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Illinois Forests

ILLINOIS Forestry Association

"The Voice for Illinois Forests"

Inside this Issue...

2017-18 Illinois Forestry Association Board of Directors

Executive Committee

PRESIDENT
Joe FitzSimmons (Region 4)
Vienna, IL
773/852-7120
fitzsimmonslawoffice@gmail.com

VICE-PRESIDENT
Jim Hynes (Region 2)
Pleasant Plains, IL
217/502-4528
hynesfarm@gmail.com

SECRETARY
Dave Gillespie (Region 2)
Chatham, IL
217/494-6982
dandgisp@aol.com

TREASURER
Mike McMahan (Region 4)
Vienna, IL
618/977-3415
mcmahan3465@hotmail.com

IMMEDIATE PAST PRESIDENT
John Edgington (Region 3)
Flat Rock, IL
217/840-5162
johnedg@illinois.edu

EXECUTIVE DIRECTOR
Stephanie Brown
Golconda, IL
618/949-3699
618/638-6954 cell
sbrown63@shawneelink.net

Regional Directors

Region 1

Bill Fern
Chicago, IL
773/551-5561
bill@billfern.com

Fredric Miller
Joliet, IL
815/280-2740
fmiller@jjc.edu

Tom Walsh
Durand, IL
815/248-2234
walsh10@stateline-isp.com

Michael Woolery
Winnebago, IL
815/222-0009
mikewoolery@mchsi.com

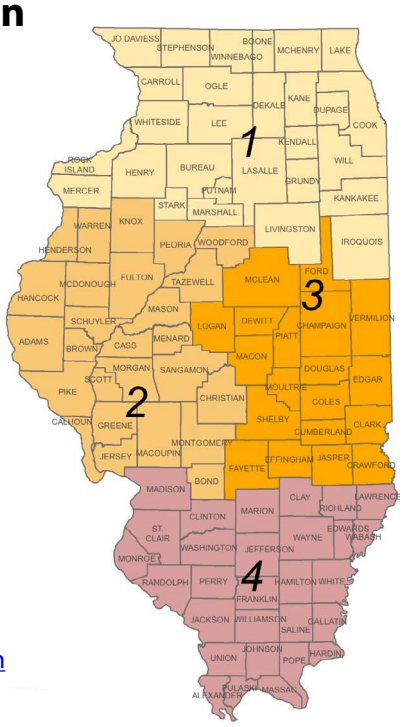
Region 2

Carol Bryant
Mt. Olive, IL
618/444-3864
cabryant2@gmail.com

Region 3

Nate Beccue
Monticello, IL
217/333-3287 ext 208
nbeccue@illinois.edu

Stan Sipp
Mansfield, IL
217/714-1855
sksipp@illinois.edu



Region 4

Annette McMichael
Ozark, IL
217/ 273-1000
am33.mcmichael@gmail.com

Joe Newcomb
Norris City, IL
618/265-3286
newcomb.joe@gmail.com

Landon Satterfield
Boaz, KY (Benton, IL)
270/704-2687
lsatter@siu.edu

Roger Smith
Benton, IL
618/927-2057
smithtreefarmllc@hotmail.com

Our Mission...

"to act on issues that impact rural and community forests and to promote forestry in Illinois."

Our Goals...

- **Promote forest management and help landowners manage their forests**
- **Educate members and the general public about rural and community forestry**
- **Advocate for favorable legislation and policies to benefit/protect landowners managing forests**
- **Understand and engage our members, and increase IFA membership**
- **Govern the IFA efficiently and effectively to better serve our charitable mission**

IFA Technical Advisors

Chris Evans (Chair)
University of Illinois
Extension Forester
618/695-3383 (office)
cwevans@illinois.edu

Kurt Bobsin
Forester - Retired IDNR
217/469-3174 (home)
kwbobsin@gmail.com

Wade Conn
State Forester, USDA-NRCS
217/353-6647 (office)
wade.conn@il.usda.gov

Paul Deizman
IDNR Forest Resources
217/782-3376 (office)
paul.deizman@illinois.gov

John Edgington
University of Illinois (retired)
217/840-5162
johnedg@illinois.edu

Jay Hayek
University of Illinois
Extension Forester
217/244-0534 (office)
jhayek@illinois.edu

Kyle Burkwald
Nelson Land Management
630/632-6593
kburkwald91@gmail.com

Stan Sipp
Forester
217/489-9003
sksipp@illinois.edu

Gary Stratton
Forester - Retired IDNR
618/736-2854
stratton@hamiltoncom.net

Chris Whittom
IDNR Forest Resources
217/785-8264 (office)
217/280-3659 (cell)
chris.whittom@illinois.gov

Meet IFA's Newest Board Members...

Each year we send out a ballot by email that includes bios and photos for each candidate recruited to run for regional director or officer on the IFA Board of Directors. It is also possible to be nominated from the floor during the annual business meeting. That's what happened last year with Tom Walsh...

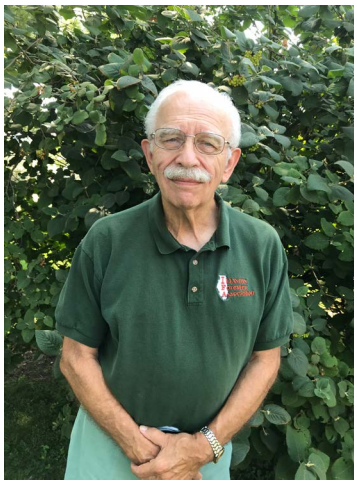
Tom Walsh

Tom Walsh and his wife Julie own a farm outside Durand, IL. The farm has eight acres of flowers, 50 acres of other CRP, 70 acres of cropland and 35 acres of wooded land. Tom will be retiring in November from his job as Supervisor of Assessments for Winnebago County. He is a Master Naturalist intern working on his volunteer and education requirements to become a Certified Master Naturalist. Tom is looking forward to spending more time with his five grandchildren, tending to his wooded land, spending more time volunteering and devoting more time to serving on the board of the Illinois Forestry Association.

Tom hasn't missed an IFA meeting since he was elected last year. His expertise in the area of property taxes and his perspective as a landowner are welcomed on the board.

Tom is on the verge of losing his status as new kid on the block. We look forward to adding John Lovseth, Lydia Scott, and Lee Rife to the board as Regional Directors during the Annual Business meeting election on September 28th.

On the Verge...



