Volume 6 Issue 1 Fall 2023

Illinois Forests

Illinois Forestry Association

"Healthy Forests, Today and Tomorrow"

Inside this Issue...

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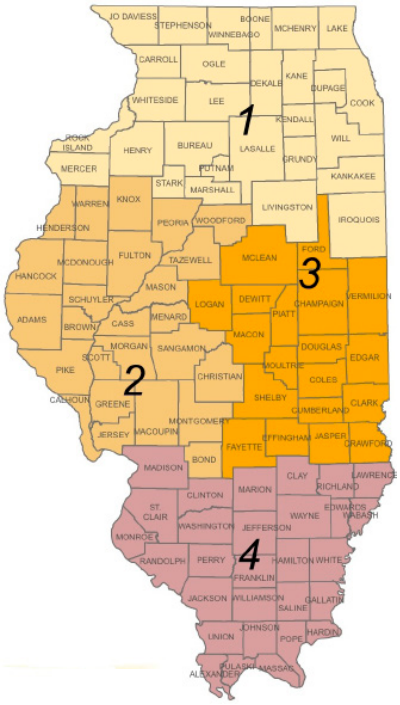

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Our Mission...

"To inspire and empower landowners to create healthy, beautiful, and productive forests."

Our Vision...

"To become the most trusted advocate and comprehensive resource for Illinois forest owners."

Message From the IFA President

by Paul Deizman

Letter to IFA membership -

The bounty of our land and its resources is rich here, and punctuated by fall as farmers and consumers reap and enjoy everything from pumpkins to soybeans and other rich foods. The critters and wildlife enjoy an array of rich autumn grains from the fields as well as acorns, nuts, berries, and biomass from the forest. Hunters too as well as fishermen actively enjoy the robust game populations providing recreation and quality food. Many of us will soon buy or cut a fresh Christmas tree and the land and animals will quietly settle into a winter's rest. Our soil and climate here especially provide rich forests and the continuous supply of food. Forests can provide timber and other forest products, while also continually cycling carbon and filtering air and water.

Forestry is a science. A science that first and foremost, relies on biological principles. Biology and ecosystem dynamics drive how foresters practice forestry. However, there are other influences that weigh into the equation that is forest management, such as social and political elements. It is IFA's view that forests should be managed for the continued health of the forest and the wildlife that depend on forests. But we also manage forests for people. There are so many benefits for people, both physical and mental, when they experience a forest. People also benefit from the products forests provide. Thus, it is important to manage forests so that future generations can experience the benefits we experience today.

Forestry and the practice of managing the forests we enjoy fit in everywhere and should be practiced everywhere our forests exist or can grow. In 2006, with the support of nearly every forester, forest landowner, forest conservationist, forestry professor, agriculture economist, forestry agency, forest businesses and industry, citizen and forestry partner queried and asked; the need and potential benefits of a statewide forestry association organization were clear and the Illinois Forestry Association (IFA) was born. Dozens of IFA founders continue to be active members today.

Please consider where you or your organization align with Illinois forests and forestry. IFA membership and support for the IFA does benefit all Illinoisans and all Illinois forests. Applying forestry to the land is the gateway to countless potential outputs and benefits here in Illinois and beyond our borders. IFA will continue to significantly benefit our forests and the global environment as our membership grows. I am often asked who should join IFA and who is IFA for. IFA is for everybody including the millions of citizens of this state and all our neighbors. Our most important members are forest landowners, farmers, land managers, biologists, forestry and natural resource academia, forest businesses and industry, conservationists, climate activists and anyone concerned about the future of our bountiful forests.

"Never say there is nothing beautiful in the world anymore. There is always something to make you wonder in the shape of a tree, the trembling of a leaf."

- Albert Schweitzer

ILLINOIS Forestry Association

Honoring IFA Director, Tree Advocate and Friend, Debbie Fluegel

In September, the IFA received some heartbreaking news as we learned that Debbie Fluegel passed away. Debbie was a Program Manager for Trees Forever, where she managed their Illinois Buffer Partnership and Pollinator Habitat Conservation programs. In 2021, Debbie was elected as an IFA Director for Region 2. We were very excited to add Debbie to our board for her expertise, her leadership, and her passion for trees. She made a positive impact to our group and her presence will be strongly missed by those that had the pleasure of knowing her.

More About Debbie

- Through her work with Trees Forever, Debbie planted over 1 million trees in Illinois, averaging 58,000 trees per year.
- A member of the Environmental Education Association of Illinois, the Soil and Water Conservation Society, and the Association for Temperate Agroforestry.
- Served as Illinois Department of Natural Resources River Watch Coordinator.
- Served as a member of the Illinois Urban Forest Strike Team, providing first response assistance to communities impacted by natural disasters.
- Became a certified Arborist
- A fierce advocate for Illinois trees

While we pay our respect to our team member and friend Debbie, our hearts also go out to her family, her friends and her Trees Forever family.

Debbie's Work

The New IFA Lovett Forest

The Illinois Forestry Association is excited to announce the acceptance of 80 acres of forest land in Calhoun County, Illinois from members Ronald and Eva Lovett. The IFA expresses its wholehearted gratitude to the Lovetts for their extraordinary donation and faith in the IFA's ability to steward the forest that they have managed for years.

This is the second land donation that the IFA has accepted this year. Thanks to the Lovetts, we are now able to demonstrate forest management on another beautiful and unique forested area.

We thank all of those who participated in this process, including IFA Region 1 Director, Brad Petersburg and IFA President, Paul Deizman who put in a great deal of time and effort to coordinate the acceptance of this donation. We also thank the Lovetts for believing in our mission and making a grand gesture of faith in our organization by making this donation. This forest will now be known as the "Lovett Forest".

Throughout this process and after visiting the property with Eva and Ronald, it became abundantly clear to us that the Lovetts have put a lot of work and care into this property, planting and tending to trees and native shrubs, while also fighting invasive plants. Since they have entrusted the IFA to care for this forest, it is now time for our organization to honor the Lovetts by managing this property responsibly with transparency and science-based forestry priciples for the benefit of landowner education, wildlife and overall forest health.

