Walnut Council Bulletin

Promoting Walnut and Other Fine Hardwoods

www.walnutcouncil.org

Volume 45, Number 1 ISSN 1041-5769 May 2018

Using Goats for Vegetation Management

By David Robbins, Maryland Chapter president

Goats have been chowing down on vegetation all over the world for millennia. Sometimes this is a benefit, and sometimes it is a detriment (just research the Galapagos feral goats). But intentionally using goats as a targeted vegetation management tool is a relatively new and burgeoning endeavor.

To learn more about using goats for vegetation management, the Maryland Chapter of the Walnut Council spent a day in spring 2017 with Brian Knox, a Licensed Professional Forester and owner/operator of Eco-Goats (part of Sustainable Resource Management, Inc.). We had the opportunity to learn all about goats, and to tour a field site to see them in action! To say that we learned a lot would be an understatement.

Maryland Chapter members learn about using goats for vegetation management, from Brian Knox of Eco-Goats (in the red suspenders).

The first thing we learned is that not only are goats cute and furry, but they are also highly intelligent and each one has a unique personality. Endlessly curious and mischievous, they need daily supervision to ensure that they stay inside the temporary fence used to delineate their browsing area.

As most people know, goats will eat almost anything they can fit into their mouths (except for most grasses). Of course, they do have their preferences, as well as certain plants they cannot eat. But compared to other animals, goats have an extremely wide range of vegetation that they will consume. Curiously, they love eating anything that has thorns on it; making them a great option for controlling multiflora rose, barberry, greenbrier, wineberry, etc.

This nearly indiscriminate browsing can be a good thing, or a bad thing, depending on your objectives. Goats do not differentiate between what we consider desirable or undesirable species. They will eat it all. So they should only be used in an area where it is acceptable for all the vegetation to be browsed down. If there is already a significant amount of desirable regeneration in an area, goats might not be the best option. Goats will also strip the bark off of trees under six inches in diameter, so they would not be a good option for a young tree plantation.

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Walnut Council Bulletin Advertising Policy

The Walnut Council attempts to assist in the transfer of technical information pertaining to the growing and harvesting of walnut and walnut products with the publication of the Walnut Council bulletin three times per year.

1. The Council reserves the right to exercise editorial judgment in the products it will accept for advertising.
2. The Council expects the advertiser to be truthful and to guarantee reasonable satisfaction to the consumer.
3. The Council does not endorse the advertised products or services, nor does the Council make any warranty, expressed or implied.
4. All advertisers are subject to Indiana Statutes regarding false or misleading advertising.
5. Advertising may be cancelled for (a) non-payment, (b) violation of Indiana law, and/or (c) customer complaints.
6. The advertising rates for three issues of the same advertisement are $100 for business card, $200 for quarter page, $300 for half page, and $400 for full page.

Volume 45, Number 1 ISSN 1041-5769 May 2018

President's Thoughts

Lenny Farlee

The first time I became aware of the Walnut Council was during my undergraduate education at Purdue University. My silviculture professor, Clair Merritt, often sported a Walnut Council cap during our lab sessions. I admit I was too absorbed in successfully completing the lab assignments to give in to my curiosity about what the Walnut Council was, and if a lowly forestry undergraduate could be a part of it. I crossed paths with the Walnut Council again when I was employed at Vallonia State Tree Nursery, which was a tour site during one of the annual meetings in Indiana. I didn't actually join the Walnut Council until I returned to Purdue as an extension forester in 2007. It's been a good 10 years!

I think most Walnut Council members would echo my sentiments that this organization provides some unique and valuable benefits to members. One Walnut Council quality that always comes to mind is a deep well of practical experience. There is truly no replacement for practical experience and the Walnut Council membership offers that and shares it freely. The interchange of management information, experiences, tips, timesavers, and problem-solvers that takes place at state and annual meetings could fill several volumes. As an organization, we also value and use high quality research to answer questions and solve problems. In fact, through the Walnut Council Foundation, we support relevant research through accepting and funding proposals to address important hardwood management issues. The Foundation is a 501(c)(3) entity, so donations may be tax-deductible. Supporting the Foundation ultimately supports Walnut Council members with reliable, science-based information.

We also value the lessons that each members' shared experience represent to help us build on the foundation that research provides. I field calls from all over the country about planting and managing black walnut. One of my standard recommendations to people interested in growing black walnut is join the Walnut Council! Your membership and participation in the Walnut Council at the local and national level is the strength of this organization and, in my opinion, one of the best reasons for a walnut "newbie" to take the step into membership.

I encourage all members to reach out to those needing reliable research and experience-based information and share what you have learned about planting and managing hardwoods. Attend a field day and participate in the discussions. Provide a tip or timesaver to your state or Walnut Council newsletter. Attend an Annual Meeting and participate in the exchange of ideas that is such an important part of those gatherings. Most importantly for our future, invite potential members to explore the benefits offered through Walnut Council membership.

I look forward to seeing many of you at the Annual Meeting in Dubuque!

Lenny Farlee, National Walnut Council President

Upcoming Events

July 29-August 1
Walnut Council national meeting, Dubuque, Iowa with tours in Wisconsin.

August 5-8
Northern Nut Growers meeting, Saint-Paulia, Quebec, Canada.

October 5-6
Missouri chapter fall field day

October 6
Illinois chapter fall field day

October 13
Indiana chapter fall field day

October 20
Iowa chapter fall field day

October 20
Ohio chapter fall field day

June 2-5, 2019
Walnut Council national meeting, Mayetta, Kansas.

Recent Retirements

Jerry Van Sambeek retired in December 2017 from the US Forest Service after more than 42 years of service. Jerry has been a longstanding member of the Walnut Council board of directors, past president, former editor of the Walnut Council bulletin, chair of several national meetings, and co-editor of three research symposia. He and his wife Carole plan on settling in Colorado and enjoying their grandchildren. Congratulations Jerry!

Thomas Schmidt, Assistant Director, Research for the Northern Research Station of the US Forest Service, retired in summer 2017. Tom has also been actively involved in the Walnut Council for many years and instrumental throughout his career in forestry research pertaining to fine hardwoods and walnut in particular. Tom and his wife Edie are also moving to be near grandchildren. Congratulations Tom!

Using Goats for Vegetation Management *Continued from page 1*

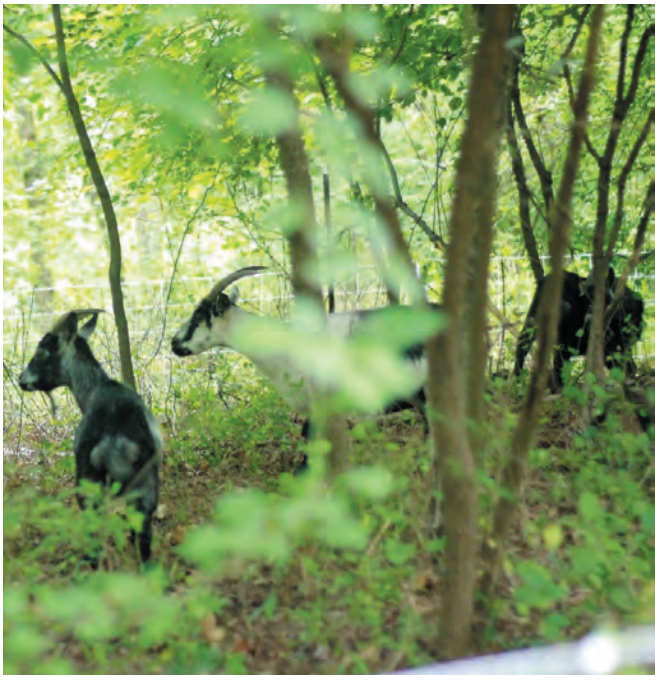
So this begs the question: What ***is*** a good place to use goats for vegetation management?

Goats are best used to control vegetation in areas that are thickly overgrown with undesirable species, such as invasive-exotic plants. This is especially true if the area is too overgrown to allow access to perform mechanical removal or apply herbicides. Goats can also be particularly useful in public spaces and community common areas, where there might be public push-back against the use of herbicides. People love the cute goats, and Brian Knox says, "they are my best public relations tool."

