, sudden browning of canopies, and dead trees.

Many insects and diseases can impact oaks but most of these are relatively minor. While they may stress trees (or kill trees that are already weakened), only a few things can kill vigorously growing oak trees. Because of this, promoting the health of your woods overall can go a long way toward preventing problems from these and other issues.

About the author: **Ellen V. Crocker**, Ph.D., UK Department of Forestry and Natural Resources and Forest Health Research and Education Center. Her focus is on forest health issues including tree diseases, insect pests, and invasive plants.

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by Pam Snyder

The Forest Inventory and Analysis (FIA) program has been around for more than 100 years. FIA is mandated by Congress and collects inventory data relating to forest resources, forest health, and ownership. There are four main types of forest inventories collected: Natural Resource Inventory, Natural Resource Use Monitoring, National Woodland Owner Survey, and Urban Inventory. The forest data centers on specific sets of procedures, rules, and conditions for all forest types to analyze trends through time. Most people do not fully understand the importance and complexities of FIA data or how it is underutilized by the public. It is important to realize this data is available online. The public sector can utilize multiple online FIA data tools available through (<https://www.fs.usda.gov/research/programs/nfi#data-and-tools>). Here are three examples of FIA tools available online:

The **VALIDator** tool allows users to produce a variety of population estimates and their sampling errors based on the FIA database. Estimates can be produced as totals (e.g., number of trees) or as ratios (e.g., number of trees per acre of forest land).

The **timber products output interactive**

tool includes estimates of timber products, logging residue, mill residue, residential fuelwood, and other removals based on the selected area.

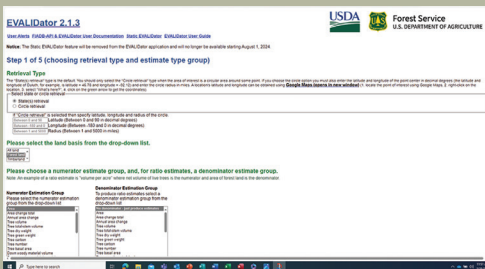
The **national woodland owner survey dashboard tool** generates plots and tables for user-selected survey ques-

tion, cycle (i.e., period), and geography (e.g., national-, regional-, or state-level summaries).



Hardwood Tree Grade Training conducted by Dr. Jeff Stringer from the University of Kentucky Department of Forestry and Natural Resources.

The general public can request a FIA data consultation through the USDA-US Forest Service-Southern Research Station at M.FS.SRSFIA_Help@usda.gov. FIA data can assist with wood and fiber sourcing for primary and secondary wood industries, biomass, carbon sequestration, forest health, hardwood timber grading, log grading, urban, timber volumes, biological diversities, spatial data, landscape scale ecological restoration initiatives, woodland ownership patterns and so much more. If you are looking for forestry data and trends, please reach out to the USDA-U.S. Forest Service -Southern Research Station; they will be able to assist you.



About the author: **Pam Snyder**, is the Forest Management Chief with the Kentucky Division of Forestry and works on a variety of forest management needs for private landowners, farmers, and governmental agencies. She is one of the editors of the Kentucky Woodlands Magazine.

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Tap into Maple Syrup Resources

by Billy Thomas

The process of producing maple syrup is fairly simple—extract maple sap from maple trees then remove excess water until you have syrup. Sounds simple, right? While the process is straightforward, the challenge is in the details. The best choice on how to go about it depends on the producer's situation. Many producers "graduate" from buckets to tubing systems for the efficiency and labor savings. Another piece of modern technology can be used to concentrate the sap prior to boiling it down—reverse osmosis machines can drastically reduce the time it takes to produce maple syrup. There are also modern evaporators, pre-warmers, filter presses, and so much more to consider. Fortunately, there are numerous resources available to help Kentucky maple syrup producers decide what equipment is best for their situation as well as the financial considerations of each decision and the operation overall. This article highlights the many useful resources and organizations available to support Kentucky maple syrup producers in production and management of their woodland resources.