From the top: John Lovseth, Lydia Scott, and Lee Rife - will be elected Regional Directors to the IFA Board during the 13th Annual Business Meeting on September 28th in Springfield. Follow this link to see their bios, along with current board members running for re-election:

https://ilforestry.org:443/resources/Documents/Events/2018%20Events/Election%20Ballot%20-%20IFA%2013th%20Annual%20Mtg%202018.pdf

Give the Gift of IFA Membership

by Dave Gillespie, IFA Secretary

With Christmas less than three months away, some people are starting to think about what to give that special someone.

The IFA is now offering Gift Memberships. There is a form and a process in which we send the recipient a greeting card to welcome them and also let them know who is sponsoring their introductory basic membership. After their "free" year is up they can evaluate and renew on their own, assuming they find IFA membership rewarding.

Perhaps you have children or siblings who stand to inherit and/or share responsibility for managing land passed down in the family. An IFA membership can be a good way to build a mutual awareness and understanding of the forest, as well as introduce them to the programs and people here to serve.

A gift membership would also be a good way to thank a neighbor who has been especially helpful or who has shown an interest in managing their land like you do. With the fall-themed card, it would even make a nice gesture to offer around Thanksgiving.

You can access the Gift Membership Form at the following link: https://ilforestry.org:443/resources/Documents/Forms/IFA%20GIFT%20membership%20form.01-18-18.pdf

Short of purchasing a membership for someone else, it is also possible to download/share the IFA Brochure, which includes a regular application on page 3:

https://ilforestry.org:443/resources/Documents/Publications/Final%20IFA%20Brochure%20with%20Member%20App%20for%20on-line%20viewing.pdf

Extension Forestry Update

by Chris Evans, University of Illinois Extension Forester

A lot is happening with Extension Forestry this year. Workshops and trainings continue across the state on a variety of forestry and natural resource topics, the Big Tree Register program has added several new champion trees, and new research on agroforestry and forest management is underway.

In May, Extension Forestry established a new native Oak-Hickory Arboretum on campus. The Rotary Club, the Illini Foresters, and the Students for Environmental Concerns all volunteered to help and plant over 75 native trees, including three trees each of black, blackjack, bur, cherrybark, chinkapin, n. pin, n. red oak, overcup, pin, post, scarlet, shingle, Shumard, swamp chestnut, swamp white, white, and willow oak; bitternut, black, mockernut, pecan, pignut, shagbark, and shellbark hickory.

In partnership with the Morton Arboretum and SIU, Extension Forestry published the 'Management of Invasive Plants and Pests of Illinois' field guide. This new guide covers 41 invasive plant species and seven forest insect pests. Management recommendations are given and a quick-reference phenology chart is included to help correctly time management applications.

We continue to host chainsaw trainings across the state. Extension Forestry offer S.A.W.W. levels 1-2 certification for our Chainsaw Safety and Directional Felling courses. In addition to the S.A.W.W. courses, Extension Forestry has offered several half-day chainsaw workshops at Dixon Springs Ag Center. These non-certificate courses give attendees an opportunity to work with professionals to gain experience using chainsaws for invasive species control or small-diameter thinning.

Through partnering with the Illinois Department of Natural Resources, Shawnee National Forest and the Illinois Department of Agriculture, Extension Forestry has been surveying for the invasive emerald ash borer (EAB) in southern Illinois. These efforts have resulted in finding EAB in three new counties in the region. Because EAB is so new to the region, Extension Forestry held a field diagnostics workshop for natural resources and extension professionals to allow attendees to see first-hand what impacted ash trees look like, the signs and symptoms present at infestations, and the processes used to verify EAB presence.

Extension Forester Jay Hayek shows volunteers how to plant seedlings during the establishment of our new native oak and hickory arboretum on campus.

The fifth annual Illinois Invasive Species Symposium was held in May in Champaign with over 100 in attendance. This continues to be an important event for land managers, land owners, and researchers to learn more about what is happening in Illinois with invasive species.

The first Southern Illinois Conservation Workshop was held at Shawnee Community College in Ullin in late September with a full audience. Attendees got to listen to presentations on a variety of conservation topics, including managing for oak regeneration, establishing wetlands, creating pollinator habitat, the use of prescribed fire, managing forests for game species, native plants, soil health, and invasive species identification and control. We are already in the process of planning next year's workshop!

Upcoming Extension Forestry programs include a timber harvest and taxes workshop on January 26th in Carterville, IL and the 4th annual Backyard Maple Syrup Production Workshop at Dixon Springs Ag Center on February 2nd.

Planning is underway for next year's Tri-State Forest Stewardship Conference (March 9th, 2019, Sinsinawa, WI). This is going to be the 25th annual tri-state conference as we are planning a big celebration!

Extension Forester Chris Evans shows off a stand of tick trefoil during a recent guided plant hike at Giant City State Park

Tree Farm News

by Ed Anderson

Gary and Debbie Stratton, Illinois' 2017 Tree Farmers of the Year

Do you have a woodlot that needs some attention? Do you want to manage your woods for wildlife/recreation/water/wood? Do you know how to safely fell a tree? Can you recognize invasive plants in your woods? Do you know how to remove unwanted trees/brush from your woodlot? Do you maintain your chainsaw properly? Do you have valuable trees on your property and need advise on how to market them properly? What are management techniques to improve hunting?

These and many other questions can be answered at this year's Illinois Tree Farm Field Day sponsored by the Illinois Tree Farm committee to be held at Debbie and Gary Stratton's tree farm located in Wayne County at 2459 County Rd 545 N (use Co Rd 525N in your GPS). GPS coordinates are 38.3323 Lat, -88.2492 Long. Or take Hwy 15, approximately 5.5 miles east of Fairfield to County Road 2450E and follow the signs. The date for this event is October 20th from 9am until 3 pm. The Stratton's of Dahlgren are the Outstanding Illinois Tree Farmers for 2017. This is a family event with children activities.

The field day will have many useful demonstrations and talks for both the novice and experienced alike. If you have never attended a field day, this is a great one to begin with.

Planned demonstrations and talks include:

- A Woodmizer sawmill sawing red and white oak, tulip poplar and red cedar logs.
- Directional felling of standing trees
- Chainsaw safety and maintenance
- Exotic plant identification and control
- Controlled burn (weather permitting)
- Birdhouse workshop where children can assemble and take home a birdhouse
- Forest management, timber harvesting and marketing

In addition, there will be coffee and doughnuts, door prizes, Stihl chainsaw raffle, and a fishing contest for kids with prizes.