It is important to consider that the goats will not kill the plants, only chew them back to the ground. So most plants will re-sprout from the roots; and without shade from the overgrowth, seeds in the soil can readily germinate. For this reason, goats are usually utilized as a preliminary treatment to remove dense underbrush and allow access for follow-up spot treatments. After rotating goats through the area, herbicides or mechanical cutting can be used to selectively treat the vegetation that returns – killing the unwanted species and leaving the desirable regrowth.

In the end, goats are just another tool in the arsenal for managing land. Like all tools, they have their pros and cons, and are only useful if applied correctly. This is why it is important to consult with a reputable company that understands the benefits and, more importantly, the limitations of the goats. Brian Knox, for example, was a Forester and resource manager long before he was a goat herder. He recognizes the situations where goats can be helpful, but also will be the first to say if they are not the right tool for that site.

Because using goats for vegetation management is a growing trend, there are some companies entering the



market whose primary interest is making money, not properly managing resources. These are often people who already own goats, and figure they will use this opportunity to make some quick money on the side. If you want to try using goats on your property, be sure to choose a company that understands sustainable resource management, and knows when it is appropriate to use (or not use) the goats.

It's also important to understand that all vegetation management is a process, not a project. You will need to design and implement a multiple-year program, utilizing many different tools and techniques. If the conditions are right, perhaps the cute goats can lend a hand.

Visit *www.eco-goats.com* to learn more about Eco-Goats.

Nominees Selected for Board of Directors

The following board roles are normally filled in the even numbered years for a two year term. The Vice-President automatically assumes the duties of President the following year and Chair of the Awards and Nominating Committee the year after. All terms begin at the end of the 2018 annual meeting and run through the 2020 annual meeting.

If you should have an interest in participating on our board of directors in an upcoming term, please contact any board member.

Candidates for 2018-2020 term:

Position	Nominee
Vice President	Bill Hammitt
Education Committee Chair	Lenny Farlee
Finance and Audit Committee Chair	Hugh B. Pence
Legislative Committee Chair	TBD
Nut Culture Committee Chair	Sara Jean Peters
Silviculture Committee Chair	Fred Crouse
HTIRC Representative	Mark Coggeshall
Logger Representative	Ben Bruggeman
International Representative	Gery van der Kelen
Landowner SE Representative	John Kelsey
Landowner SW Representative	John Buchanan
State Representative	Steve Felt

Welcome New Members

A big thank you to new National Life members Steve Schiano and Greg Baird and to new State Life members Stephen Murrill of Illinois and Indiana, Raoul Moore and Greg Baird of Indiana, and Kathryn Allen of Missouri. We appreciate your long-term commitment to us!

We are pleased to welcome these new annual members to the Walnut Council in 2018:

Kevin Cool, Lake St. Louis, MO
Kelly Dudley, Muscoda, WI
Jay Finke, Cincinnati, OH
William Hagen, Manchester, MD
Daniel Howell, Frankfort, KS
Lisa Krotz, Iowa City, IA
Brandon Lepior, Owossa, MI
Justin McNaught, Galesburg, IL
Sid Munford, Independence, IA
Mark Schlecht, Rossville, IL
Douglas Schulz, Overland Park, KS
Paul Spurgin, Moravia, IA
Norm Stucky, Jefferson City, MO

The following new members joined in 2017:

James Bateman, Woodstock, IL
David Buchanan, Wheatland, IA
Arthur Burger, California, MO
Douglas Butler, Marshalltown, IA
Cole Craft, Westville, IL
Gabrielle Deimeke, Auxvasse, MO
William Eckley, St. Joseph, MO
Patrick Finney, Federal Way, WA
Dean Fleharty, Prairie Home, MO
John Frank, Thorntown, IN
Mike Gold, Columbia, MO
John Grange, El Dorado, KS
Charl Greene, Jackson, MI
Daniel Hatch, Licking, MO
Aimee Hawkes
Benjamin Hudson, Gulfport, FL
Thomas Jager, Chicago, IL
Nick Jeurissen, Westville, IL
Jack Kucksdorf, Random Lake, WI
Clayton Lee, Smithville, MO
George Little, Middletown, MD
Jordan Lynch, Blair, NE
Ford Maurer, Mission Hills, KS
Robert & Melinda McElligott, Middletown, MO
Bruce Meador, Waukon, IA
Bob & Suzanne Oaks, Licking, MO
Jared Olsen, Cross Plains, WI
Kejia Pang, State College, PA
Sid Poor, Seneca, MO
Jim Sawtelle, Superior, CO
Dag Seagren, Miami, FL
Joe Sheals, Columbia, MO
Lauren Spaniol, Charleston, IL
Jason Sword, Forreston, IL
Todd Walters, St. Clair, MO
David Wesseler, Lorraine, KS
Garret Wilson, Mission, KS

Grant Funds Available for Small Research Projects

Walnut Council Foundation Report

At the March board meeting the Walnut Council Foundation voted to spend $2500 on special projects grants for the upcoming year. Applications are due from members, tree farmers, and researchers for small projects that will advance the science or application of growing hardwood trees. Any member is encouraged to apply. Program information and applications are available at: *https://www.walnutcouncil.org/wc-foundation/Research-Grants-Program.pdf* and should be submitted no later than July 1 for consideration at the annual meeting.

President Bob Burke also reported at the March board meeting that Scott Brundage will be stepping down as treasurer. The board thanked Scott for his efforts and Ken Konsis will be taking on the treasurer role from Scott.

The annual meeting silent auction and raffle proceeds support the Foundation and their research projects grants. Consider donating a silent auction item or buying a raffle ticket at the Dubuque meeting!

Northern Nut Growers Annual Conference

109th Annual Conference of the Northern Nut Growers Association will take place from August 5–8, 2018 at Le Baluchon Eco Resort, 3550 Chemin des Trembles, Saint-Paulin, Québec J0K 3G0, Canada (see https://www.baluchon.com/en/). The presentations will be in English, with translation available in French. A valid passport is required to enter Canada and return to the U.S. The expiration date should be March, 2019 or later.

A sample of the presentation topics are as follows: edible landscape design through permaculture; hazelnut production and marketing strategies; hazelnuts in cold climates; the American Chestnut in Canada and commercial Chinese chestnut growing; pawpaw for colder climates; disease resistance for butternut; conservation protocols for nut trees; the nutrition and health benefits of nuts; and John W. Hershey's nut tree planting in Pennsylvania. The full details of the NNGA Conference will soon be posted on the NNGA web site www.nutgrowing.org or contact Jerry Henkin at sproutnut@aol.com.

Above information provided by Sara Jean Peters, Missouri Nut Growers Association newsletter.

Walnut Council National Meeting

The Land Conservation Ethic

Grand Harbor Resort, Dubuque, Iowa • July 29- August 1, 2018

Co-hosted by the Iowa and Wisconsin Chapters

We hope you will join us for the Walnut Council 2018 Annual Meeting! We will be touring exceptional field tour sites and we think you'll be interested in the fine forestry we'll tour and discuss. Can't attend the entire event? Consider coming for a day or two, daily rates are available.

Overview

The meeting will kick-off on Sunday evening with a dessert reception, field tour previews, and a special presentation on Aldo Leopold's Land Ethic from the Aldo Leopold Foundation.

Monday we will tour field sites at the Bohlin End-O-Way property in southwestern Wisconsin where we will discuss invasive buckthorn management, native hardwoods management, EQIP, riparian buffers, and many other topics.

The rest of the week includes:

Monday evening: The popular Landowner Show and Tell gives you a chance to tell attendees about successes, lessons learned, new ideas, or whatever you'd like to share. Please call the office to request a time slot. For newcomers, we will have an alternate question and answer session where you can ask that "no dumb question."