More About Lovett Forest

The Lovetts bought this farm in 1985. The property had once been an orchard, but when the Lovetts bought the property, approximately 28 acres were used for row crops. The Lovetts decided to work with their District Forester who advised them to plant trees through the CRP program. They planted black walnut, red oak, white pine, green ash, and eventually white oak. They also planted native shrubs like hazelnut, silky dogwood, high bush cranberry, and American plum. The forest surrounding the CRP planting is oak dominated forest, consisting of white oak, black oak and some northern red oak. The Lovetts have conducted forest stand improvement (FSI) as well as invasive plant control. Like many Illinois forests, the main invasive plants present on site are bush honeysuckle, autumn olive and multiflora rose. The property has a clearing that the Lovetts used as an orchard, where they planted a few peach trees, dwarf apple trees, and some blueberry bushes.

Thanks to the Lovetts and the seperate donation from the Gerrishes earlier this year, the IFA now has forest to practice what we advocate for; Responsible forest management that benefits wildlife, people, and the environment as a whole. While we are still in the planning stages, we expect overall management of both forests to begin early next year. This means that there will soon be volunteer opportunities for interested members. These forests now belong to all of IFA, including its members, thus we hope you will take interest and join us in ensuring that these forests are stewarded with the utmost care. It is our ambition that these forests will help teach others about the benefits of responsible forest management.

IFA Holds 18th Annual Conference

On September 23rd -24th, the Illinois Forestry Association held its 18th Annual Conference in Monticello, Illinois at the 4-H Memorial Camp near Allerton Park. Attendees were able to attend lectures and activities prepared by experts with various professional backgrounds. We had a wonderful group of attendees this year. In total, we had 55 attendees.

We would like to thank the following for dedicating their time and expertise to the program.

IDNR Resource Planner III, Kyle Burkwald who presented on timber harvests.

INHS Ornithologist and U of I NRES Professor, Mike Ward who presented on Whip-poor-wills and the status of this declining bird and how forest management can help this species.

APHIS Pest Survey Specialist, Nick Furlan who presented on galls.

INHS Natural Areas Coordinator, Jaimie Ellis who presented autumnal wildflowers of Central Illinois.

U of I Extension Forest, Chris Evans for demonstrating and leading a group through invasive plant identification and control.

Savanna Institute Director, Kaitie Adams for leading a tour of Savanna Institute's agroforestry research sites.

U of I Extension Horticulture Educator and IFA Region 3 Director, Sarah Vogel for leading a tree identification tour.

INHS Principal Mycologist, Andrew Miller for presenting on edible and poisonous mushrooms of Illinois.

Mary Kay and Mike Randall for presenting on the process from the sawmill to a wood product for the home and showing off some beautiful crafted wood products.

U of I Extension Research Technician, Kevin Rohling for demonstrating the use of an Alaska chainsaw mill.

Allerton Park Natural Areas Manager, Alex Lourash for leading a field tour of the forests at Allerton Park.

It is truly special that the Illinois Forestry Association gets the opportunity to organize an annual event that can both celebrate and educate about forestry for landowners and professionals alike. Next year we will be holding the conference in Southern Illinois. Stay tuned for more information as next year's conference gets organized.

Photo: INHS Natural Areas Coordinator, Jaimie Ellis presenting on fall wildflowers.

Photo: IFA Region 3 Director, Sarah Vogel leading a tree identification tour.

Uncommon and Rare Oaks of Illinois

by Zach DeVillez, IFA Program Coordinator

Illinois is home to a variety of oak species. In total, there are twenty-one species of oak that occur throughout the state. Some of these species are more common than others. For example, white oak (*Quercus alba*), black oak (*Quercus velutina*), and bur oak (*Quercus macrocarpa*) are known to occur in every county in Illinois. On the other end of the spectrum, there are some species that are uncommon or even rare to Illinois. This article will provide basic information about the oaks that don't have a widespread range in Illinois.

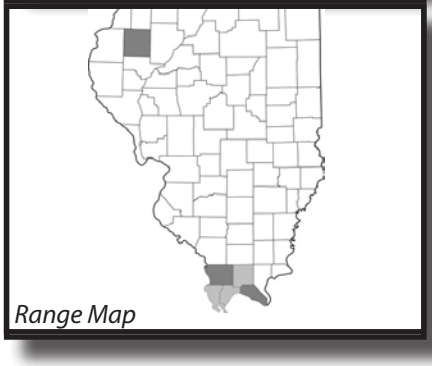
Willow Oak

Willow oak (*Quercus phellos*) is a medium to large sized tree that can grow up to 90 feet tall. One of the major characteristics that separates this species from most other oaks in Illinois (excluding shingle oak) is that the leaves do not have lobes. The bark of a mature tree is reddish-brown and shallowly furrowed.

Willow oak is known to naturally occur in five counties near the Southern border of Illinois. It's national range spans from eastern Texas across the southeastern Coastal Plains and extends northward through the Missippi Valley. The reason willow oak are naturally found in these Southern Illinois counties is that this region of Illinois has similar characteristics to the Coastal Plains. Hence, this region is classified as Illinois' Coastal Plain Natural Division. In this region, you will find cypress-tupelo swamp and bottomland forests that are more commonly associated with states to our south. These bottomland forests are where willow oak can be found.

Quercus phellos Leaves

Quercus phellos Bark



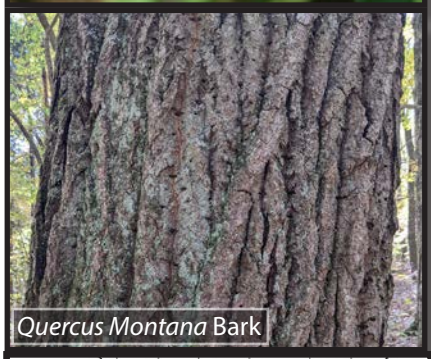
Range Map

Chestnut Oak

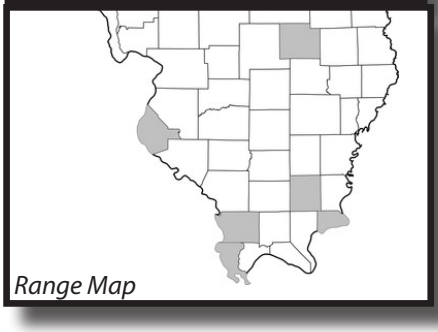
Chestnut oak (*Quercus montana*) is a medium sized tree that can grow up to approximately 60 feet tall. The leaves are toothed and pointed at the ends. The leaves are similar to swamp chestnut oak, however, the underside of the leaves are a medium green color rather than white. The leaves could also be mistaken for chinkapin oak but the lobes are more rounded than chinkapin oak foliage. The bark is very distinguishable from other oaks. At maturity, the bark is gray with thick, triangular ridges and deep furrows.