National Maple Syrup Producers Manual

Often considered the "bible" of maple syrup production, the North American Maple Syrup Producers Manual is a crucial resource for maple syrup producers. It provides up-to-date, science-based information and recommendations

relating to all aspects of the maple syrup industry. The guidelines presented in the manual are beneficial for users ranging from hobby and beginning producer level to those well-established in the industry. The manual covers all aspects of maple syrup production, including the history of maple syrup and sugar production, planning an operation, managing maple trees, sap production, syrup production, syrup filtration, and marketing. The manual is available in print (<http://www.mapleresearch.org/ordermanual>) and can be downloaded as a PDF (<http://157.245.92.171/wp-content/uploads/NAMSPM3sm.pdf>). It includes numerous photographs, tables, a glossary, and hyperlinks to selected source materials. The National Maple Syrup Producers Manual is

a must-have resource for any maple syrup producer in Kentucky, offering a wealth of knowledge and practical guidelines for every stage of the production process. Whether you are a beginner or an experienced producer, this manual can help you improve your operations and enhance the quality of your maple products.

Maple Digest

Another national maple syrup resource from the North American Maple Syrup Council is the Maple Syrup Digest, which is their official publication. It is published quarterly and contains information of interest for all who are involved with the maple syrup industry. It features research reports from U.S. and Canadian universities and institutions on all aspects of maple syrup production, packaging, and marketing. Visit <http://northamericanmaple.org/index.php/maple-syrup-digest/> to request a subscription.

The Maple News and Maple Trader

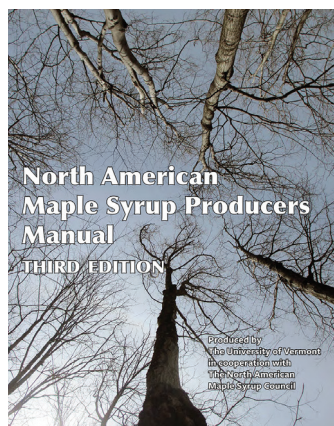
The Maple News (<https://www.themaplenews.com/>) is a maple syrup trade publication and source of information and updates related to the North American maple syrup industry. It covers topics such as production, trends, and events. In addition, it hosts www.MapleTrader.com, which is a forum where maple producers can discuss various aspects of their work. It is a place to share experiences, ask questions, and stay informed about industry developments. Both resources can serve as valuable tools for maple syrup producers.

UK Maple Syrup Website

UK Forestry and Natural Resources Extension maintains a Kentucky Maple Syrup website (<https://ky-maplesyrup.ca.uky.edu/>) that provides numerous maple syrup-related resources including recorded presentations, announcements, as well as links and other resources to support maple syrup producers statewide. It is also a convenient resource that promotes Kentucky Maple Days which are typically held each February.

Maple Syrup Budgets and Financial Considerations

The Kentucky Center for Agriculture and Rural Development (KCARD; <https://www.kcard.info/>) offers resources that provide helpful information to those interested in



org/ordermanual) and can be downloaded as a PDF (<http://157.245.92.171/wp-content/uploads/NAMSPM3sm.pdf>). It includes numerous photographs, tables, a glossary, and hyperlinks to selected source materials. The National Maple Syrup Producers Manual is

maple syrup production or other aspects of agriculture. They provide one-on-one assistance for farm businesses navigating distribution methods, including financial, technological, and marketing considerations. As part of a grant to the UK Department of Forestry and Natural Resources from the USDA Acer Access and Development Program, KCARD has produced interactive maple syrup production budgets and financial considerations that identify financial assistance opportunities. These resources are available at: <https://ky-maplesyrup.ca.uky.edu/resources>

NRCS Funding for Maple Syrup Producers

The Environmental Quality Incentives Program (EQIP) On-Farm Energy Initiative by the USDA's Natural Resources Conservation Service (NRCS)

helps producers make voluntary improvements that can boost energy efficiency on the farm.

Maple syrup producers are encouraged to contact the NRCS office at their local USDA Service Center for free, one-on-one technical support where they can provide more detailed information and help you navigate the application process. You can learn more by visiting: <https://www.nrcs.usda.gov/programs-initiatives/on-farm-energy-initiative>.

Partnering with NRCS
The U.S. Department of Agriculture, Natural Resources Conservation Service (NRCS) assists Maple Syrup producers by providing technical assistance to help them improve their energy efficiency. The Environmental Quality Incentives Program (EQIP) and the Conservation Stewardship Program (CSP) NRCS collaborates with landowners and managers to help them improve energy efficiency on the farm. For many of these farms, conservation work is needed for the equipment or facilities where the syrup is produced.