Li'l Buddies BBQ will be selling BBQ, brats and burgers and sides for lunch

We hope that you can attend the field day and learn from the experts.

Trees Forever News

by Debbie Fluegel

Trees Forever welcomed Kevin Bennett, as a new Illinois staff member, in July. Kevin serves as a field coordinator for the southern half of Illinois (areas south of Springfield) and manages the Illinois Community Forestry program. He received a B.S. in Environmental Science from Quincy University and a M.A. in Natural Resource Policy & Administration from the University of Illinois. He has a diverse background in land management, legislative advocacy, and environmental education. Prior to joining the Trees Forever family, Kevin worked for the Soil & Water Conservation District in Bureau County, where he helped landowners manage and implement various conservation practices aimed at creating habitat and improving water quality. He has a passion for local foods, native landscapes, and big oak trees. Originally from Alton, IL, Kevin resides in Hopewell with his wife and five children.

Kevin Bennett

Trees Forever Upcoming Events:

Famous and Historic Arboretum Interpretive Sign Service Day and Tree Jamboree, Saturday, Oct. 20th, 1pm, at IDNR Conservation World, State Fairgrounds, Springfield.

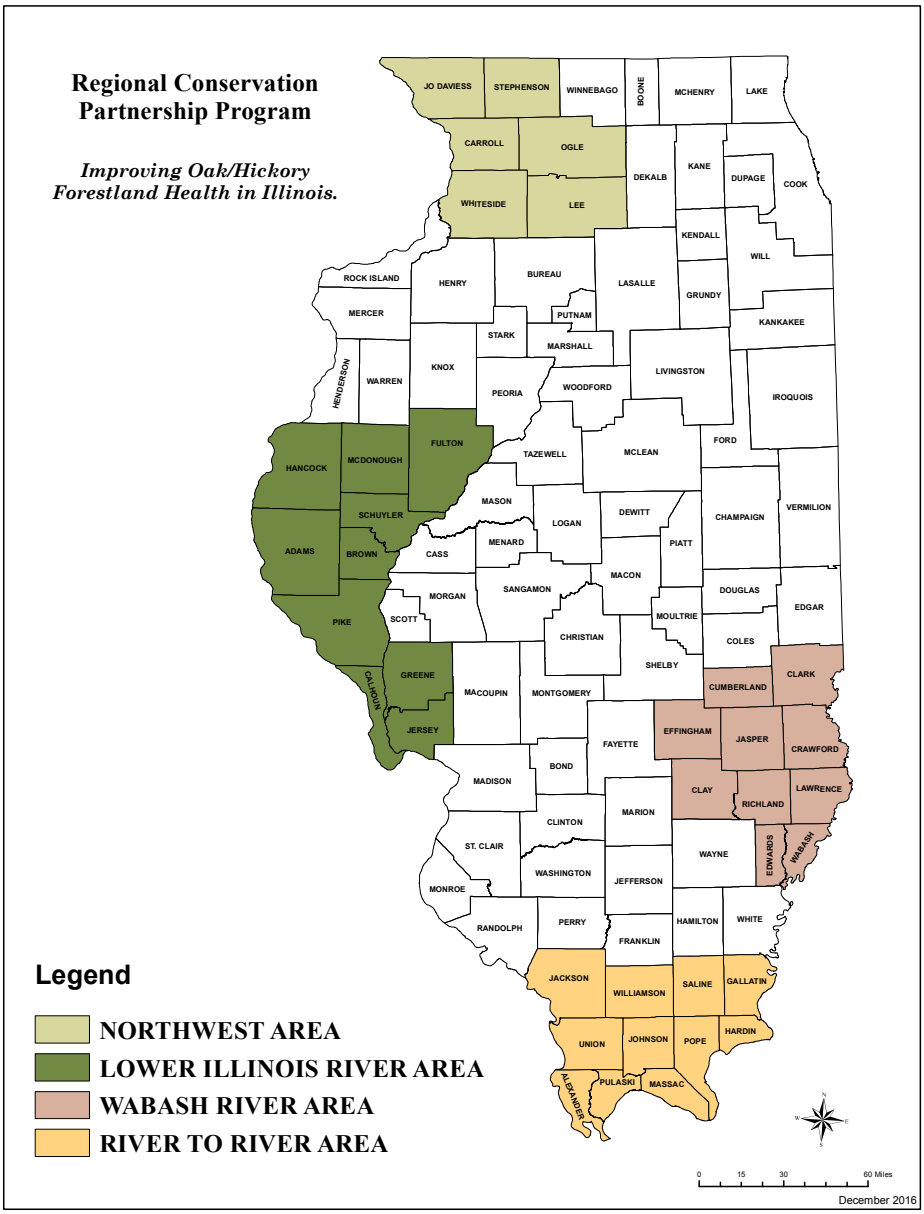
EQIP Can Improve Illinois Oak Hickory Forests

Champaign, IL — State Conservationist Ivan Dozier announced that the U. S. Department of Agriculture-Natural Resources Conservation Service (NRCS) will offer funding to improve oak-hickory forest stands through the Regional Conservation Partnership Program (RCPP).

NRCS has partnered with the Illinois Forestry Development Council to help producers address resource concerns such as water quality and soil health. Landowners can apply for assistance through the Environmental Quality Incentives Program (EQIP) to implement forest stand improvement, brush management, herbaceous weed control and tree/shrub establishment practices.

The project focus is to reduce soil erosion and improve water quality by improving oak-hickory forest in the following 37 counties: Adams, Alexander, Brown, Calhoun, Carroll, Clark, Clay, Crawford, Cumberland, Edwards, Effingham, Fulton, Gallatin, Greene, Hancock, Hardin, Jackson, Jasper, Jersey, Jo Daviess, Johnson, Lawrence, Lee, Massac, McDonough, Ogle, Pike, Pope, Pulaski, Richland, Saline, Schuyler, Stephenson, Union, Wabash, Whiteside, and Williamson.

http://www.nrcs.usda.gov/wps/portal/nrcs/detailfull/il/home/?cid=stelprdb1117095



Landowners in thirty-seven Illinois counties may be eligible to participate. Contact your local NRCS field office to learn more.

The NRCS oak-hickory forestry project through RCPP will be available to producers throughout Illinois who are in the above-mentioned counties and are interested in installing any or all of the previously mentioned practices. To take advantage of this special conservation funding opportunity, interested producers should submit an application to their local NRCS field office by the cutoff date of October 19, 2018.

Producers are reminded that they can submit an EQIP application to their local field office at any time throughout the year.