Chestnut oak occurs throughout much of the eastern United States. It occurs in six counties, mostly in far Southern Illinois. Not shown on the range map is that it has also been found in Pope County. This species generally occurs on drier, rocky slopes and ridgetops.

Quercus Montana Leaves



Quercus Montana Bark



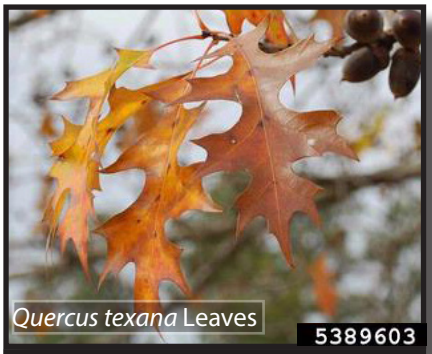
Range Map

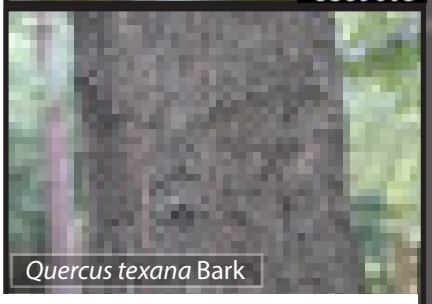
Continued on the next page -

Nuttall Oak

Nuttall Oak (*Quercus texana*) is a medium to large-sized tree that can grow to a height of approximately 100 feet tall. The leaves are 4-8 inches long, having 5-7 lobes separated by wide sinuses and ending with bristle tip teeth. The bark is gray and relatively smooth. As the tree matures, the bark looks similar to pin oak bark In that it has broad flat ridges divided by narrow, light-colored fissures.

Nuttall oak's natural range extends throughout much of the lower Mississippi River Valley. The far southern tip of Illinois is the northern extent of its range. These trees can be found in bottomland forests, ranging from moderately drained to poorly drained soils. In Illinois, it is known to be found in two counties.


Quercus texana Leaves

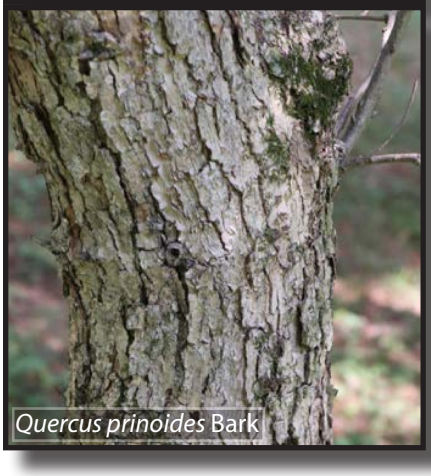

Quercus texana Bark

Dwarf Chinkapin Oak

Dwarf chinkapin oak (*Quercus prinoides*) is a small tree that grows to approximately 3 - 12 feet tall. The leaves are 1.5 - 5 inches long, containing 5 - 9 shallow lobes. The top of the leaeves are green and glabrous in texture, while the bottom of the leaves are grayish green with fine hairs. The bark is gray in color and has a scaly texture with irregular fissures.

Dwarf chinkapin oak is considered challenging to identify. As you might expect, it can be difficult to differentiate this species from young or stunted chinkapin oak (*Quercus muehlenbergii*). Stunted chinkapin oaks have been misidentified as dwarf chinkapin oaks in the past. One characteristic that can help identify dwarf chinkapin is the environment it grows in. These small trees occur in areas that have acidic bedrock near the surface or acidic sandy areas. This species has been confirmed in sand prairies in the past. Sand prairies are ecosystems that developed from glaciation. As glaciers melted, large amounts of sand were deposited leading to well-drained sandy soils. The occurence of this species has been confirmed in one county, however, it is likely that more exist in Illinois, they just have not yet been discovered or correctly identified.


Quercus prinoides Leaves


Quercus prinoides Bark

Oaks of Illinois

Red Oak Group

Scarlet Oak *(Quercus coccinea)*
Northern Pin Oak *(Quercus ellipsoidalis)*
Southern Red Oak *(Quercus falcata)*
Shingle Oak *(Quercus imbricaria)*
Blackjack Oak *(Quercus marilandica)*
Cherrybark Oak *(Quercus pagoda)*
Pin Oak *(Quercus palustris)*
Willow Oak *(Quercus phellos)*
Northern Red Oak *(Quercus rubra)*
Shumard Oak *(Quercus shumardii)*
Nuttall Oak *(Quercus texana)*

White Oak Group

White Oak *(Quercus alba)*
Swamp White Oak *(Quercus bicolor)*
Overcup Oak *(Quercus lyrata)*
Bur Oak *(Quercus macrocarpa)*
Swamp Chestnut Oak *(Quercus michauxii)*
Chestnut Oak *(Quercus montana)*
Chinkapin Oak *(Quercus muehlenbergii)*
Post Oak *(Quercus stellata)*
Black Oak *(Quercus velutina)*
Dwarf Chinkapin Oak (Quercus prinoides)

Spotted Lanternfly Has Arrived in Illinois!