Tuesday: Some of the topics in the indoor program on Tuesday will be seen at the Monday field tour, but now we will discuss in more detail. ID and management of invasive plants, restoring forests in a floodplain, and a forest health update are some of the many topics. Join forestry experts for a panel discussion where you can ask any questions. At the end of the day, we have a special showing of an Emmy award-winning documentary about Aldo Leopold, *Green Fire*.

Wednesday AM: Sessions will continue on chainsaw safety, the status of the wood industry, especially export markets, and what landowners are doing for bats, among others.

See the agenda on the next page for all the details.

Registration

The deadline for early registration is July 18th, although later registrations will be accepted with a late fee. Please register at your earliest convenience to assist us in planning. Full registration includes: Sunday dessert reception, field tour and breakfast (M) indoor sessions (T), or spouse tours (M,T), breaks and lunch (M,T), banquet (T), and meeting favor. Sunday and Monday dinner are on your own.

Those unable to attend the entire meeting may register for an individual day or days or for the banquet separately as shown on the registration form. To register, mail in the enclosed application with a check or register online with a credit card at *http://2018walnutcouncil.eventbrite.com*.

Confirmation/Cancellation Policy

Confirmations will be sent within two weeks of receiving registration until July 10th. After that date receipts will be available at registration. All cancellations and requests for refunds should be received by Friday, July 20th. A $20 per person administrative fee will be deducted from the total. Refunds may not be available after this date.

Sponsorships

Meeting sponsorships help keep registration costs down and can be an effective mode of advertising for individuals, organizations, and companies who promote the culture, growth, and utilization of high value hardwoods. Sponsors will be recognized by signage at the meeting and in the Walnut Council Bulletin or by a flyer in the registration packet. Contact Liz Jackson by phone at 765-583-3501 or by e-mail at jackson@purdue.edu. We'd be extremely grateful for your support.

More Information Or Questions?

Contact Liz Jackson, Executive Director, at 765-583-3501; jackson@purdue.edu or check us out on the Web at *www.walnutcouncil.org/annual-meeting.*

The Land Conservation Ethic • Agenda

Sunday, July 29

1:15 – 4 PM	Optional preconference tour: Agroforestry Practices for Profit and Wildlife Habitat, Steve Bertjens property
10 AM – Noon	Walnut Council Foundation Board Meeting (guests welcome)
1 – 4 PM	Walnut Council Board Meeting (guests welcome)
3:30 – 8:30	Registration, Exhibits and Silent Auction Opens
6:00 – 6:30	Meet and Greet Dessert Reception
6:30	Evening program: Opening and welcome
	Field trip preview and property history: Dan Bohlin, landowner
	Dendrochronology on the Bohlin property: Evan Larsen, UW Platteville
	Future of forestry and the Land Ethic: Buddy Huffaker, Aldo Leopold Foundation
8:45 – 9:30 PM	Hospitality room open

Monday, July 30

6:00 – 7:15 AM	Breakfast buffet
7:30 AM – 3:30	Tour of Bohlin property • *Native plantings & pollinators: Bertjens* • *Oak savanna and buckthorn management: Bohlin* • *Environmental Quality Incentives Program (EQIP) and erosion management: Schmelz* • *Walnut natural stand management: Hill*
	Lunch
	Maximizing quality in log processing: Wells
	NRCS topics: oak regeneration, BMP's for runoff, monarch butterfly habitat: Bertjens
	Riparian buffers: Bohlin
	Managing regeneration from a walnut mother tree: Nielsen
9:45 – 2:30	Spouses Tour: Sinsinawa Mound Center
4:00 – 6:00	Potosi Brewery and Transportation Museum tour
6:00 – 7:30	Dinner on your own
6:00 – 8:30	Silent auction and exhibits open
7:30 – 8:30	*Landowner Show and Tell or Newcomer discussion with a forester*
8:45 – 9:30 PM	Hospitality room open

Tuesday, July 31

6:30 – 8:15 AM	Breakfast on your own
8:30 – 4	Indoor program
8:30 – 9	*Managing your native woodlots:* Jesse Randall, Iowa State University
9 – 9:30	*NRCS programs for implementation of forestry practices:* Andy Hart, USDA-NRCS
9:30 – 10	*Black walnut soil suitability & USDA's web soil survey:* Jay C. Hayek, University of Illinois
9:45 – 2:30	Spouses Tour: National Mississippi River Museum & Aquarium and Stonecliff Winery
10 – 10:15	Break
10:15 – 10:45	*Identification and management of woodland invasive plants:* Christopher Evans, University of Illinois
10:45 – 11:45	Forestry panel discussion – bring your Q&A
11:45 – 1:00	Lunch
1:00 – 1:30	*Restoring forests in the upper Mississippi River floodplain: Challenges and opportunities:* Andy Meier, US Army Corp of Engineers
1:30 – 2	*Tree sapling responses to reed canarygrass treatments across four floodplain sites:* Maria DeLaundreau, M.S. student, Dept. of Forest Resources, University of Minnesota
2 – 2:30	*Forest health update:* Fredric Miller, Illinois forest health specialist
2:30 – 2:45	Break
2:45 – 4	*Green Fire: Aldo Leopold and a Land Ethic for Our Time*: **film viewing**
5:30 – 6:15	Social (cash bar), Silent auction and exhibits open
6:10	Silent auction ends (approximate, will be announced)
6:15	Annual Awards Banquet
	Entertainment – Hap Hazard band

Wednesday, August 1

6:30 – 7:45 AM	Breakfast on your own
8 – 10:30 AM	Presentations
8:00 – 8:30	*Chainsaw safety and woods worker (SAWW) training:* Jay C. Hayek, University of Illinois
8:30 – 9	*Forest industry topics: marketing/pricing/exports:* Scott Lyon, WI DNR
9 – 9:30	*Computerized lumber grading and quality:* Logan Wells, Purdue University
9:30 – 10	*HTIRC strategic directions:* Mark Coggeshall, US Forest Service
10:00 – 10:30	*What Midwestern forest landowners are doing for bats and why it matters:* Adam Janke, Iowa State University
10:30 – 11	Walnut Council business meeting
11 – Noon	State Chapter Reports, Door Prizes, & Closing remarks

Agenda subject to change. This program will be submitted for CFE credits from the Society of American Foresters.

Forestry Field Tour Highlights Driftless Region of Wisconsin

The Monday, July 30 tour of the Bohlin family **End-O-Way Farm (EOW) near Stitzer, Wisconsin** will give a great view of the Driftless Region of southwest Wisconsin and the beautiful timber growing there. At the time of the land survey and later arrival of European settlers, rich tall grass prairie and oak savanna dominated the landscape and fire periodically swept the area.

Over the course of almost 150 years EOW's ridgetops were fenced off and planted to crops. Domesticated animals – dairy and beef cows, horses, hogs and sheep – used the steeper slopes, narrow bottomland and oak savannas, unsuitable for the plow, as pasture.

When Dan's parents purchased the farm in 1971, dairy operations had already stopped. They rented the crop ground and pasture to a neighbor while concentrating on rehabilitating the farmstead to make it suitable for future retirement. With the long ago suppression of fire, numerous oaks – bur, white, red and black – as well as black walnut grew where grazing was less intense, i.e., farther from the farmstead.

After Dan and Jean took over EOW, even to their untrained eye, it was clear that erosion, overuse and abuse had taken their toll on the land. Grazing and annual ridgetop cropping have ceased; conservation projects control erosion and improve water quality; controlling invasive plants like honeysuckle and buckthorn never ends. Oaks and black walnut of all ages and sizes now proliferate.

This oak is one example from the oak savanna on the property, where researchers have analyzed growth rings to date the trees.

Bus transportation will be provided to this walking tour, and riding accommodations will be available for those who need assistance. Visitors will want to dress appropriately for hot, humid weather with appropriate footwear for field conditions. Lunch will be served onsite. In the morning, visitors will rotate through a group of four stations:

Station 1: Native plantings & pollinators
Speaker: Steven Bertjens, State Biologist, CRP Coordinator, USDA-NRCS
Native plant species that attract specific pollinators and butterflies will be discussed, as well as programs available to assist landowners with establishment of native plantings.