To see if you are eligible to participate in the program, producers should contact their local NRCS field office or visit the Illinois NRCS website at www.il.nrcs.usda.gov.

In Search of Our Native Hickories

by Chris Evans

To learn the differences between the various hickory species, characteristics were studied and close comparisons made. Here we were comparing the fruit of different species.

Some hickories are easy to come by, almost even weedy. Others require both persistence and assistance to locate. After finding a hickory tree, figuring out just which species you are looking at is another challenge in itself! If you are a follower of the University of Illinois Extension Forestry Program on Facebook, you may have noticed a series of posts this summer/early fall that featured descriptions and photos of all ten hickory species native to Illinois.

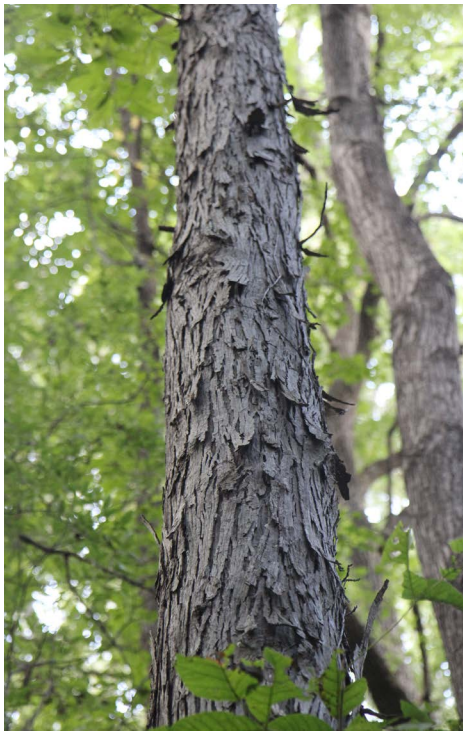
That series all started when preparing for a recent tree identification workshop I came to the realization that I really needed to work on my hickory identification. After some initial exploration, I decided to find and photograph all ten species of hickory native to Illinois. Five were easy as they occur right at the Dixon springs Agricultural Center, where my office is located. Armed with pruners, a camera, and several identification books and floristic manuals, I set out to have a closer look at each. The upland oak-hickory forest that dominates much of the wooded acres on the Ag Center are home to abundant shagbark, red, pignut, and mockernut hickories. In fact, all four of those could be growing right next to each other practically within yards of my office door. Shagbark is easy due to its distinctive bark, large fruit and big leaves. Mockernut is also straight forward with its large fuzzy twigs and thick fruit husks. However, red and pignut hickory can be tough to distinguish as there is a ton of overlap in their characteristics. So much so, that some taxonomists don't even consider them separate species. Add to that the several mature pecans that were planted in years past and I was already halfway to my goal! Next up was bitternut hickory, not found at the Ag Center, but easy enough to find as it is also very common in upland woods across the state and very easy to identify with its long, sulfur-yellow buds and tight, light bark.

continued on page 8 -

Below - Twig and bud characteristics vary greatly between the different hickory species. Shown here are the buds of all ten species. Top row, from L to R – Mockernut, pignut, shagbark, red, and bitternut hickories. Bottom row, from L to R – Pecan, water, shellbark, black, and pale hickories.

Leaflet number is an important characteristic used to identify hickory species. Shagbark is one of two hickories that typically have only five leaflets.

Below -- Several hickory species have loose bark that is either scaly (long thin pieces of bark) or platy (blocky, rectangular pieces of bark). Shellbark, shown here, and shagbark hickories both have very loose, scaly bark.



Six down and four to go! While five of these species of hickory are found commonly in upland forests (Shagbark, red, mockernut, pignut, and bitternut) and pecans are widely planted, I knew the other four were not going to be as easy to find and would require some planning and help.

Two of the remaining species are bottomland specialists – Shellbark and water hickory. With some assistance and direction from the good folks at Cypress Creek National Wildlife Refuge, I was pointed in the right direction. Water hickory is the most water-tolerant of all of the hickories, growing in poorly-drained, frequently flooded bottomland sites. It is rare in the state and even listed as a state-threatened species. While battling swarms of mosquitoes, we walked down in the bottom of a dry slough and first found the distinctive fruit of water hickory – pear shaped and winged. After finding the fruit, it was only a short while later we came across a beautiful water hickory growing right at the edge of the slough along the Cache River.

The more common and widely spread shellbark hickory was easier to locate at the aptly named Hickory Bottoms site on the refuge. The only problem was the trees were huge and too tall to get a leaf sample! Luckily, some persistence paid off and I was able to find a smaller specimen with limbs low enough to the ground to reach with a pole-pruner. Both the huge leaves and huge fruit of this species are truly impressive, dwarf all other hickories, making in abundantly clear how this species got the nickname of kingnut hickory! Now only two species remained!

Hickories tend to turn bright yellow in the fall, providing a beautiful contrast with other mixed hardwoods and evergreen species.

Hickories, continued -

The final two species (pale and black hickory) are both specialist on very dry, poor soils. To find them required help from the Shawnee National Forest and some advice from the Illinois Native Plant Society.

Black hickory is a dry-site tree that grows in portions of southern Illinois. Some discussions with local experts with the Illinois Native Plant Society led me to a high quality barren site in the southeastern part of the state. The challenge with black hickory is that, while it is restricted to dry sites, many of the common upland hickories can also grow there. You have to spot the dark, deeply furrowed bark to find a black hickory, even then, they can potentially look a lot like a mature red or pignut hickory. A closer look at the leaves and buds can reveal the reddish hairs and yellow scales that can verify the tree as a black hickory. Surprisingly, quite a few trees were checked before a conclusive black hickory was found.

The last hickory on the list to find was also the rarest one in Illinois. So rare in fact that it is listed as a state endangered species. Pale hickory is only found at a handful of sites in the Illinois Ozarks in the extreme southwestern corner of the state. To find a pale hickory, you need to be in extremely dry ridges, preferably with a south- or west-facing aspect. It loves shallow, rocky or sandy soils. This species also happens to be one of the toughest to conclusively identify as it resembles red, pignut, and black hickory. The light color, tight bark and gold scales on the leaves and buds set this one apart. To find a pale hickory in Illinois, I needed help from the Shawnee National Forest. After discussing this quest with them, I was directed to some extremely high bluffs where a known population of pale hickory exists. A side benefit of travelling to this site to view the last hickory on my list was that I was treated to some amazing views from the bluff top, overlooking the Mississippi and Big Muddy River Valleys.