By Tricia Bethke, Illinois Forest Pest Outreach Coordinator

'Don't Panic" says Tricia Bethke, Forest Pest Outreach Coordinator. We have found a few isolated populations of this new invasive pest in Cook County, IL. The spotted lanternfly is an invasive pest, primarily known to feed on the tree of heaven (Ailanthus altissima) but has many other host plants, including grape vines, hop, apple, stone fruit, maple, poplar, walnut, and willow trees. The insect changes hosts as it goes through its developmental stages. Nymphs feed on a wide range of plant species, while adults prefer to feed and lay eggs on the tree of heaven (A. altissima). Spotted lanternflies are invasive and can spread rapidly when introduced to new areas. While the insect can walk, jump, or fly short distances, its long-distance spread is generally moved by people who move infested material (e.g. firewood, recreational equipment, and transportation) or items containing egg masses.

Resources:

The Morton Arboretum SLF identification factsheet: https://mortonarb.org/plant-and-protect/tree-plant-care/plant-care-resources/spotted-lanternfly/#overview

The Morton Arboretum tree of heaven fact sheet: https://mortonarb.org/plant-and-protect/trees-and-plants/tree-of-heaven-not-recommended/

Please join Tricia Bethke, Forest Pest Outreach Coordinator for an update on the distribution, identification, and management of the newest invasive pest, spotted lanternfly. During the presentation, we will review how to participate in monitoring for spotted lanternflies using EDDMapS and EDMapS Pro.

When: Wednesday, November 29, 2023
11:00 a.m. to 12:00 p.m.

Register in advance for this meeting:
https://mortonarb.zoom.us/meeting/register/tZclcO2hrDMrGNZ6cA7B3gly30e9q7gBroOI#/registration

After registering, you will receive a confirmation email containing information about joining the meeting. CEUs available

Illinois Division of Forestry Updates

by Tom Gargrave, IDNR Forestry Division Chief
& Mike Brunk, IDNR Urban and Community Forestry Program Manager

IDNR Nursery Program (Mason Nursery)

Mason State Nursery is busy cleaning and planting all seed types including trees, grasses, and forbs. Last year they produced approximately 1,015,000 native Illinois plants for landowners. These consisted of 58 species of wildflowers/grasses, and 39 species of trees/shrubs. In addition, Mason Nursery harvested and cleaned 2,000 pounds of native Illinois wildflower/prairie grass seed for distribution to landowners for pollinator and monarch butterfly habitat.

Illinois Forestry Development Act (IFDA) Forest Management Program

IFDA requires landowners to have a IDNR-approved forest management plan. Illinois has approximately 10,028 forest management plans covering 571,408 acres. This equates to approximately 17% of non-industrial private forestland in Illinois being managed for wildlife, timber, recreation, clean water, carbon, and long-term forest health.

Urban and Community Forestry Program (UCFP)

- DNR Forestry is partnering with U of I Extension, Chris Evans, to acquire new IRA funding for expanding works in building resilience to climate change in Illinois private forests.
- Illinois DNR Urban Forester presided over a national meeting of State Urban and Community Forestry Coordinators in Washington DC at the World Forum.
- IDNR Forestry is in the process of executing nine FY23 partner agreements to utilize around 15 million USFS dollars over the next 4-5 years with 80% of that going into community forestry grant programs.
- Continue to disseminate USFS grant opportunities and noteworthy information through our UCF program newsletter, albeit staff is struggling to maintain sufficient time to write these bi-weekly newsletters.
- DNR Urban and Community Forestry Program manager continues to work with a professional marketing contractor to enhance program image, Illinois Tree City USA literature and outreach as a part of an approved federal BIL grant.
- DNR Forestry has utilized Morton Arboretum's GIS specialist, Lindsay Darling to create a map of disadvantaged Illinois communities and disadvantaged census tracts in Illinois for use with a soon to be released community grant program that will not require matching funds
- DNR Forestry disseminated USFS Thunderclap opportunity (Noon-12:30pm Nov 1st) to all Illinois IRA awardees. A Thunderclap is a social media campaign in which everyone uses the same hashtag #FundingUrbanForestry, at the same time to celebrate this occasion

Illinois Forest Utilization & Marketing Program (IFUP)

We hired Kyle Burkwald on July 1 to Run the Timber Program with help from Suzanne Griffitts. Kyle is a graduate of Stevens Point, Wisconsin and brings sound forestry knowledge to the team. Kyle helped pass the Timber Buyers Licensing Act and is currently working on the Ad Rules.

Wildland Fire

We deployed our Type 6 Engine (E-1) with 4-man crew to Northern California in July and early August. They assisted in the Klamath National Forest at several ranger stations on severity and direct attack status. (3 forestry staff Gargrave, Bloemer, Griffith) Deployed 20-man Fire crew to Montana serving as Type 2 initial attack crew on several fire complexes and assignments.

ILLINOIS DEPARTMENT OF NATURAL RESOURCES

Continued on the next page -

Commitments Nationally:

- IDNR Forestry (Tom Gargrave State Forester) remains a representative on the NASF Wildland Fire Committee.
- Ben Snyder has taken the Chairman position for both the Northeast/Midwest National Wildland Fire committee and the chairman of the Big Rivers Fire Compact, so Illinois is in deep with Wildland Fire National Operations.
- Mike Brunk serves as the Chairmen for Northeast/Midwest National Urban and Community Forestry Coordinators, and tracks IDNR Federal Grants (BIL/IRA)

Staff Advancement and Contracts:

- Wade Bloemer – New Regional Forestry Supervisor, Manages 8 District offices.

Hire Backs on Contract:

- Mark Koch- retired and hired back on 75-day contract.
- Barrie McVey-retired hired back on 75-day contract.

New Hire Forestry Management

- Kyle Burkwald – Timber Buyer License, Forest Wood Utilization and Ginseng Manager

New Hire District Foresters

- Luke Koett – Rock Island Office
- Jeremy Kunick – Fairfield Office
- Tom Branson – Argyle Lake Office
- Hugo Goulet – Murphysboro

Forestry's Fire Program

Two Contracted Managers:

Spencer Romine, Federal Excess Fire Program Coordinator. Spencer is our liaison to fire depts. across the state to help them obtain and maintain excess property from the federal government and the military to aid in firefighting operations.

Mathew Bernhardt, Volunteer Fire Program Coordinator. Mathew is our statewide fire department contact. He oversees the distribution and marketing of our small Fire Assistant Grants, and assists in Federal Excess as needed.