EQIP Ag Energy Assistance
Through the EQIP energy assistance program, NRCS provides technical assistance to help you improve your energy efficiency. The assistance includes: energy audits, energy conservation plans, and energy audits. The assistance is provided to help you improve your energy efficiency. The assistance is provided to help you improve your energy efficiency. The assistance is provided to help you improve your energy efficiency.

NRCS provides financial assistance
NRCS provides financial assistance to help you improve your energy efficiency. The assistance includes: energy audits, energy conservation plans, and energy audits. The assistance is provided to help you improve your energy efficiency. The assistance is provided to help you improve your energy efficiency. The assistance is provided to help you improve your energy efficiency.

ducer. Home-based processors may sell their products throughout the state at farmers markets, certified roadside stands, community events, and from the home-based processor's home within Kentucky. They cannot mail or ship products to customers, and they cannot sell products to restaurants, grocery stores, wholesale distributors, or any other retail outlet for further sale as these require a commercial license. To register, home-based processors should submit an Application for Home-Based Processors along with a \$50 registration fee to the Food Safety Branch (<https://www.chfs.ky.gov/agencies/dph/dphps/fsb/Pages/homebasedprocessing.aspx>). If a maple syrup producer wants to sell products at grocery stores, across state lines or over the internet, a commercial food manufacturing permit is required. In order to qualify for the permit, the producer needs a commercial kitchen, agree to regular inspections, and adhere to specific processing guidelines. To learn more about obtaining this permit, call 502.564.7181.



Kentucky Maple Syrup Association

If you are a producer or interested in seeing viable maple syrup industry in Kentucky, then you are strongly encouraged to join the Kentucky Maple Syrup Association (KMSA). The producer association provides a forum for all maple syrup producers in Kentucky and membership is open to all persons interested in maple syrup or firms engaged in any phase of producing, processing, and/or marketing of maple syrup. To join KMSA, complete the form at <https://kymaplesyrup.com/>



In conclusion, these resources and organizations provide a wealth of information and support for Kentucky maple syrup producers. Whether you are a beginner or an experienced producer, these resources can help you improve your operations, increase your knowledge, save you time and money, and enhance the sustainability of your woodland.

Kentucky Division of Forestry Forest Stewardship Program

The Kentucky Division of Forestry (KDF) offers a Forest Stewardship Program that provides a customized forest stewardship plan based on your goals and objectives for the property. The program helps producers by providing a road map on how to improve your woodland property. When working with KDF foresters, let them know you are interested in maple syrup production so they can tailor their recommendations and connect you with additional programs to make your sugarbush healthier and more productive. Visit <https://eec.ky.gov/Natural-Resources/Forestry/forest-stewardship-program-and-landowner-services/Pages/default.aspx> to learn more about the services KDF provides to Kentucky woodland owners.

Forest Stewardship Program

Selling Maple Syrup in Kentucky

It is important to remember that maple syrup is food — time, temperature, and sanitation must be considered throughout the process. There are also regulations when it comes to selling maple syrup in Kentucky. Producers interested in selling maple syrup in Kentucky need to decide if they want to be a home-based processor or a commercial pro-

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Engaging Youth in Land Management

by Mary O'Malley and Blair Ripley

Sustainable land management, whether of a small private woodland or of a 700,000-acre national forest, is vital to ensuring the continued health of Kentucky's forests. When sustainable land management plans and practices are designed on a decades-long scale, nurturing the next generation of land stewards becomes just as important as nurturing the landscape.

Hands-on service-learning experiences are an invaluable way to introduce the next generation to land management and to help them build the skills and desire to continue our work. These experiences can provide specialized training, invaluable experience, and hiring pathways for future green careers. The Daniel Boone National Forest is proud to host numerous service-learning opportunities for young people through the Youth Conservation Corps and Public Lands Corps programs.

Planting the Seed

At the beginning of June, the Daniel Boone National Forest welcomed 12 young people for a summer of hard work in the woods. As part of the Youth Conservation Corps (YCC), these young people will play an active role in the management of the Daniel Boone National Forest. The YCC program provides paid summer experiences for youth ages 15 to 18 to work as part of a team on fun and meaningful conservation projects on public lands while developing an ethic of environmental stewardship and civic responsibility.

During their service, YCC members will do everything from removing invasive species to assisting with research to repairing recreation facilities.