Station 2: Oak Savanna and Buckthorn Management
Speaker: Dan Bohlin, landowner
In 2000 Dan and Jean entered this overgrazed 14 acre woodland into an overall 80 acre Managed Forest Law (MFL) contract of 25-year duration with the state of Wisconsin. The WI DNR forester noted the understory was overrun with invasive shrubs – gooseberry, prickly ash and most noticeably buckthorn which was growing up to 30 feet into the oak canopy.

In early 2001 Dan burned some of the oak leaf litter to kill some thorny brush and top-killed numerous young buckthorn shrubs, and with an EQIP contract and two contractors, cut and treated with herbicide. Fire has become a regular management tool as the most cost effective way to control the invasive plant problem. As a bonus, fire helps regenerate native flowers absent for decades from the understory because of dense shade produced by the buckthorn. This site is also where the University of Wisconsin-Platteville undertook part of its oak tree ring study.

Station 3: Environmental Quality Incentives Program (EQIP) and erosion management
Speaker: Joe Schmelz, District Conservationist, NRCS

Joe will discuss this national EQIP cost-share program and how it can be used for many different forestry practices on your property. He will discuss how to enroll and how to determine eligibility. He will also talk about gully erosion, how it forms, and practices that will accelerate or prevent erosion.

Station 4: Walnut natural stand management

Speaker: Tom Hill, WI DNR district forester
While we often focus on labor intensive tree

Continued on page 10

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Spouse Tours Highlight Both Sides of the River

Monday, July 30: Explore Wisconsin

Spouses will board a bus to visit Sinsinawa Mound Center, one of many ministries of the Sinsinawa Dominican Sisters. The site includes 450 acres of lush woodlands, orchards, vineyards, fields, and gardens. Tours include a visit to the heritage and Mazzuchelli museums and Sinsinawa Art Gallery. In the museums, travel back to the 1800s and explore the Dominican Sisters' beginnings through "Tracing a Journey" and "Telling Our Story" exhibits.

No visit to Sinsinawa Mound Center is complete without a stop in Queen of the Rosary Chapel. The setting is tranquil, inspiring, and surrounded in simplicity by the mahogany pews, marble floors, and limestone altars. Visitors are awestruck with this architectural treasure and its unique circular shape, fluted ceiling, and the 37 diamond and half-diamond shaped stained glass windows.

There is a book and gift gallery, with fresh products from the on-site bakery. Indoor and outdoor labyrinths can be explored at your leisure. Annually, over 32,000 guests come to Sinsinawa to rest and retreat. Source: *https://www.sinsinawa.org/moundcenter/*

Photo credit Sinsinawa Mound Center

Queen of the Rosary chapel,

Tuesday, July 31: Explore Dubuque

The Tuesday tour will explore literally next door to the hotel at the National Mississippi River Museum & Aquarium. Take an informative, entertaining journey on the Mighty Mississippi: enjoy dynamic aquariums, historical exhibits, and a stroll through the wetlands and boatyard. Da Vinci The Exhibition is a hands-on examination of da Vinci's life, research and art. Featuring fully built, life-size inventions, fine art studies, and dozens of stunning displays, guests will learn the complex beginnings and lifetime achievements of

Photo credit National Mississippi River Museum and Aquarium.

This pair of river otters are some of the many animals at the aquarium.

da Vinci. After the museum tour, we will travel across the street to the Stonecliff Winery for lunch and an optional wine tasting. With the hotel right next door to both venues, you can tour at your leisure and return to your room to rest at your pleasure. See more at *https://www.rivermuseum.com/*

Please consider signing up for the spouse tours in advance so we can plan transportation and lunch, which are included. Spouse tours are included in full registration or can be reserved by the single day, see registration form.

Agroforestry Practices for Profit and Wildlife Habitat

Sunday July 29 Optional Pre-Conference Tour

On Sunday afternoon, attendees can join an optional free field tour. Carpool from the Grand Harbor Resort or meet directly at the Bertjens Tree Farm in Kieler, Wisconsin, at the corner of the highways H and HH intersections. The farm is an easy walk, but if needed folks can be shuttled.

Topics discussed will include hazelnut production, Christmas tree production, creating wildlife habitat for species requiring early successional woody habitat, and pollinator plantings as biocontrol of crop and tree pests. Owner Steve Bertjens is the state biologist with NRCS and will also be one of the featured speakers on the Monday tour.

Transportation is on your own, the property is 15 minutes north of the hotel. A confirmation with maps and specific details will be provided after registration, please note your interest on the registration form.

Forestry Field Tour *Continued from page 8*

plantings, those natural stands are valuable assets that can yield great rewards with some attention. Tom will discuss activities to improve the growth and quality of your natural stands.

After the morning talks we will have a break for lunch. After lunch, visitors can "go as they please" to visit on their own among five stations with experts available to describe the area and answer questions. All are relatively easy walks from the lunch stop. Transportation assistance will be available.

Station 5: Maximizing quality in harvest and processing of logs

Speaker: Logan Wells, Purdue University M.S. student

Logan will be running a portable sawmill throughout the afternoon and discussing the many defects and how to generate the highest quality possible during harvest and processing.

Station 6: Conservation topics: oak regeneration, monarch habitat, BMPs

Speaker: Steven Bertjens, State Biologist, CRP Coordinator, USDA-NRCS

USDA-NRCS conservation specialists will be available to discuss topics ranging from oak regeneration, monarch butterfly habitat and best management practices for controlling erosion in crop fields and woodlands and controlling runoff from adjacent farms. Bring your questions!

Station 7: Riparian buffers

Speaker: Dan Bohlin, landowner

Walking downhill from Station 6, you will encounter two riparian buffers. Both buffers are in areas too steep or eroded to plow and crop; thus, since settlement the area has been pasture. These buffers, protected from grazing, are intended to improve water quality. In EOW Farm's case they also helped generate income through NRCS programs.

The smaller (5 acre) and more upland buffer is in the Conservation Reserve Enhancement Program (CREP). EOW opted for the minimum number of trees, called "savanna spacing" – 100 tree seedlings/acre. The second, larger (24 acre) and more bottomland buffer was and still is part of a continuous-CRP sign up program.

Station 8: Walnut mother tree

Speaker: John Nielsen, consulting forester

All of us have those larger "mother" trees that are spreading their seeds across the property, leading to future walnut regeneration. We will discuss one of the EOW mother trees and how that regeneration can or cannot be controlled and how to manage the new trees.

Hotel and Travel Accommodations: Call and Reserve Your Room Today!

The meeting headquarters is the Grand Harbor Resort & Waterpark Hotel, 350 Bell Street, Dubuque, Iowa, call 563-690-3242 to reserve. Register by June 28th for the special "National Walnut Council" group rate of $99 per night ($129 Saturday). Breakfast (T and W) and the water park are an additional fee.

The Land Ethic of Aldo Leopold

Editor's note: Our national meeting will be not far from the Aldo Leopold property in southwestern Wisconsin, so this year's meeting theme is "The Land Conservation Ethic." We look forward to hearing more about Aldo Leopold and his writings during a Sunday keynote and Tuesday film showing at the meeting in late July.

Published in 1949 as the finale to his book *A Sand County Almanac,* Aldo Leopold's "Land Ethic" essay is a call for moral responsibility to the natural world. At its core, the idea of a land ethic is simply caring: about people, about land, and about strengthening the relationships between them.

What is a Land Ethic?

Ethics direct all members of a community to treat one another with respect for the mutual benefit of all. A land ethic expands the definition of "community" to include not only humans, but all of the other parts of the Earth, as well: soils, waters, plants, and animals, or what Leopold called "the land."

In Leopold's vision of a land ethic, the relationships between people and land are intertwined: care for people cannot be separated from care for the land. A land ethic is a moral code of conduct that grows out of these interconnected caring relationships.