Both are trained in Wildland fire operations and logistics and we're fortunate to have them.

INHS Contract Foresters working for DNR Forestry Field Forest Ecologists:

These Foresters work alongside various District staff in field operations. Their primary workload consists of CRP enrollments, inspections, and maintenance, as well as EQIP compliance, cost share, Forestry Development Program needs. They work also with other IDNR Resource Conservation Divisions to help complete the missions of the Agency.

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Retirements

State Forester:
Tom Gargrave,
It's been a privilege to work alongside so many fine people for the last 36 years, Including IFA.

So many of you have been an inspiration to me through good character, sacrifice, passion, fine humor, acts of kindness, encouragement, forgiveness, and most certainly friendships. My inspired career has been rewarding beyond measure.

Thank you for all the hard work that you, the landowners, do for the states Natural Resources and the people who benefit from your labor. You are the servants.

My last day will be Dec 29th. 2023.

Health Benefits of a Walk in the Woods

By Zach DeVillez

Forests benefit our region and the entire planet as a whole in so many ways. As a member of the IFA, you are aware of these environmental benefits. One benefit that often gets overlooked is how forests benefit human health. This article will explore how forests can positively impact your health.

First, let's briefly touch on some of the more obvious benefits. You need to breathe, right? Trees are great for that. Trees and other plants are photoautotrophs. Through the light-dependent reactions of photosynthesis, trees take in and reduce carbon dioxide into glucose, which the plant needs for energy. This reduction requires H_2O as an electron donor, meaning the water gets oxidized. This oxidation turns H_20 into oxygen which gets released into the atmosphere. Trees also reduce pollution of the air. They do this by absorbing and breaking down atmospheric pollutants such as sulfur dioxide, nitrogen dioxide, carbon monoxide, and ozone gas, all of which can cause serious issues to human health if inhaled in significant amounts or through chronic exposure.

Additinally, forests help filter water. This means cleaner drinking water, reduced sedimentation and reduction of agricultural fertilizers in streams, rivers, lakes and even the ocean. Just by owning and managing a healthy forest, you're aiding in the filtering of water, which we all benefit from.

How Do Forests Impact Our Health?

There has been more and more research looking into the therapeutic benefits of spending time in the forest. What much of this research is finding is that there are multiple positive impacts to your health.

A Walk Through the Forest can Boost Your Immune System

It is common knowledge that our immune systems are critical to our health and well-being, but it is not common knowledge that being in a forest for extended periods of time may actually benefit our immune systems. Is it really possible that merely exposing yourself to a forested environment for extended periods of time could boost your body's ability to fight off infection? Multiple studies have found this to be the case. Much of these studies are based upon an important lymphocyte called natural killer cells (NK cells). While the name sounds threatening, these cells do you a great favor. These white blood cells kill virus-infected cells as well as cancer cells. In this way, these cells help fight the spread of cancer and viruses. Studies have found that exposing yourself to forested environments could increase the number of NK cells in your bloodstream and induce increased activity, but why does this occur?

Many studies focus on the abundance of phytoncides in forests. Phytoncides are airborne oils that are produced by trees and plants. According to a Japanese study, subjects that spent three days and two nights in a forest had higher numbers of NK cells than the control subjects (Li, 2009). These researchers conducted further study and exposed subjects staying in a hotel for three nights to phytoncides with a humidifier. They again found that exposure to these oils resulted in increased natural killer cell activity, concluding that phytoncides may be the cause (Li, 2009).

Forests Destress

Have you ever felt less stressed after taking a hike or camping in the woods? Research has shown the spending time in the forest actually reduces stress. One of the primary hormones involved in stress is cortisol. This hormone is produced by the adrenal glands in response to stress. Cortisol regulates many important physiological processes and can be damaging to your health if the hormone persists at high, chronic levels. Studies have shown that spending time in the woods can reduce cortisol levels, indicating reduced stress levels.

Forests Can Alleviate Symptoms of Depression

Statistics show that depression is on the rise in our country and around the globe. There are multiple causes of this, but identifying those causes in this article would only oversimplify the intricacies of mental health. When dealing with depression, the first priority should always be to seek assistance from a mental health professional. However, there are activities such as regular exercise that have been proven to ease symptoms associated with depression.

Studies have also shown that spending time in forests can alleviate symptoms of stress and anxiety and boost overall mood. The exact relationship between spending time in nature and fighting depression and anxiety is not yet fully understood. However, multiple studies have reported results supporting the conclusion that a walk in the forest can be beneficial for your mental health. More research should be conducted to greater understand this phenomenon and its therapeutic benefits.

Forests Get You Moving

It is well known that movement is absolutely crucial to your health and well-being. Exploring a forest gets your body moving. Whether your hiking miles of challenging terrain or a paved path in a wooded park, it does not matter. Pick a location appropriate for you and go enjoy the forest. Excercising in the woods has a tendency to feel less like excercise and more like play. Regardless of the activity, you're bound to get your heart pumping and your blood flowing.

Activities to Get You Moving in the Woods

- hiking
- birdwatching
- biking
- kayaking
- trail running
- nature photography
- hunting
- learn to identify trees
- mushroom hunting
- rock climbing

Through time, urbanization and agricultural practices have led to the majority of humans living further away from healthy trees and forested environments. But, we as humans need forests, not only for the wildlife and evnvironmental benefits, but also the human benefits. So go out and enjoy a forest near you, it's great for your health.

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The Cicadas Are Coming To A Neighborhood Near You!

By Dr. Fredric Miller, Illinois Forest Health Specialist

The spring of 2024 will be a banner year for the periodical cicada with both the 13 and 17-year broods emerging throughout most of Illinois. With the exception of a few counties in extreme southern Illinois, the central portion (Springfield and south) will welcome the 13- year periodical cicada ***(Brood XIX)*** and areas north of Springfield will experience ***Brood XIII***. Mathematically, it is a very rare event for both 13 and 17- year broods to emerge in the same year (***see Figures 1A***). In fact, the last time these two broods co-emerged (i.e. every 221 years) in Illinois, was in 1803 when Thomas Jefferson bought the Louisiana Purchase from France. I can tell you, having personally experienced the co-emergence in 1998 of the Missouri Broods IV (17 year) and Brood XIX (13 year), it was quite noisy.