They will grow as land stewards, explore green careers, and build an appreciation and knowledge of the land that will stay with them their whole lives.

Growing Skills and Experience

Public lands such as the Daniel Boone National Forest also provide skill-building and professional development opportunities for more experienced land stewards through the Public Lands Corps (PLC) program. The Daniel Boone National Forest partners with PLC-recognized national and regional service organizations to offer meaningful, paid work experiences for adults ages 18 to 35 that advance the conservation and stewardship of public lands. Corps members contribute to important work in wildfire risk reduction, trails and recreation management, habitat restoration, research, visitor services, and more all while developing skills necessary to join the next generation of conservation leaders.

Earlier this year, PLC-recognized American Conservation Experience (ACE) crew members spent more than five weeks on the Forest gaining specialized silviculture-specific experience. Crew members carried out forest stand improvement activities to encourage regenera-





tion and recruitment of desirable species, such as white oak. They prepared sites for natural regeneration of such species and even cleared downed trees from the roads and trails leading to treatment units.

They also planted hybrid American chestnut seedlings on the Forest. These hybrids, provided by the Kentucky Chapter of the American Chestnut Foundation and backcrossed for blight resistance, are the next step in developing a blight-resistant American chestnut tree capable of reclaiming its native range.

Their service overlapped with the PLC-recognized Southeast Conservation Corps (SECC) Kentucky-based Fire & Disaster Ready Crew. The six-person crew spent close to three months conducting a variety of prescribed fire work, trail repairs, developed recreation maintenance and disaster relief on the federally managed Daniel Boone National Forest and Land Between the Lakes National Recreation Area as well as state and private lands impacted by natural disasters.

In addition to invaluable field experience and specialized training, crew members from both the ACE and SECC crew had the opportunity to gain Public Lands Corps non-competitive hiring authority. This two-year hiring authority makes it far easier to apply for and transition into a permanent position with the U.S. Forest Service or other federal land management agency.

Nurturing the Next Generation

As land stewards, we hope to provide for both the present and future prosperity of our forests. Engaging youth in the land management process gives us the opportunity to inspire the next generation of land stewards. Hands-on service-learning experiences on public lands, like YCC and PLC, provide invaluable opportunities for young people to develop the passion and professional skills to serve as our successors.

About the authors:

Mary O'Malley is a Public Affairs Specialist with the USDA Forest Service. She coordinates community engagement and environmental education activities for the Daniel Boone National Forest.

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During their summer on the Daniel Boone National Forest, ACE crew members gained a hands-on appreciation for traditional land management tools and techniques.

Their activities (pictured above) included removing downed trees from roadways and planting hybrid American chestnut seedlings. Photos courtesy: American Conservation Experience



The Eastern Hellbender: Kentucky's Giant Salamander

by Steven J. Price and Sarah A. Tomke

Kentucky is home to 35 salamander species. Many woodland owners have encountered these diminutive animals under rocks or logs, within dead leaves, or around small wetlands or narrow, rocky streams on their property. However, Kentucky is also home to a truly gigantic, albeit secretive, salamander: the Eastern hellbender (*Cryptobranchus alleganiensis*). Most adult hellbenders range between 1.5 to 2 feet in length, although some may approach 2.5 feet. Hellbenders are fully aquatic salamanders—that is, they remain underwater within large streams and rivers throughout the year. They do not rely on gills (like fish and some other aquatic salamanders) to obtain oxygen. Instead, hellbenders have folds of wrinkly skin along their body and limbs that increase their surface area and allow them to breathe through their skin. Hellbenders have tiny eyes, a wide mouth, flattened bodies, and powerful tails. Their body color ranges from dark brown to greenish or slate gray. Due to their appearance, the hellbender is also colloquially referred to as the “lasagna lizard” due to the folds of skin on the body

or “snot otter” as they secrete mucous from their skin when captured by a predator.

Hellbenders were once widely distributed across most of Kentucky and were likely fairly common in most rivers, including the Ohio, Kentucky, Licking, Cumberland, and Green, along with their larger tributaries. Hellbenders prefer rivers that contain large, flat rocks, which provide shelter. Typically, hellbenders are active at night, but their activity is primarily limited to peeking out from under a rock with the hope of finding a fish, crayfish, snail, or amphibian dinner. These large, flat rocks are also used for nesting. In August and September, male hellbenders excavate a nesting chamber beneath a rock. Once a female arrives in a nesting area, males will lead females to the nesting chamber where she will lay long, gelatinous strands of eggs as the male fertilizes the clutch. After egg laying, the female leaves the area and the male hellbender attends the nest until eggs hatch in October or November. He guards the eggs from potential nest predators (including other hellbenders) and, through movements of his body, he brings in fresh, oxygenated water to the eggs and stimulates rotation of the eggs.