Leopold did not define the land ethic with a litany of rights and wrongs in *A Sand County Almanac*. Instead, he presented it as a set of values that naturally grew out of his lifetime of experiences in the outdoors. Leopold wrote that "we can only be ethical in relation to something we can see, understand, feel, love, or otherwise have faith in."

He believed that direct contact with the natural world was crucial in shaping our ability to extend our ethics beyond our own self-interest. He hoped his essays would inspire others to embark or continue on a similar lifelong journey of outdoor exploration, developing an ethic of care that would grow out of their own close personal connection to nature.

Learn more about Aldo Leopold, his Land Ethic, and his writings at *https://www.aldoleopold.org/.*

(Source: Aldo Leopold Foundation website: *https://www.aldoleopold.org/about/the-land-ethic/)*

2018 Walnut Council Annual Meeting Registration

July 29-August 1 • Grand Harbor Resort, Dubuque, Iowa

Please register by July 18 if possible. Late registrations will be accepted with a late fee.

Complete this form or register online at *http://2018walnutcouncil.eventbrite.com*.

Name(s): _____

Please include first and last names of all that will be attending for nametags.

Address: _____

City: _____ State: _____Zip: _____

Phone:_____ E-mail: _____

Please list any dietary needs or physical accommodations requests:_____

_____ Check here if you do **not** want your name & contact info in the registrant listing to be shared with attendees.

Full Registration Only

Full registration includes: Sunday dessert reception, breakfast and field tour (M), indoor sessions, spouse tours (M,T), breaks and lunch (M,T), banquet (T), and meeting favor. Sunday and Monday dinner, Tuesday and Wednesday breakfast are on your own.

Number of Full Registrations: _____@ **$175 each** $_____

_____ Enter number going on Monday field tour Enter number going on Monday spouse tour

_____ Enter number going on Tuesday spouse tour

Children (16 and under): _____@ $50 each or $70 with banquet $_____

Name(s) of Children: _____

Late Registration Fee, after July 18: ____@ $40 extra $_____

Daily and Other Registrations

Daily registration includes Sunday: dessert reception, indoor session; Monday: transportation, field tour, lunch, evening program; Tuesday: indoor session, breaks, lunch, excluding Tuesday's banquet. Tickets must be purchased separately for the banquet; Wednesday: morning session.

_____ Sunday @ $30 Monday @ $65; Tuesday @ $65; Wednesday @ $30;

_____ Spouse Tour (only) $50 Monday (transportation & lunch included) $_____

_____ Spouse Tour (only) $50 Tuesday (transportation & lunch included) $_____

Extra banquet tickets (Tuesday, PM)_____ @ $45 (children $20) $_____

Total **$**_____

(See reverse for hotel reservation and further meeting information)

_____ Check if you are attending your first national meeting of the Walnut Council.

Please mark the optional events you plan on attending so we can plan:

_____ Yes, I/we plan on attending the free Sunday (7/29) pre-conference tour of the Bertjens property in Kieler, Wisconsin from 1:15- 4:00 PM. Transportation is on your own, the property is approximately 15 minutes north of the hotel. Directions will be provided in advance.

_____ I am interested in providing a brief talk (5-15 minutes) for the Monday (7/30) evening Landowner show and tell.

_____ We are willing to help financially sponsor some aspect of the meeting – please call 765-583-3501.

_____ Call me about submitting brochures or handouts for registration packets or having an exhibit table at the meeting room..

Hotel Information

Deadline for Room Reservations at group discount rate is June 28th.

The meeting headquarters is the Grand Harbor Resort & Waterpark Hotel, 350 Bell Street, Dubuque, Iowa, call 563-690-3242 to reserve.

Register by June 28th for the special “National Walnut Council” group rate of $99 per night ($129 Saturday). Breakfast (T and W) and the water park are an additional fee.

Register online at http://2018walnutcouncil.eventbrite.com
or send this registration form and check to:

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Volume 45, Number 1 ISSN 1041-5769 May 2018

Evidence Mounts That Monsanto's Dicamba Is Killing Trees, Too

By Dan Nosowitz

Originally published on ModernFarmer.com on October 13, 2017; written by Dan Nosowitz and reprinted with permission.

The pesticide dicamba, and the genetically modified seed that resists it, is Monsanto's biggest product launch ever, but it's been anything but smooth.

Sold under the brand name XtendiMax (when sold by Monsanto) and Engenia (when sold by German chemical manufacturer BASF), dicamba has shown a tendency to drift from one farm to the next. It's already been blamed for killing millions of acres of farmland (and even a murder) but what happens when it drifts away from farmland and into, say, forestland?

Dicamba is highly toxic to broad-leaf plants, which would normally include soybeans and cotton. For the farmers who have bought into the dicamba system and plant GMO dicamba-resistant seed, that's not a problem, but when it drifts onto other crops, it can cause stunting and other issues.

The effects of dicamba on crops have been well-reported. But now there's evidence that dicamba drift is hurting another plant: trees.

Johnathan Hettinger of the Midwest Center for Investigative Reporting has a new report *(http://investigatemidwest.org/2017/10/09/complaints-surge-about-weed-killer-dicambas-damage-to-oak-trees/)* detailing how dicamba is damaging oak trees in Iowa, Illinois, and Tennessee.

Earlier this year, reports began to surface that dicamba drift had caused telltale curling and cupping of the leaves—a common effect of dicamba—on groves of oak trees, some of which are hundreds of years old. Emails obtained by Hettinger thanks to the Freedom of Information Act show that Monsanto was aware of the issue.

In response, Monsanto has repeated their familiar refrain that when applied properly, dicamba can be safe. "Growers and applicators should always be aware of what crops are around fields before spraying," wrote Charla Lord, a Monsanto spokesperson. Lord also noted that Monsanto's dicamba products underwent extensive testing prior to hitting the market. "Applicators must follow all product labeling and any local requirements before spraying," Lord wrote. But this isn't as easy as it sounds; the directions are incredibly difficult to follow.

"Dicamba is absorbed through the roots of woody plants and can severely injure or kill ornamentals if applied within their root zone," according to a paper from a plant pathologist about diagnosing pesticide impacts on trees.

Way back in 1994, an article from the Journal of Pesticide Reform noted that "Researchers studying red oak tree regeneration following clear-cutting of Pennsylvania forests documented that applications of dicamba reduced germination of oak seedlings. The effects of dicamba on germination of seeds from other trees or from herbaceous plants do not appear to be well studied."

The distinctive cupped withering of the leaves is a dead giveaway of dicamba poisoning, but officials have conducted tests to be sure. In Tennessee, cypress and oak trees at the state's largest lake were confirmed by the state Department of Agriculture to have been harmed by dicamba drift.

Officials expect those trees to recover, but there's not much research on the effects of long-term exposure.

Symptoms of Hormonal (Growth Regulator) Herbicides Damage

(2,4- D, 2,4-DP, MCPP, dicamba, picloram.)

Symptoms are most pronounced on new growth. Leaf distortion including cupping, curling, abnormal elongation of leaf margins and parallel leaf venation are key symptoms. Current year's shoots may be twisted and flattened rather than round or angular. Leaf necrosis, dieback and mortality may be evident in severe instances especially with dicamba and picloram. Late spring frosts may cause leaf and twig distortions similar to injury by growth-regulator herbicides. *(Source: Oregon State University Extension)*

Herbicide damage on an Oak leaf.

State Chapter Reports

Iowa Chapter Report

Cindy Heisdorffer, President

The Iowa chapter has two field days set up for the year, in April and October. The April included a landscaping business and a farm planted in the 80's that has been heavily managed and the new owners are working with state foresters to continue the work. The October day will include a business that sells gunstock blanks, bowl squares, carving and turning blanks, and special cuttings, and will also include a trip to a nearby public land that has some magnificent black walnut.

Bill Schneeberger passed away on February 16th. The family has said any memorials could be donations to the Walnut Council. A newsletter was published in January. The Facebook page is fairly dormant – it was receiving virtually no response except from friends and family. I still post activities, but I'm not sure where to go with it.