Overall this endeavor was a great way to both learn a group of trees that are a large and important component of Illinois forests and see a lot of great places while doing it!

To see the series featuring Illinois hickories, check out the University of Illinois Extension Forestry's Facebook page at www.facebook.com/IllinoisExtensionForestry.

Pale hickory is the rarest of all hickory species in Illinois. It grows on very dry, poor soils. Bluff tops with south or west facing slopes, as seen here, is a typical habitat type for this state endangered species.

Identification Characteristics of Hickory Species Native to Illinois Quick Reference Chart

Christopher W. Evans, Extension Forestry and Research Specialist
University of Illinois, Department of Natural Resources and Environmental Sciences

UNIVERSITY OF ILLINOIS EXTENSION

Common Name	Leaflet Number*	Rachis	Twig	Bud	Fruit size	Fruit husk	Bark
Water hickory *Carya aquatica*	7-17	Hairy	Thin, hairy	Elongate, hairy and brown	Medium, pear-shaped	Thin, winged	Variable, often very platy
Bitternut hickory *Carya cordiformis*	7-11	Smooth	Thin, smooth	Elongate, sulfur yellow	Small, rounded	Thin, winged about half-way	Tight, not scaly
Pignut hickory *Carya glabra*	5-7 (5)	Smooth	Thin, smooth	Small	Small, rounded or pear-shaped	Thin, does not split to base	Tight, not scaly
Pecan hickory *Carya illinoinensis*	9-17	Hairy	Medium, hairy	Elongate, hairy and brown	Small, elongate	Thin, winged	Platy
Shellbark hickory *Carya laciniosa*	5-9 (7)	Sparse hairs	Stout, smooth	Large, hairy	Very large, rounded	Very thick, splits easily	Loose, scaly
Red hickory *Carya ovalis*	5-9 (7)	Smooth	Thin, smooth	Small, rounded	Small, rounded	Thin, splits to the base, may be slightly winged	Tight or slightly scaly, deeply furrowed on larger individuals
Shagbark hickory *Carya ovata*	5-7 (5)	Fuzzy	Stout, fuzzy	Large	Large, rounded	Thick, splits easily	Loose, scaly
Pale hickory *Carya pallida*	7-9 (7)	Hairy and scaly	Thin, smooth or slightly hairy	Small, yellow scales	Variable, rounded or pear-shaped	Medium, covered in yellow scales	Tight, not scaly
Black hickory *Carya texana*	5-9 (7)	Hairy	Thin, hairy	Small, yellow scales and reddish hairs	Variable, rounded	Thin, covered in yellow scales	Very dark, deeply furrowed
Mockernut hickory *Carya tomentosa*	7-9	Hairy	Stout, hairy	Large	Large, rounded	Very thick, splits easily	Tight, dark and deeply furrowed at maturity

**Leaflet number given in the range, followed by, if applicable, the number typically observed*

The Dept. of Natural Resources and Environmental Sciences and Extension Forestry at the University of Illinois would like to thank and acknowledge the Renewable Resources Extension Act (RREA) and the USDA National Institute of Food and Agriculture for Extension Forestry program funding.

University of Illinois • U.S. Department of Agriculture • Local Extension Councils Cooperating
University of Illinois Extension provides equal opportunities in programs and employment

Gimme Shelterwood

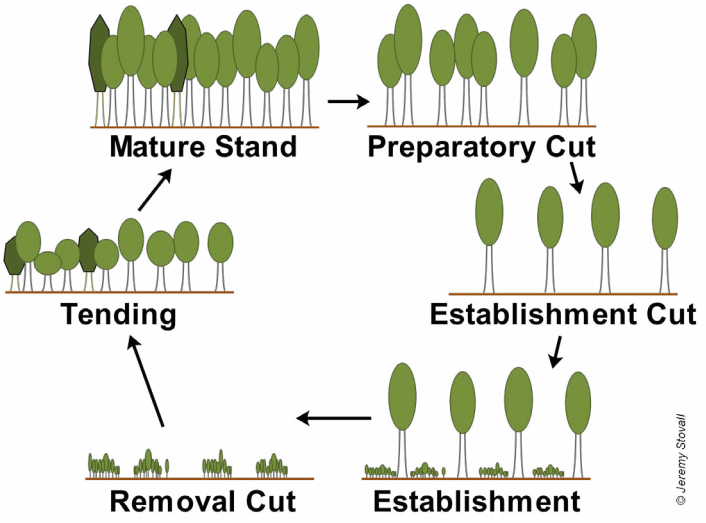
What is a Shelterwood Harvest?

by Justin Dodson, USDA Forest Service

A shelterwood is an even-aged harvest system that is implemented in steps to develop new trees in a moderated microenvironment under sufficient shade of overstory trees left behind (Helms, 1998). It tends to favor species that are tolerant or moderately intolerant of shade and can work for either hardwoods or conifers. This type of harvest could be used on a variety of sites. If oak and hickory is present and desirable to maintain over time but regeneration is insufficient, using a shelterwood is an option (Sander et al, 1983). Trees left behind as "shelter" need to be vigorous enough to sufficiently produce seed for new trees to establish and develop.

What is the process?

The shelterwood process can occur in two or three steps. The first stage is optional and is only part of the three-step shelterwood. It is called a preparatory cut (see Figure 1) and is employed to improve conditions for seed production to existing trees by improving growth conditions and selecting for species that you want to contribute to the future regeneration pool. This could be pre-commercial or commercial depending on your starting conditions. The next cut, first in a two-step shelterwood, is called an establishment or seed cut (see Figure 1). This prepares the seed bed and creates light conditions favorable to create a new regeneration class. The final step is a removal cut (see Figure 1) to release established regeneration from competing overwood trees. If desired, some overwood trees could be retained during the final step for goals other than regeneration such as wildlife benefits. This would be known as a shelterwood with reserves (Helms, 1998). Figure 1 below created by Jeremy Stovall of Steven F. Austin State University provides a good visual of a three-step shelterwood harvest cycle. If a two-step shelterwood was preferred you would remove the preparatory cut and go straight to the establishment cut.



A shelterwood is a process and time is needed to reach your management objectives. The key to the final step in the process is getting desired regeneration established to compete into the canopy of the next forest stand. For oak that means at least 4.5 foot tall of sufficient numbers to meet your goals (Sander, 1977) and free to grow from competing trees (Nix, 1989). The time between the preparatory and the establishment cut may only be a few years. The time from the establishment cut to the removal cut could be 7-15 years, sometimes longer depending on your starting condition. If your regeneration is depending on smaller oak stumps the process could be shorter. If you are starting from seed the time needed will be on the higher end. Evaluating your regeneration potential in the beginning will give you a better estimate of timing.