Their preference for hiding under large, flat rocks makes searching for hellbenders incredibly challenging. Researchers typically use a snorkel, dive light, and sometimes a borescope to peer under the rocks. These intensive methods has been em-



Main photo. Sarah Tomke taking a photo of an Eastern hellbender.

Figure 1. A large Eastern hellbender (*Cryptobranchus alleganiensis*). Note the wrinkled skin, which allows it effectively to respire underwater.

ployed at many sites where hellbenders have been historically observed in Kentucky with little success, especially in recent years.

Many scientists are using environmental DNA (eDNA) to search for these animals. Hellbenders (and all aquatic life) are constantly releasing their DNA into the environment through sloughed skin cells, urine, feces, mucus, eggs, and saliva. Thus, water samples can be collected from streams and rivers, and analyzed in the lab to determine if hellbender DNA is present. Recently, Sarah Tomke and Steven Price (University of Kentucky, Department of Forestry and Natural Resources) collected water samples from 90 stream and river sections across Kentucky. Hellbender eDNA was detected at 22 of 90 sites samples. By comparing these sites with hellbender eDNA to historic hellbender records in Kentucky, this research suggests that hellbenders

have disappeared from many streams and rivers they once inhabited in Kentucky. This research also showed that streams where hellbender eDNA was detected tended to have high percentages of bedrock, cobble, and gravel in the stream bed; lower amounts of silt on the stream bed; and higher percentage of forest cover in the riparian zone. Restoring some of these important habitat components in streams and rivers may aid in the recovery of the hellbender in Kentucky. From a woodland owner's perspective, meeting or exceeding Kentucky Streamside Management

Zones best management practices, which reduce the amount of soil entering waterways, remains a critical component of hellbender management.

In addition to the threat of siltation and the subsequent embedding of large rocks, intentional killing by recreational users of Kentucky's streams and rivers has also been documented. In particular, fisherman should release all captured hellbenders (after removing hooks) as quickly as possible after



Figure 2. Researchers snorkeling for Eastern hellbenders in a Kentucky stream.

Figures 1-3 courtesy: Sarah Tomke

capture. Kentucky Department of Fish and Wildlife Resources (KDFWR) considers the hellbender a species of greatest conservation need and tracks observations. If you encounter a hellbender while recreating in Kentucky's streams or rivers, take a georeferenced photo with your cell phone; record the county, date, and location information; and send this information to KDFWR Wildlife Biologist Courtney Hayes (Courtney.hayes@ky.gov). These important records will aid in our understanding of the distribution of hellbenders in Kentucky.



Figure 3. University of Kentucky student searching for Eastern hellbenders using a borescope.



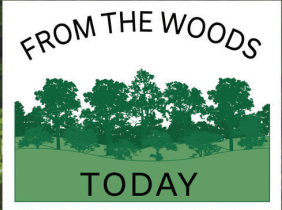
Figure 4. Sarah Tomke holding an Eastern hellbender after a successful survey.

Photo courtesy: Connor Romines

The hellbender is also referred to as the lasagna lizard.

About the authors: **Steven Price**, Ph.D. is a Professor of Stream and Riparian Ecology at the University of Kentucky, Department of Forestry and Natural Resources. His research focuses on the conservation and management of aquatic and semi-aquatic animals, especially freshwater mussels, amphibians and reptiles.

Sarah Tomke, Ph.D. recently completed her doctoral degree in Forest and Natural Resource Sciences at the University of Kentucky Department of Forestry and Natural Resources. Her research focuses on applying genetic techniques to wildlife management.



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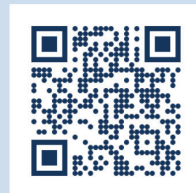


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Take advantage of forest certification and choose to enroll today.