The Iowa chapter is looking forward to hosting everyone in Dubuque this year, and volunteers and meeting sponsors would be encouraged and appreciated.

Missouri Chapter Report

Bob Ball, President

Fall Event: Friday, October 5th and Saturday, October 6th are the dates of our fall event that will be held in Southeast Missouri between Cape Girardeau and Poplar Bluff. We are tentatively looking at the management and harvesting of white oak in the Poplar Bluff area then switching to black walnut management around Cape Girardeau.

Other Activities: The chapter has just received a $1,000 grant from the Conservation Federation of Missouri to develop a brochure on the "Missouri Black Walnut Initiative" and then distribute that publication to 1000 woodland landowners during the coming year.

We have a Facebook page for our chapter. Southeast Regional Landowner Representative, Wendy Akers, developed our page. She has been coordinating our efforts with Liz Jackson.

Wendy is also the chair of our Membership Committee that is responsible for implementing our Membership Strategy.

We are making good use of our new chapter display. It has been used at several large events giving Walnut Council exposure to several hundred potential members. This past Saturday, it was used at a "Woodland Workshop" near Troy, Missouri. Over 160 woodland landowners attended.

We are represented on the Missouri Invasive Plant Task Force by our Chair of the Advocacy Committee. We are optimistic about the commitment by government agencies and concerned conservation groups like Walnut Council in tackling this enormous issue.

Advocacy Committee: Several topics of interest have been isolated by our Advocacy Committee, chaired by Jim Ball. A letter was sent from both the Missouri Walnut Council and the Missouri Tree Farm System to all members of the Missouri congressional delegation seeking their support to modify language in the Farm Bill, and especially with the Conservation Reserve Program (CRP) that elevates the status of trees making trees more competitive with grasses and wildlife habitat.

Forests in the Farm Bill

The Forests in the Farm Bill Coalition helps build broad forest and conservation support for forest priorities in the Farm Bill. The Coalition, which has been in existence for more than 15 years, includes more than 90 forest and conservation groups representing all aspects of the forest sector, including forest owners, conservationists, hunters, anglers, forest industry and natural resource professionals. It is co-chaired by the American Forest Foundation, National Association of State Foresters, National Wild Turkey Federation, and The Nature Conservancy.

The next Farm Bill is now in progress through Congress, and as of April 24, 2018 the bill had passed out of the House Agriculture Committee and was due for a vote on the House floor sometime in May. At the time of this writing, many of the Coalition forestry and conservation recommendations were supported and had promising outcomes. If you are interested in learning more about the coalition and following the progress of the farm bill and impact on forestry, see the website *https://www.forestfoundation.org/forests-in-the-farm-bill.*

Dennis Potter showing a soil core from the site to Doug Wallace, Harlan Palm and Jim Potter.

Missouri Black Walnut Initiative: New Demonstration Site

By Bob Ball, President, Missouri Chapter

Missouri Walnut Council has been granted limited access to 3.5 acres of idle cropland on the Hillebrand Farm LLC in Lafayette County, Missouri, to demonstrate practices for growing black walnut. On April 18th chapter leaders, Harlan Palm, Doug Wallace, and Bob Ball joined Dennis and Jim Potter at the farm to view the site and identify needed practices. This farm is Bonnie (Hillebrand) Potter's family farm. Dennis is a Past President of the chapter, and together they actively support the chapter's mission of "encouraging the management of privately owned forest resources in Missouri."

This idle cropland was in CRP planted to warm season grasses, but natural hardwood regeneration is taking place. The loess soils are well suited to black walnut and there is a healthy population of young trees to work with already. Some planting will be needed.

The chapter is promoting the planting and management of black walnut through this Initiative using a brochure, workshops and outreach to landowners with sites like the Hillebrand Farm LLC demonstration area. Our members and guests will now be able to observe and work side by side with experts performing the practices essential to growing quality fine hardwoods.

Managing the Foodscape to Alleviate Deer Browsing

US Forest Service Research Highlight

Forest plant biodiversity is being degraded by browsing from overabundant deer herds, but forest management can alleviate impacts. Research by US Forest Service Northern Research Station scientists and partners has expanded understanding of how forage availability throughout the landscape, or the "foodscape," influences browsing to provide guidelines forest managers can use to reduce browse impacts.

Browsing by deer can degrade forest diversity, impede sustainable management, and threaten forest health across millions of acres of public and private forests in the United States. Although managing browse impacts is daunting, deer behavior, including browsing, is shaped by the risks and rewards deer experience throughout their home range, including the quantity and quality of forage. Northern Research Station scientists and partners are improving understanding of how forage availability throughout the landscape, or the "foodscape," influences browsing and are developing guidelines managers can use to reduce browse impacts.

Researchers measured browse impact to plant diversity in 23 forests in Pennsylvania. For each area, they characterized the foodscape in the surrounding square mile focusing on the abundance of forage-rich and forage-poor habitats. The study found strong signals that foodscapes altered browsing. Specifically, in foodscapes with abundant forage-rich, early-successional habitat, often created by forestry, browse impact waned and ultimately disappeared. Conversely, in forage-poor foodscapes browse impact intensified. Our results are significant to a region where deer browsing can depreciate stand values by approximately $1100/acre and degrade habitat quality for other values, including wildlife and recreation. These findings reveal that by improving foodscapes, forestry can provide complementary benefits to wildlife, biodiversity, and sustainable management.

Citation: Royo, Alejandro A.; Kramer, David W.; Miller, Karl V.; Nibbelink, Nathan P.; Stout, Susan L. 2017. Spatio-temporal variation in foodscapes modifies deer browsing impact on vegetation. Landscape Ecology. 32(12): 2281-2295. https://doi.org/10.1007/s10980-017-0568-x.

Propagating Figured Black Walnut – Can it be Done?

Figured wood from hardwood trees, depending on appearance and consistency, can attract impressive values for specialty veneer, furniture, or even musical instrument construction. Flame, curly, quilted, and birdseye are a few of the figure patterns that may occur in a variety of hardwood trees. Figured grain patterns occurring in walnut include “fiddle-back” or “curly” grain, depending on the number of horizontal lines visible in the grain of the finished wood.

The occurrence of figured walnut in nature is rare and unpredictable. This has led to interest in propagating trees from parent trees with excellent figure. The crucial question is will propagated trees have the same desirable characteristics as the original. A complicating factor is the intensity and distribution of figure controls the potential value in the market. Very light figure or figure that is not evenly distributed in a log may be regarded as a defect or undesirable, as compared to strong figure distributed evenly throughout the log. Figure in the tree to be propagated must be reproduced true-to-form from rooted cuttings or grafts if clonal propagation is used. If tree breeding is used to reproduce the plants, the figure must be related to a trait that is genetic and heritable, allowing transfer from parents to offspring.

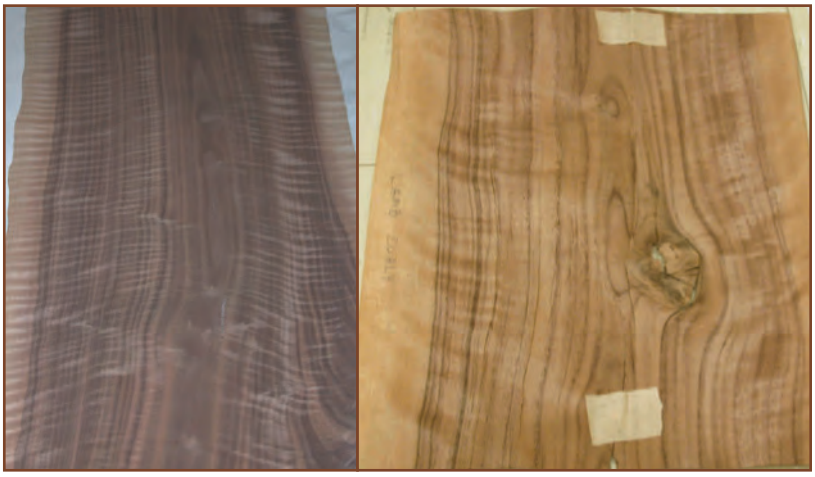


Figure 1. Examples of figured grain types in black walnut. A fiddleback sample from a wild tree in Iowa exemplifies the type of commercially valuable figured grain black walnut clones have been selected for and that are desired to reproduce (left). A curly sample from a relatively young grafted ‘Lamb’ tree from Kentucky (right).