A process that particularly favors oak

The shelterwood-burn technique has been widely studied for use in oak/hickory forests. Natural canopy disturbance events and fire have maintained oak forests on productive sites for centuries. Removal of fire from these ecosystems in the early 19th century has made it more difficult to regenerate oak by allowing fast growing competitor species such as poplar, maple, ash, and beech to move in. Fire top kills all regeneration, forcing species to root sprout. Oaks put energy into developing large root systems, where its competitors put energy into height growth. Burning can keep these competitors at bay and allow for oak to be more competitive on a larger root system. Fire frequency can alter a forests trajectory and should match management objectives (Brose et al, 1999). Consult with a forester to know which is right for your site.

Landowner considerations

A landowner should keep in mind the following considerations when deciding on a harvest system. One advantage of the shelterwood system is that your area is always forested in some stage of development which is more aesthetically pleasing. Even after the removal cut, you have young established trees ready to take advantage sunlight. Another is little to no cost from natural regeneration and tending treatments such as prescribed burning could be paid for from the harvest. Maintaining constant forest cover provides continuous wildlife benefits and protection of the site in areas where soil erosion might be an issue. Economic returns occur periodically over time with multiple entries. It is important to recognize that expertise should be provided by a professional forest to help you determine the economic viability and the conditions of a timber sale contract to protect your renewable resources.

Continued on the next page -

Shelterwood, continued -

The shelterwood harvesting method is a good option when you want to encourage natural regeneration of the existing forest. It allows you to manipulate the microsite conditions suited for the species you want to regenerate and provides forested cover throughout the process. Consider your management objectives and consult with a professional forester to see if it is the right tool for you.

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Justin Dodson is a Silviculturist with the USDA Forest Service. He is currently stationed at the Hidden Springs Ranger District on the Shawnee National Forest.

FOREST HEALTH UPDATE:

2018 WAS NOT THE BEST YEAR FOR OUR TREES

by Fredric Miller, IDNR Forest Health Specialist

Figure 1: Rhizosphaera Needle Cast

As you have probably noticed, some of our trees do not look very healthy. In 2018, we have seen tree decline and death, trees going into early fall color, sparse canopies, and defoliation by Japanese beetles and bagworms. In this update, I would like to focus on two issues, tree dieback-decline and proper watering during hot dry weather.

WHAT DO WE MEAN BY DIEBACK AND DECLINE?

This summer we have seen a lot of trees (i.e. conifers and hardwoods) declining and dying but, before I address specific examples, I would like to review the dieback-decline model.

Regardless of the cause(s), the general model for dieback/decline of any plant is as follows:

1. Healthy trees + stress leads to altered tree tissues (dieback begins)

2. Altered trees + more stress leads to altered tree tissues (dieback continues)

3. Severely altered trees and tissues leads to organisms of secondary action and tree tissues are invaded. At this point, trees lose the ability to respond to improved conditions, decline, and perhaps dies.

For dieback or decline of any woody plant just plug in your affected tree for "trees" in the above model. Also, understand that this progression may occur in a very short period of time (i.e. flooding) or be extended over a period of months or even years depending on the extent of the stress (s) and the overall health of the tree.

Several other important relationships are also included in the Decline/Dieback Model including:

- Dieback of trees or tissues often results from stress factor(s) effect(s) alone. Mitigation of these stress(s), and the absence of colonization by secondary pests and pathogens may allow for tree recovery. Dieback can be viewed as a survival mechanism to help the tree adjust to its newly encountered adverse environment

- Stress alone (i.e. prolonged drought/ flooding) or repeated can cause continued dieback/decline resulting in tree death. Severe drought (i.e. 2012) coupled with defoliation due to insects and/or pathogens can be enough to kill trees

Continued -

Forest Health Update - continued

- In most cases, the decline phase is usually more gradual and may even be subtle. Tree recovery depends on tree vitality, tree tissues invaded, aggressiveness and/or virulence of the pest or pathogen, and degree of invasion (i.e. mass attack by bark beetles).
- When and where the dieback phase occurs is closely related to where and when the triggering stress (s) occur.

With the dieback-decline model as background, let's examine several examples that have been evident this summer.

First, what is going on with our spruces and pines? In driving around the state this spring-summer, I have noticed the poor condition of many of our Colorado blue spruces and pines both in landscapes, privacy plantings, and windbreaks... Many of them are showing signs of dieback, decline, and death. While there are probably a variety of factors responsible, I wanted to touch on several abiotic and biotic factors that might be involved.

First, is the environment. As we all know, we have had extremes in weather the last several years. Very wet springs and early summers followed by hot and dry conditions in July, August, and even September (i.e. 2017). The 2018 growing season so far appears to be following a similar pattern. What does this have to do with conifer health? Conifers do not like "wet feet". Trees planted on heavy clay soils that are slow to drain (i.e. berms) or are situated in low areas will suffer from excessive soil moisture and flooding. Saturated soils are very hostile to root systems leading to root rots and death of fine absorbing roots. The effects are similar to what probably went on during the 2012 drought due to lack of soil moisture. Any time a tree's root system is compromised or damaged, it is serious. In addition, Colorado blue spruce is used to moderate summer temperatures. Last year, we had lots of rain and then it turned hot and dry from July into September. Stressors, such as flooding and saturated soils followed by hot, dry weather, really take a toll on tree root systems and their ability to take up water and nutrients, and to undergo photosynthesis. Trees under stress for whatever reason are more prone to insect attack (i.e. bark beetles) and cankers (Cytospora canker).

Secondly, another potential stressor of Colorado blue spruce is Rhizosphaera needle cast (Figure 1). This fungal disease attacks the needles of Colorado blue, Norway, and white spruce as well as pines, and is associated with above average precipitation. Faint yellow bands appear on infected needles 4 to 11 months after infection followed by small, dark brown or black spherical fruiting bodies (pycnidia) in spring. Heavily infected needles will have fine black lines on each side of the needle and from a distance will appear black or purplish (Figure 2).