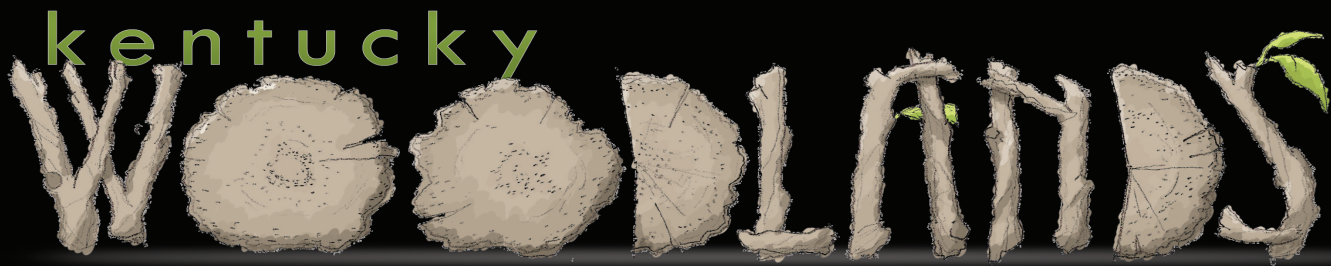
To enroll, please contact the Center for Forest & Wood Certification (CFWC) or the Kentucky SFI Implementation Committee for assistance in developing a plan to become certified.

There are many benefits for getting your property certified which include but are not limited to:

1. Potentially increasing the value of your property and giving you a competitive advantage in the marketplace.
2. Ensuring a sustainable forest ecosystem for future generations.
3. Improving biodiversity, water quality, wildlife habitat, and recreational opportunities.
4. Allows you to gain a deeper knowledge of your property and the resources you own.
5. Provides access to certified professionals in the wood industry, wildlife biologists, and state foresters.



Toll-Free: (855) 579-2690
www.forestcertificationcenter.org



Invasive Plants and Cupped Oak Leaves?

Calling all woodland owners and land managers! We have two surveys about emerging issues in the state and would appreciate your response on what you are seeing in your woods. Each survey is short and should take no more than 5-minutes.

- Survey- Invasive Plant Management in Kentucky Woodlands**
 We know that invasive plant species are a challenge for woodland owners across our state. Kentucky Woodland Owners Association, KY Invasive Plant Council, and UK Forestry Extension are working together to identify ways to help. Your survey responses will help us to identify the greatest challenges and priorities in invasive species management within Kentucky woodlands, so that we know where to focus our effort. <https://tinyurl.com/kyinvasivesurvey>
- Survey- Cupped Oak Leaves in Kentucky**
 Over the past few years, an increasing number of oaks have been reported with distorted, cupped leaves, associated with tree decline over time. The cause of these symptoms is unclear, and we are trying to better understand where and when these symptoms are occurring. <https://tinyurl.com/kyleafcurlsurvey>

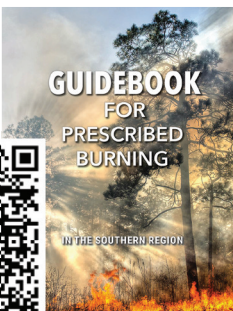
Oak Leaf Cupping Survey

What are you seeing?




Kentucky Prescribed Fire Council and NEW Guide to Prescribed Burning

The Kentucky Prescribed Fire Council (<https://www.kyfire.org/>) promotes the safe use of controlled burns for land management. They offer training and resources to landowners, agencies, and conservationists. The controlled burn workshops cover the basics of prescribed fire, including fire behavior, safety, and legal regulations. This series of workshops is designed to help woodland owners safely conduct controlled burns on their property. The council has also partnered with the Southern Regional Extension Forestry to develop the Guidebook for Prescribed Burning in the South, this guidebook was designed to help prescribed burners of all experience levels set and meet their goals. You can download a free copy of the guide by scanning the QR code.




Upcoming Dates To Remember:

Dates:	Event:	Location:	Contact:
Feb. 1 & 15, 2025	Kentucky Maple Days	Across KY	https://kymaplesyrup.com/ and https://ky-maplesyrup.ca.uky.edu/ky-maple-day
Feb. 14, 2025	NRCS CSP sign-up deadline	Local NRCS Offices	https://www.nrcs.usda.gov/programs-initiatives/csp-conservation-stewardship-program/kentucky/kentucky-conservation
March 24-26, 2025	KWOA Annual Meeting	Jenny Wiley State Park in Prestonsburg	https://www.kwoa.net/event-details/kwoa-annual-meeting
April 1-4, 2025	Kentucky Forest Industries Association Annual Meeting	Lexington, KY	www.kfia.org

NEWS TO USE

Conservation Stewardship Prog. Ranking - Feb. 14, 2025

The NRCS Conservation Stewardship Program (CSP) in Kentucky helps woodland owners enhance their land's health and productivity. CSP offers financial and technical assistance for implementing conservation practices that improve soil, water, and wildlife habitats. Woodland owners can receive annual payments for maintaining and enhancing these practices.