In a cooperative study involving James McKenna and Keith Woeste from the Hardwood Tree Improvement & Regeneration Center (HTIRC), Wayne Geyer from Kansas State University, and Dan Cassens from Purdue University, logs from grafted trees derived from several highly figured wild trees, and seedling walnuts that are the product of open pollinated seedlings from grafted parent trees with commercially valuable figure, were evaluated for the presence of figured wood. To evaluate walnut offspring of these figured trees for figured grain, seedlings need to be grown for several decades to allow their figured grain to express, and trees must be harvested so stem segments can be split to evaluate grain patterns. If heritability is low, another round of breeding and selection would be required to increase the percentage of figured seedlings and to reduce variation among seedlings. Environmental and cultural factors that affect expression of figured grain also need to be determined and accommodated if breeding is to succeed.

In the early 20th century, George Lamb, a veneer buyer of figured walnut and mahogany, found a highly figured curly walnut harvested in January 1926 near the town of Ada, Michigan. Lamb obtained scion wood, and distributed it to nurserymen and members of the Northern Nut Growers Association (NNGA) to graft and preserve, and suggested that figured walnut could be propagated asexually through grafts or sexually from seed. Lamb stated that the veneer from this tree was valued at $9094 in 1926 US dollars, which would be about $100,000 today. Soon after, the tree became known as “Lamb’s Curly”. The staggering value of this tree, and George Lamb’s association with NNGA members eager to grow valuable figured walnut wood, began the research that continues today.

Since the discovery of the curly “Lamb” walnut, tree improvement specialists around the Central Hardwood region of the US have collected and grown trees from scion wood originating from other highly figured walnut trees. In the 1970s, Dr. Loy Shreve of the Kansas Forest Service obtained scion wood from eight highly figured walnut trees. More recently, the HTIRC of the USDA Forest Service, Northern Research Station, established clone banks (plantations that preserve genetic lines or families) and seed orchards of these and 16 other figured walnut clones as part of a breeding program aimed to develop, improve, and regionally adapt fine hardwood planting stock for the Central Hardwood region. The research project presents the results from milling logs of three grafted figured walnut clones planted more than 30 years ago in a seed orchard in Kansas to determine if figured grain can be propagated true-to-type through grafting. We also examine 10-year-old open-pollinated

"Lamb" seedlings that were grown in a black walnut plantation in Indiana for figured grain.

To ensure that the correct clones were sampled, DNA genotypes were determined. Leaves were collected in 2005 from the Kansas and Indiana orchards, and DNA was extracted to verify genotypes. Cross-sections of each log were collected at the time of harvest, dried and sanded, and growth rings were counted to age each tree and determine the percentage of heartwood and sapwood. Logs were milled into four-quarter lumber on a portable sawmill, stacked, and air-dried for two months, then surface-planed, and boards were visually inspected for figured grain. Ten half-sibling (same mother tree but unknown father) open-pollinated seedlings from a grafted "Lamb" walnut were harvested after 10 years of growth in a black walnut progeny test at the Lugar Farm, Purdue University, West Lafayette, Indiana, in 2010. The basal 18 inches of each trunk was split with a hatchet (split-test) to determine the presence or absence of figured wood.

How often commercially valuable figured grain occurs in natural stands of walnut is difficult to estimate. Discussions with wood products representatives indicate that only 1/500 to 1/1000 walnut trees may exhibit valuable figure. The fact that we observed some figure in one of nine logs may indicate a real genetic component for figure in walnut, but the expressivity and penetrance of the trait is low. The little figure expressed in our study suggests that environmental (Genetic × Environment) factors, which we do not yet understand, are critical for figure to develop consistently throughout a walnut log.

Figure 2. Close-up of the figure found in one log of "Harold Davis #2".

Prior to the present study, we harvested and milled two grafted "Lamb" trees in Indiana (data not shown). One tree had no figured grain at all, and the other tree had a little figure in a portion of the bole much like the "Harold Davis #2" log in Figure 2. The veneer sample from a grafted "Lamb" in Figure 1 shows curly figure, but the commercial value of this sample is questionable. Decades ago, a sample with better curly figure from a single grafted 12-year-old "Lamb" tree was brought to the NNGA annual meeting and photographed. These few examples and the figure we observed in the present study are the only documented cases of figured walnut having been propagated by grafting.

One explanation for the low expression of figure in grafted trees could have to do with alterations in the physiology of grafted trees. The root system from the parent stock may be important in the hormone balance responsible for figured grain formation in the stem. The plant hormone auxin, synthesized in shoot tips, affects the orientation of microfibrils of cell walls and cell expansion. Cytokinin, a second plant hormone involved in cell division and differentiation, is synthesized in root tips and travels upward to the shoot system. Changes in the ratio of auxin and cytokinin can affect plant development processes. A distinct auxin and cytokinin ratio could be necessary for figure to develop, and grafting could disrupt that ratio and lower the expression of figured wood development.

Breeding

Growth, lumber, and wood grain characteristics of the three clones harvested from the Kansas State Forest Service Milford Reservoir walnut seed orchard in 2006.

Log Clone	Age [A]	Sapwood Rings	DBH (inches)	Log Length (ft)	Volume (bdf) [B]	Heartwood % [C] Grain [E]	Figured
1 Osage Co. #1	26	11	11.5	9	32	56	No
2 Osage Co. #1	30	12	15.4	7	57	63	No
3 Osage Co. #1	27	13	10.5	8	27	45	No
Avg.	28	12	12.5	37	55*[D]		
1 Harold Davis #2	25	8	9.5	9	17	69	Yes [F]
2 Harold Davis #2	29	12	12.3	8	34	83	No
3 Harold Davis #2	24	10	9.6	7	14	79	No
Avg.	26	10	10.5	22	77*		
1 Pfeister	28	10	14.8	6	44	70	No
2 Pfeister	33	14	14.4	5	34	73	No
3 Pfeister	29	11	9.6	8	16	71	No
Avg.	30	12	12.9	31	72*		

[A] Total growth rings from cross-sections at 3 to 5 inches above graft union. [B] (bdf) is volume in board feet by the Doyle Log Rule. [C] Heartwood content was calculated by dividing heartwood diameter by total diameter × 100. [D] Differences in heartwood content were significant by one-way ANOVA at P ≤ 0.02. [E] Visual observation of dried and planed lumber for presence or absence of figured grain. [F] Some figure was observed on this log of "Harold Davis #2"