The disease typically occurs at the base of the tree canopy near the ground and then progresses upward and inward. Premature needle cast is the main problem resulting in a thin canopy, branch dieback, and an unsightly appearance. Like most foliar fungal leaf diseases, temperature, precipitation, and relative humidity play a major role in disease development. Dry springs and summers can help reduce disease incidence. Management of fungal foliar diseases is always challenging. Non-chemical options include planting less-susceptible species, promoting good air circulation by using wider plant spacing, pruning lower branches (those touching the ground or loosing leaves due to shade), keeping vegetation under the tree mowed and/or mulching preferably

Continued -

Figure 2: *Rhizosphaera* Needle Cast

Figure 3: *Cytospora* canker on spruce

Forest Health, continued -

out to the drip line. Trees that are in poor condition or dead should be removed as they will provide sources of future fungal infection and breeding sites for bark beetles and wood-boring insects that may move to more healthy trees. Fungicidal sprays can be applied, but are required on a regular basis for the first two months after bud break.

A third spruce malady which is very common is Cytospora canker. This fungal canker attacks Colorado blue and Norway spruces. Symptoms include browning of needles and dying of lower branches (Figure 3). Needle drop from infested branches is also common. The cankers are usually not clearly visible and may appear as amber, purplish white, or white patches of resin on the lower bark surfaces of affected branches (Figure 4). Unlike Rhizosphaera needle cast, there are no fungicides that are effective against cankers. Remove diseased branches and avoid wounding the bark as this provides an entry point for the fungus. Avoid pruning during wet periods and make sure to sanitize your pruning tools after each pruning cut.

Keep in mind that Rhizosphaera needle cast disease, Cytospora canker and harsh environmental factors may all be affecting a given tree at the same time. Good plant health care practices such as proper plant siting, mulching, appropriate fertilization and watering, drainage and pruning can go a long way in helping the tree fight off these diseases.

Figure 4: *Cytospora* canker on spruce

Landowners Support Program to Combat the Emerald Ash Borer (EAB)

Countless landowners have donated their ash trees to support the parasitoid production facility in Brighton Michigan, what about you?

A USDA Biological Control Facility is seeking ash trees for parasitoid production. The biocontrol facility uses a variety of sizes of ash trees—between 8 and 20 inches in DBH (diameter at breast height)— to support their production process each year.

Here's what they need in a harvest site:

- 25 or more ash trees on your property
- Ash trees can show some signs of decline
- The larger trees (7-20 inches in DBH) must be a minimum of 50 feet away from any building
- Ash tree height is not as important as diameter – they can harvest any height of tree
- The ash tree harvest takes place between September and May
- Ash trees are harvested Monday - Friday, during regular business hours

If you have any stands of ash trees that you would be willing to donate, this APHIS representative would like to speak with you.

Call 734-732-0025 and ask for Paul Nelson, or e-mail him at Paul.M.Nelson@aphis.usda.gov.

Thanks for taking a stand against hungry pests!

Other EAB biological control links:

http://www.emeraldashborer.info/biocontrol.php

https://www.fs.fed.us/foresthealth/technology/pdfs/FHAAST-2017-02_Biocontrol_role_EAB_regeneration.pdf

http://www.emeraldashborer.info/documents/Duan%20Bauer%20et%20al.%202018%20FORESTS%20EAB-BC-Review.pdf

https://ky-caps.ca.uky.edu/past-surveys/parasitoid-wasps-control-emerald-ash-borer

What is EAB?

The Emerald Ash Borer (Agrilus planipennis or EAB) is the beetle responsible for the destruction of tens of millions of ash trees in 30 states. Native to Asia, it arrived in southeastern Michigan in 2002 in wood packing materials. One tool the USDA is using to manage this pest is biological control.

What is Biocontrol?

Biological control (Biocontrol) is the reduction of pest populations through the use of natural enemies such as parasitoids (stingless wasps), predators, pathogens, antagonists (to control plant diseases), or competitors. It is a practical option to suppress pest populations and an environmentally sound method of pest control.

USDA Parasitoid Rearing Facility

In 2009, USDA established a Biological Control Production Facility in Brighton Michigan to mass-rear stingless wasps for release in the EAB-infested states. Early on, parasitoid production was modest and biocontrol releases were limited to a few states. Production of the four stingless wasps at the Brighton facility now tops several hundred thousand and has been released in 25 states.

To learn more, go to USDA EAB Q&A's:

https://www.aphis.usda.gov/publications/plant_health/2014/faq_eab_biocontrol.pdf

History of Conservation in Illinois

Contributed by Dave Gillespie, IFA Secretary

(Installment # 26)

This account of the history of conservation in Illinois was written by Joseph P. Schavilje in 1941. This installment begins where installment # 25 ended.

Interest in trees of Illinois during this period was expressed by Frederick Brendel, who in 1858 read a paper before the Natural History Society at Bloomington on "Forests and Forest Trees",

in which he listed the trees found in Illinois and compared the number with that found in Europe. After enumerating the six conifers which are found in the State, he says, "The bulk of our wood is composed of more than 60 species of tree with deciduous leaves, amongst which we have 40 of large size. In all Europe north of the Alps, we count scarcely more than 30 different species of large forest trees". Mr. Brendel also published an article on "The trees and shrubs of Illinois" and followed this with two others both very well illustrated. The first was on the oaks in which their specific gravities were given and the second on the beech, the elms, the hackberry and the mulberry. Both combined to give an accurate and well written account of the trees of that period. (Miller, 1925). Trees around Peoria were mentioned in "Flora Peoriana", by Frederick Brendel in 1887.

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

The human brain is a wonderful organ. It starts shortly after conception and never stops until you start to write a song – Roger Miller.

Every year, just before Fall arrives, I start wishing that my other half and I would take a motor coach tour of New England to see the beautiful Fall colors and some of the historical places in that part of the country. Unfortunately, the time to book such a tour comes at the same time as finishing planting the garden, replacing shrubs and mowing the lawn, all of which have a higher priority. So the New England Fall trip gets postponed for another year.

On the other hand, just why we have to go all the way to New Hampshire or Vermont to find wonderful autumn colors. Most years, we can find beautiful colors right here in Illinois. They may occur a little later that in New England, but I have seen colors just as spectacular. Start in Havana and drive north to London Mills. There are dozens of yard sales, food stand and etc. Or you can go to my native Union County for Colorfest where every town in the county has something going on.

Perhaps there are other similar festivals going on in other parts of the state during this period of early to mid October. I am not the Illinois Office of Tourism, but you might stop at one of the rest stops along our Interstates and see if they have a literature rack which should feature information about the many activities in Illinois during this most colorful season. The unfortunate thing is that after the leaves fall, we get to look at naked trees for the next five months. And that is when my bride and I start planning our trip to Florida for a month or so. October is GREAT; January and February are the pits. We can't hibernate, so it's either leave town or shovel snow and I'm too old to shovel.