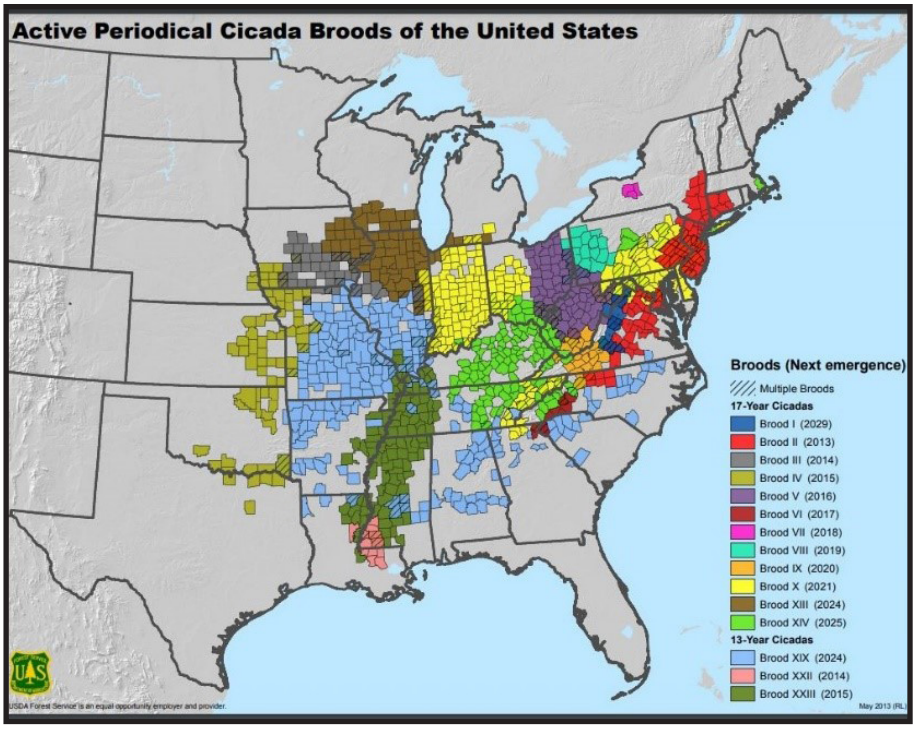

Figure 1A: Active Midwest periodical cicada broods.

What can we do to mitigate or prevent ovipositional damage to our younger and more vulnerable woody plants while at the same time enjoying this unique biological and ecological event? Here are some practical best management practices (BMPs) for homeowners, and members of the forestry, orchard, and green industries:

- ***First and foremost, enjoy the event as it will only last for a few weeks and will be at least 13 years before another emergence***

- If possible, avoid 2024 spring plantings of very young trees and whips that are approximately less than two inches in diameter/caliper. Consider waiting until after adult activity has ceased and/or fall to plant

- If you have a limited number of susceptible plants, cover them with fine netting and make sure to gather the netting around the trunk and as near to the ground as possible. Once the emergence event is over, be sure to remove the netting

- Application of a systemic insecticide may help in reducing damage to susceptible plants, but you will need to apply the chemical well in advance of the cicada emergence in order it to be taken up by the plant. If you are in a drought situation, like in spring-summer, 2023, you may have to water plants in advance to insure good uptake.

- Studies have shown that application of contact insecticides has not shown to be effective and is not practical for large scale operations, and can be harmful to beneficials leading to insect and mite outbreak unrelated to the cicada emergence

- Mature and healthy trees will show some terminal branch flagging later in the season (i.e. August), but will only result in some "natural pruning" and is not harmful to the plant

The periodical cicada Illinois Brood XIII consists of three species, *Magicicada septendecim*, *M. cassini*, and *M. septendecula* and Brood XIX, also known as ***the Great Southern Brood*** is made up of four different species, *M. tredecim*, *M. neotredecim*, *M. tredecassini*, and *M. tredecula*.

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There are both annual cicadas and periodical cicadas. While both groups spend most of their life cycle underground, the adult annual cicada is active in late summer (i.e. July and August) while "periodicals" emerge in late spring and early summer (i.e. May and early June). As their name implies, annuals emerge every year. Periodical cicadas are only found east of the Rocky Mountains ***(Figure 1A)***.

Immature and adult periodical cicadas have a piercing-sucking mouthparts that are used for extracting plant sap from fine roots, and twigs and branches. The adult cicadas feed very little with most of the plant damage resulting from the females using their saw-like ovipositors to lay eggs in small twigs and branches. The nymphs feed for 13 to 17 years, depending on the brood; 13-year life cycles in the southern states and 17-year cycles farther north ***(Figures 3 and 4)***.

Figure 2: Life cycle of the 17-year periodical cicada

Figure 3: Adult periodical cicada

Upon emergence from the soil, the adult cicadas briefly feed on a variety of woody plants. Feeding damage from the adults is minimal at most, but once mating has been completed, the adult females , with their saw-like ovipositor, will begin cutting longitudinal slits in the twigs and branches of woody plants and will lay up to 20 eggs in each of these "egg nests" ***(Figures 4, 5, and 6)***. An adult female can lay up to 600 eggs during her lifetime ***(Brown and Zuefle, 2009)***. After about 6-10 weeks, the newly hatched nymphs will drop to the soil, burrow in and then begin feeding on the fine roots of the host plant spending the next 13 or 17 years underground ***(Brown and Zuefle, 2009) (Figures 4, 5, and 6)***.