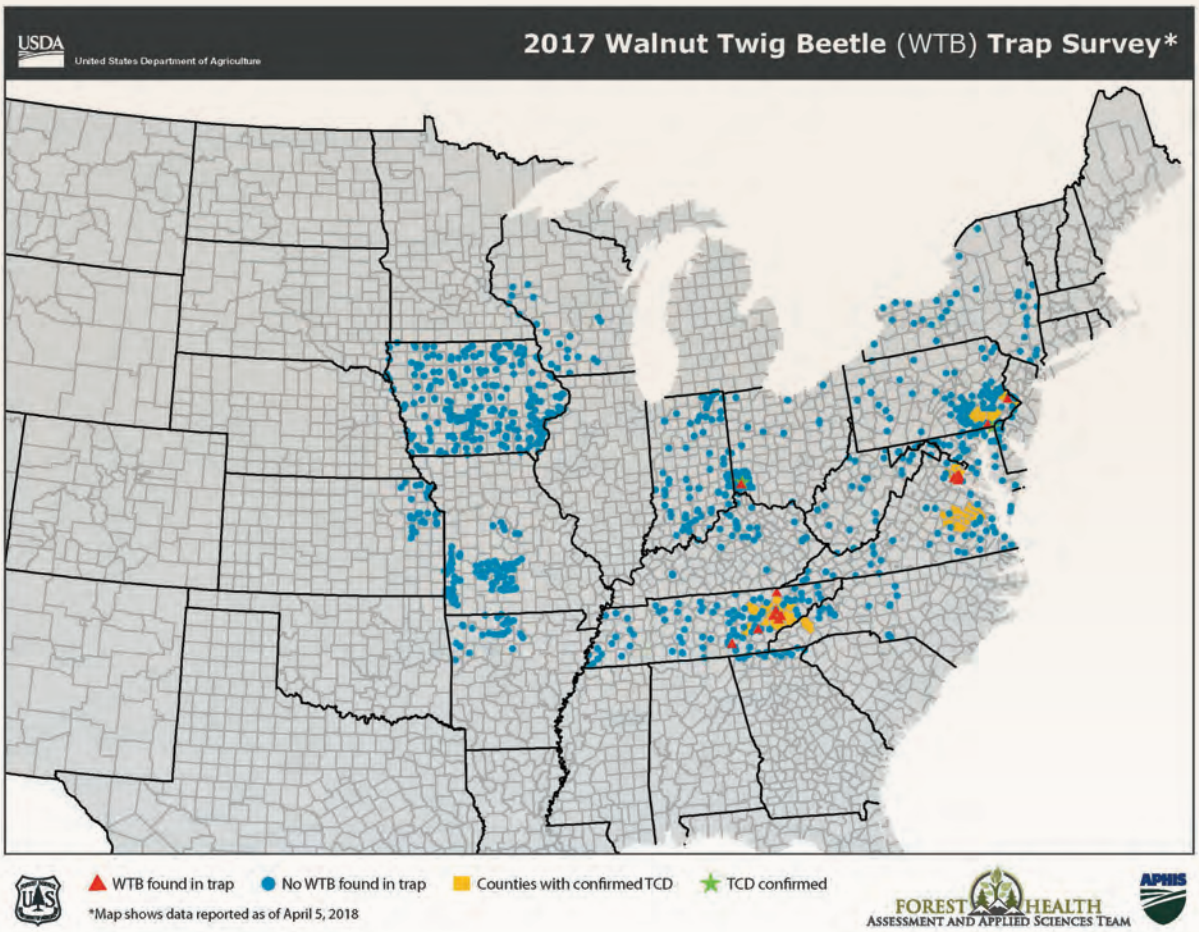
Continued on page 18

Propagating Figured Black Walnut *Continued from page 17*

seedlings may avoid physiological differences between root and shoot systems and produce more widely available planting stock; however, the type of genes and genetic mechanism of figure in walnut remains to be determined. Unlike grafted walnut, seedlings have not been reported to produce figure. Walnut tends to outcross at least 90% of the time, and although selfed (self-pollinated) progeny occur and grow, they have been found to suffer slower growth and reduced survival. Some research indicates figured trees often have slow growth and reduced vigor; thus, figure in walnut may be controlled by recessive genes. Our results with open-pollinated seedlings support this hypothesis. Indeed, if the genes for figure in walnut are recessive, only selfed families and figured x figured crosses would be expected to show figured grain.

In this study, evaluation of lumber from three grafted figured walnut clones grown for nearly 30 years in a seed orchard did not propagate commercially valuable figured grain; only one of nine logs showed a small amount of figure. The fact that some figured grain was expressed indicates that the trait may have some genetic component in walnut, but the genetic mechanism is not known. Plantings of seedlings from isolated seed orchards containing these figured clones and others have been established in Indiana to investigate the role that root systems, figured × figured crosses, and selfing have on figured grain expression. In the meantime, landowners, foresters, and nurseries are cautioned that figured black walnut planting stock has not been demonstrated to propagate commercially valuable figured walnut lumber.

The USDA-Forest Service Northern Research Station and the Kansas State Forest Service and the Department of Forestry & Natural resources at Purdue University provided staff and support to conduct this study.This article is derived from the publication *Propagating Figured Wood in Black Walnut* published in the *Open Journal of Forestry, 2015 vol 5, pages 518-525.*



This map shows the locations of all traps for Walnut Twig Beetle for 2017, along with the locations of any found Walnut Twig beetles (red triangles). Blue circles represent a trap with no presence of beetles.

Volume 45, Number 1 ISSN 1041-5769 May 2018

EAB and Ash Trees: Treat or Cut Down?

By Fredric Miller

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The exotic invasive emerald ash borer is located throughout the Midwest, and it's already leaving its mark. Now, let's talk about some management options to protect your ash resource.

Based on published research, there are five common recognized EAB management strategies:

1. Remove all dying ash trees.
2. Proactively remove all ash trees over time to reduce annual cost.
3. Protect only legacy ash trees, or those healthy trees of historical or significant landscape value.
4. Protect a substantial portion (less than 50%) of healthy ash trees.
5 Protect most (more than 50%) of healthy ash trees.

All of these approaches come with pluses and minuses, but remember, EAB will eventually kill your ash tree if it is not chemically protected.

The first two tactics are pretty clear. You will incur costs over a compressed time frame. Management tactics 3, 4 and 5 require more planning and decision-making. The important thing is to select the practice that works best for you and your ash resource.

University research studies have shown that insecticides can be effective in protecting trees from EAB, and no, you do not need to treat the tree for its entire life.

The most common recommended products include the active ingredients of imidacloprid, dinotefuran and emamectin benzoate, and all are systemic. Imidacloprid and dinotefuran are neonicotinoid class insecticides and must be applied annually. They can be applied either as a soil drench, soil injection, trunk injection and/or basal trunk spray, depending on the product and label requirements. They have been shown to effectively protect trees up to 15 inches in diameter at breast height. For trees larger than that, it is recommended to have a professional treat your tree.

For larger trees, a trunk injection of Tree-Age (emamectin benzoate), which is a restricted product and must be applied by a licensed pesticide applicator, has shown to be highly effective. Also, a higher rate of imidacloprid applied by a commercial arborist can be effective. Soil injection or drench treatments can be applied from April to June or from September to November (spring applications seem to work better). Trunk injections can be conducted from May to August. One advantage of using Tree-Age is that it's effective for two years, so you only need to treat your tree every third year.

But for how long?

A major concern people have is how long they will have to treat the tree. Studies in Michigan, Indiana and Ohio show it takes about 10 years for the EAB "wave" to pass through an area. In other words, the time from when EAB is detected until populations begin to decline to low levels is about a decade. Yes, a decade is a long time. Consider all the services your ash tree provides versus the cost of removal and replacement — we're talking about shade, windbreaks, wildlife habitat, interception of rainfall and aesthetics.

Now it is time to do a little math. Considering the cost of $40 to $50 per year to purchase and apply a homeowner product for a medium-sized tree compared to paying $600 to $1,000 to have that same tree removed and replaced, you could treat your tree for at least 12 to 15 years, well beyond the 10-year EAB wave. In addition, you have preserved and protected the aforementioned services that would take three to four decades to recover.

For larger trees, professionals quote treatment rates with Tree-Age at $8 to $10 per inch of diameter, so the cost for a 20-inch-diameter ash tree at $8 per inch is $160, and is good for two years. Treating your tree five times over a 10-year period would be $800, on the low end — about the same cost for removal and replanting.

Like any investment, you must look at the condition of the tree. Is it structurally sound, does it have good growth form, is it an asset to your property, and of course, is it worth the investment? If not, then removal and replacement might be the appropriate decision. Only you can make that decision.

Presently, insecticide is the only effective option for protecting ash trees. Biological control of EAB and the development of tolerant or resistant ash trees are being researched, but are years away. So before you start that chain saw, step back and look at your tree(s), do a little math, and consult with a certified arborist. Once you cut down a tree, there is no going back.

For additional information on insecticide products, whether to treat or not to treat, and trees for replanting, consult with your local Extension office, certified arborist or The Morton Arboretum.

Miller is a horticulture professor at Joliet Junior College and a senior research scientist in entomology at The Morton Arboretum in Lisle, Ill.

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