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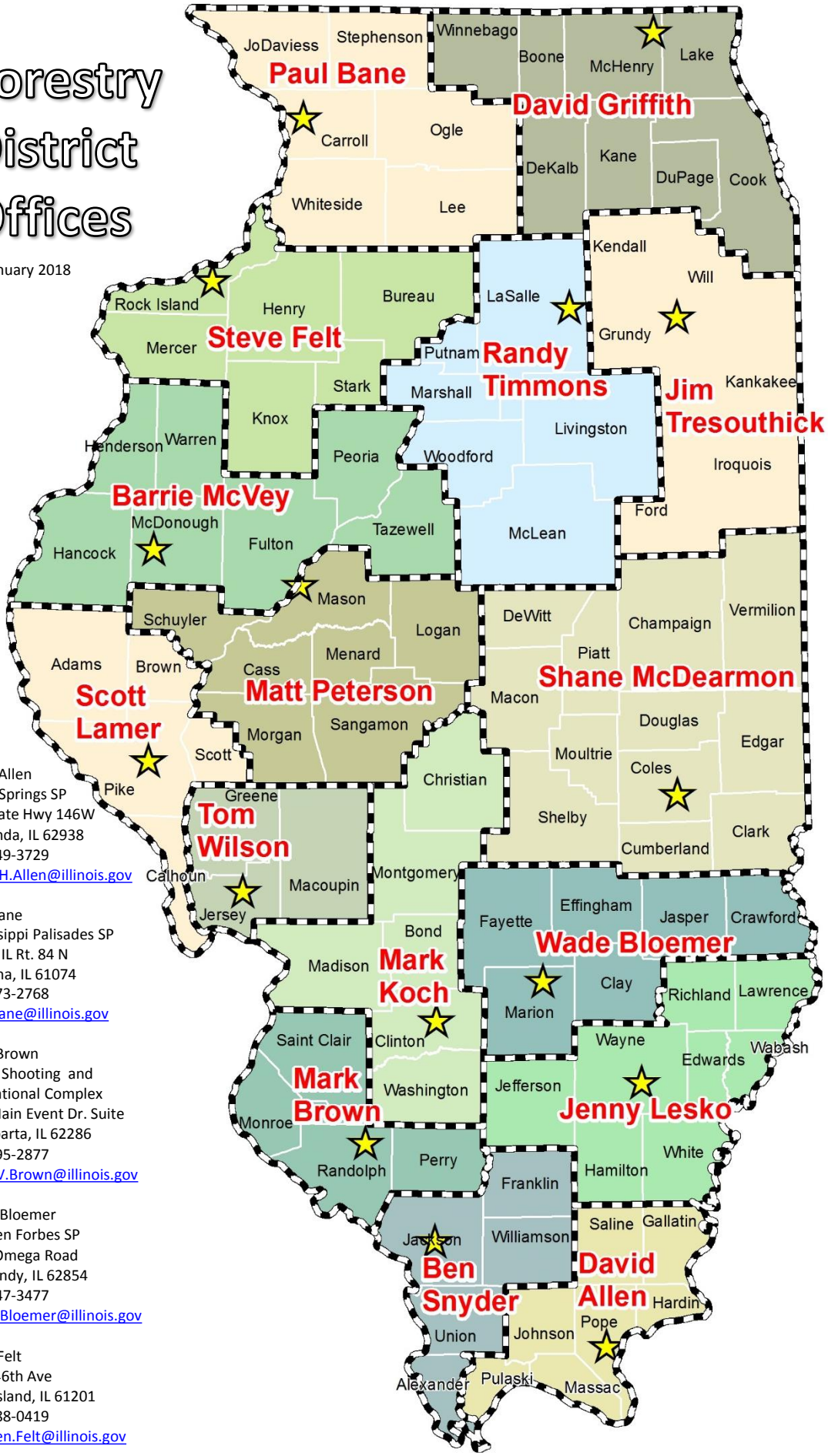
January 2018



David Allen
Dixon Springs SP
945 State Hwy 146W
Golconda, IL 62938
618-949-3729
David.H.Allen@illinois.gov

Paul Bane
Mississippi Palisades SP
16327 IL Rt. 84 N
Savanna, IL 61074
815-273-2768
Paul.Bane@illinois.gov

Mark Brown
World Shooting and Recreational Complex
One Main Event Dr. Suite 140
Sparta, IL 62286
618-295-2877
Mark.V.Brown@illinois.gov

Wade Bloemer
Stephen Forbes SP
6924 Omega Road
Kinmundy, IL 62854
618-547-3477
Wade.Bloemer@illinois.gov

Steve Felt
1510 46th Ave
Rock Island, IL 61201
309-788-0419
Stephen.Felt@illinois.gov

David Griffith
Chain O Lakes SP
8916 Wilmot Rd
Spring Grove, IL 60081
815-675-2386
Dave.Griffith@illinois.gov

Mark Koch
Eldon Hazlet SP
20100 Hazlet Park Rd
Carlyle, IL 62231
618-594-4475
Mark.Koch@illinois.gov

Scott Lamer
1252 W Washington
Pittsfield, IL 62363
217-285-2221
Scott.Lamer@illinois.gov

Jenny Lesko
106 Andrews Dr.
Fairfield, IL 62837
618-847-3781
Jennifer.Lesko@illinois.gov

Shane McDearmon
1660 West Polk Ave
Charleston, IL 61920
217-348-0174
Shane.mcdearmon@illinois.gov

Barrie McVey
Argyle Lake SP
640 Argyle Park Rd
Colchester, IL 62326
309-776-5271
Barrie.Mcvey@illinois.gov

Matt Peterson
700 South 10th
Havana, IL 62644
309-543-3401
Matt.Peterson@illinois.gov

Benjamin Snyder
Lake Murphysboro SP
52 Cinder Hill Drive
Murphysboro, IL 62966
618-565-2828
Benjamin.snyder@illinois.gov

Randy Timmons
P.O. Box 860
124 W. William St
Seneca, IL 61360
815-357-8846
Randy.Timmons@illinois.gov

Jim Tresouthick
30550 Boathouse Rd
Wilmington, IL 60481
815-476-0256
Jim.Tresouthick@illinois.gov

Tom Wilson
604 E. Franklin
Jerseyville, IL 62052
618-498-1627
Tom.Wilson@illinois.gov