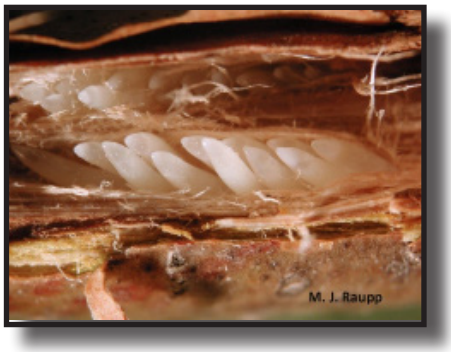

Figure 4: Periodical cicada egg nest

Figure 5: Young periodical cicada nymph

Figure 6: Ovipositional damage to woody twigs and branches

While most cicadas are considered "generalists" (i.e. broad host range), like all living creatures, they have their preferred host plants for egg laying including apple (*Malus* spp.), hickory (*Carya* spp.), maple (Acer spp.), and oaks (*Quercus* spp.) ***(Brown and Zuefle, 2009)***. Members of the birch (*Betulaceae*), dogwood (*Cornaceae*), walnut (*Juglandaceae*), willow (*Salicaceae*), linden (*Tiliaceae*), and elm (*Ulmaceae*) plant families may also be attacked. Additional hosts may include introduced exotic ornamentals such as *Rosa* spp. *Cotoneaster* spp., *Forsythia* spp., *Ginkgo biloba*, *Pyrus* spp., and *Syringa* spp ***(Brown and Zuefle, 2009)***. However, plants with resinous sap (i.e. conifers, *Rhus* spp) gum production by *Prunus* spp., and persimmon (*Diospyros virginiana*) are typically not preferred for egg laying since the sap tends to prevent egg hatch ***(Brown and Zuefle, 2009)*** and escape by the nymphs. For a more comprehensive list of host plants refer to the following references ***(Forsythe , 1975, White, 1980, Miller, 1997, Miller and Crowley, 1998, Cook et al., 2001)***.

While adult ovipositional damage on mature trees and shrubs is usually no more than "natural pruning", very young woody plants and whips can be damaged and even killed due to the females ovipositing on the young stems causing wounds that may lead to breakage of the stem, top kill, and

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also provide entry for canker causing fungi and wood-boring insect pests (Figures 6 and 7). A number of studies have found that there appears to be a minimum and a maximum twig/branch diameter that is preferred for oviposition ranging from 3 to 11 mm ***(1/8 to 7/16 in.) (White, 1980, Karban, 1982, Miller, 1997, Miller and Crowley, 1998)***. Other forms of cicada damage include a reduction in overall plant health and depletion of energy reserves resulting in decreased flower and fruit production where heavy populations of nymphs feed on the fine roots of trees and shrubs. Ovipositional wounds may allow for entry of canker-causing pathogens and wood-boring insect pests.

What about nymphal feeding on plant roots? In a study by ***Speer et al. (2010)***, they found no effect from root parasitism (feeding) by cicada nymphs prior to emergence when feeding on five Midwestern Forest trees, *Acer saccharum*, *Fraxinus americana*, *Quercus palustris*, *Q. velutina* and *Sassafras albidum*, but three of the species chronologies showed a significant reduction in growth the year of or the year after the emergence year, and three chronologies showed an increase in growth five years following the cicada emergence event.

Another interesting phenomenon is that cicadas may use sunlight (solar) as a cue in selecting host plants. In field experiments by ***Yang (2006)*** it was discovered that female cicadas use the local light environment of host trees during the summer of emergence to select long-term host trees. Light environments may also influence oviposition microsite selection within hosts, suggesting a potential behavioral mechanism for associating solar cues with host trees.

Once ovipositional damage has occurred how long is it before the plants "heal up" (i.e. callus over) the wounds? In two studies by ***Miller (1997)*** and ***Miller and Crowley (1998)***, examining 140 exotic and native woody plant genera, and 14 different urban forest parkway tree taxa, they found that most plants calloused (healed) over their wounds within 1-2 years after a cicada emergence; exceptions being alder (*Alnus* spp.), black walnut (*Juglans* sp.), redbud (*Cercis* sp.), lilac (*Syringa* spp), lindens (*Tilia* spp.), honey locust (*Gleditsia triacanthos*), northern red oak (*Q. rubra*), hackberry (*Celtis occidentalis*), 'Redmond linden" (*Tilia americana* 'Redmond'), and Littleleaf linden (*T. cordata*) which took at least three years to heal. Of course, plant health, growing conditions, and level of injury all affect wound healing rates. In spite of heavy ovipositional damage and delayed wound healing on susceptible plants, no significant canker-causing pathogens or insect pest issues were observed on these same woody landscape plants, and urban parkway tree taxa.

What about protecting vulnerable plants with insecticides? ***Miller and Crowley (1998)*** found that applications of non-systemic (i.e. contact) insecticides were not effective and adult females were not deterred from landing on host plants. In a more recent study, ***Ahern, et al. (2005)*** compared the efficacy of a neonicotinoid systemic insecticide, imidacloprid, and a nonchemical control measure, netting, to reduce cicada injury. They determined that netted trees sustained very little injury, whereas unprotected trees were heavily damaged. Fewer egg nests, scars, and flags were observed on trees treated with imidacloprid compared with unprotected trees; however, the hatching of cicada eggs was unaffected by imidacloprid.