To participate, contact your local NRCS office or visit <https://www.nrcs.usda.gov/programs-initiatives/csp-conservation-stewardship-program/kentucky/kentucky-conservation> for more information.



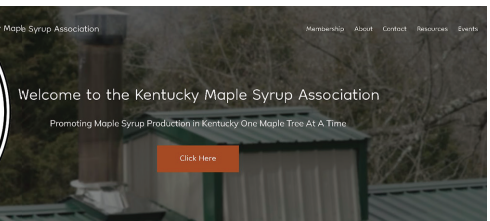
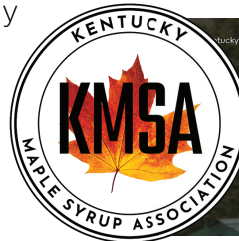
Natural Resources Conservation Service
U.S. DEPARTMENT OF AGRICULTURE

Kentucky Farmland Transition Initiative

The Kentucky Farmland Transition Initiative (<https://www.kyfarmlandtransition.com/>) is a program designed to support land owners in Kentucky as they navigate the complexities of land transition. The program was launched in April 2024 to provide resources and guidance to help landowners make informed decisions about the future of their woodlands. It focuses on sustainable practices, ensuring that the land remains productive and healthy for future generations. The initiative will also be offering workshops, financial planning tools, and expert consultations. This program is a vital resource for those looking to balance conservation with economic viability for generations to come. If you are concerned about transferring your property to the next generation make sure to check out the Kentucky Farmland Transition Initiative.

2025 Kentucky Maple Days February 1 and 15

Join us for Kentucky Maple Days 2025 this February 1 & 15! Experience the sweet tradition of maple syrup production with tours, tastings, and family-friendly activities. Discover how local producers turn sap into delicious syrup and support our vibrant maple industry. Whether you're a maple enthusiast or just curious, there's something for everyone. Don't miss this unique opportunity to celebrate and learn about one of Kentucky's natural treasures.



Learn more at KMSA's new website: <https://kymaplesyrup.com/> and <https://ky-maplesyrup.ca.uky.edu/ky-maple-day>.

2025 KWOA Annual Meeting March 24 - 26

The Kentucky Woodland Owners Association will be conducting their annual meeting on March 24-26, 2025 at Jenny Wiley State Resort Park. They have a great line-up of topics and speakers to explore the following: estate planning, firefighting/Firewise, timber land management, mined land reclamation, purple paint, carbon sequestration, white oak propagation, and more. There are also optional tours of the Morgan County Nursery and Dewey Lake. If you are a Kentucky woodland owner and you are not already a KWOA member, the annual meeting is a great way to see first-hand some of the great work KWOA does on behalf of all woodland owners in Kentucky. Join KWOA today and make plans to attend the 2025 KWOA Annual Meeting! For more information visit: <https://www.kwoa.net/>



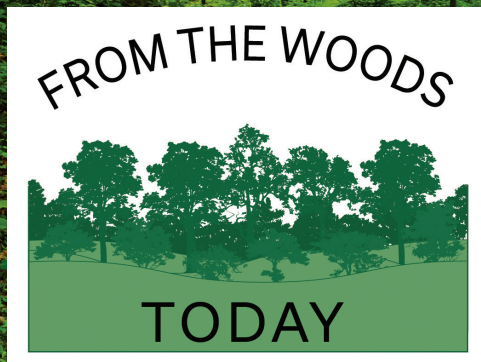
KWOA
Kentucky Woodland
Owners Association



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Wednesdays @ 11 a.m.**



FromTheWoodsToday.com

Join Us!

From the Woods Today is a weekly internet show presented by the UK Forestry and Natural Resources Extension team.

A link to the live shows and recordings of past shows are posted at www.FromtheWoodsToday.com.