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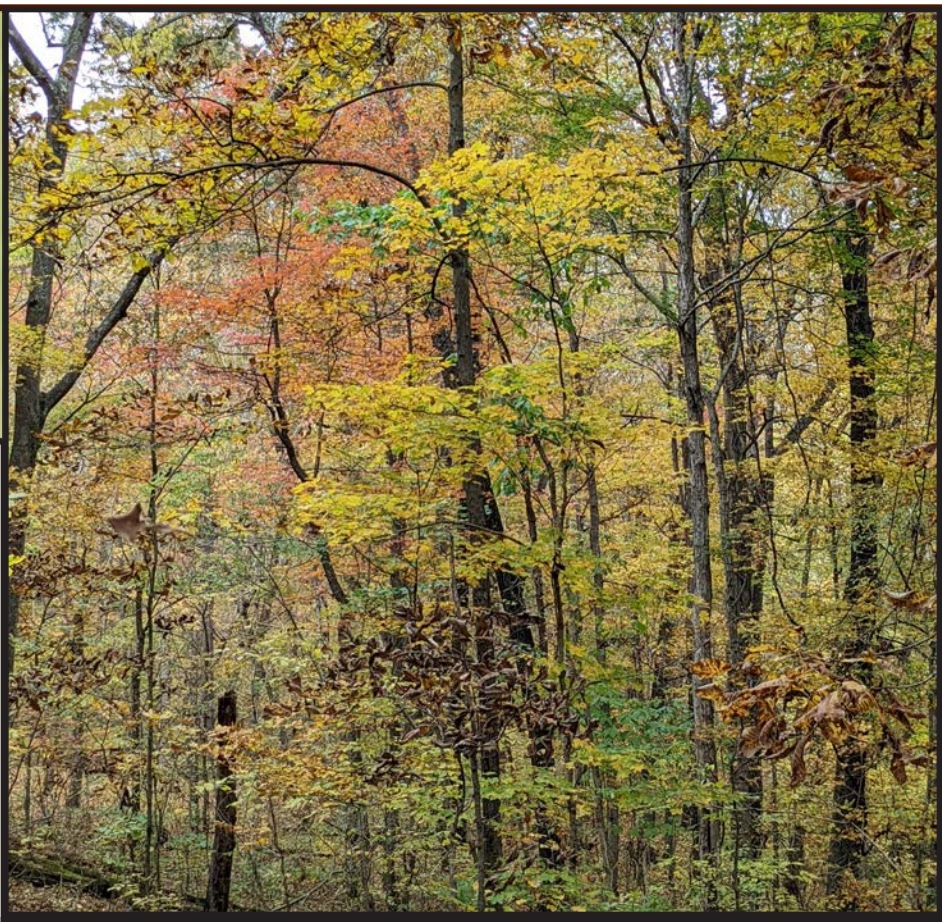
History of Conservation in Illinois

Installment #45

by Dave Gillespie, IFA Secretary



This account of the history of conservation in Illinois was written by Joseph P. Schavilje in 1941. This installment begins where installment # 44 ended.

Effort is being made to interest cities and villages in starting community forest, especially those cities or towns owning land surrounding a lake which is their reservoir and drinking supply. Since 1939, 10 cities have reservoirs made their first forest planting under supervision of the Division. Other community forests were established by counties, schools, camps and clubs. Illinois now has on record 53 forests with a total 51,000 acres.

The dissemination of forestry literature by the Division of Forestry has increased the interest in forestry considerably. The publication of , "Forest Trees of Illinois and How to Grow Them" is the most popular. Approximately 25,000 copies are distributed annually.

(To be continued in the next issue of "The IFA Newsletter".)

ILLINOIS Forestry Association

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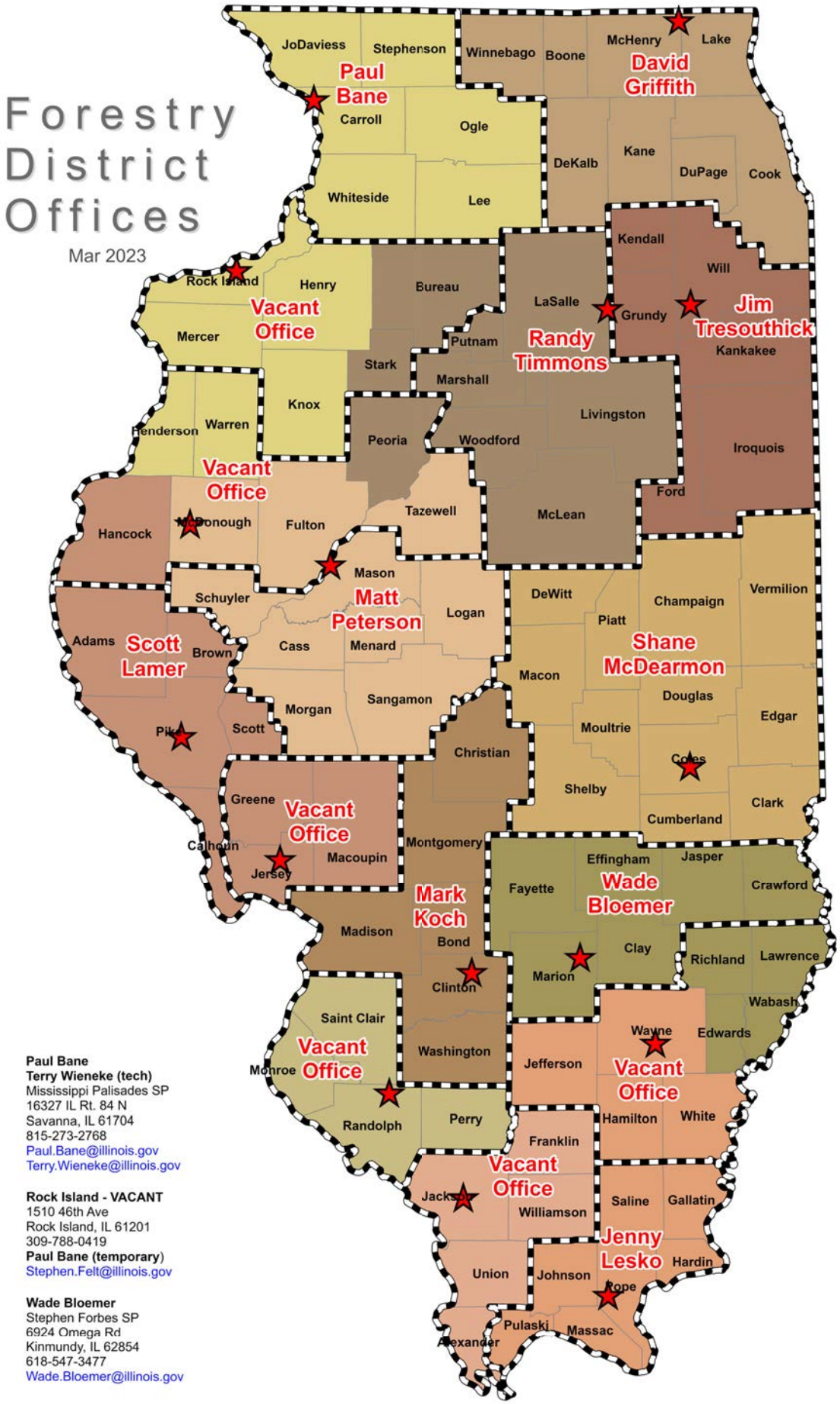

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