

# green horizons

Growing tomorrow's future today.

FALL 2020

A newsletter from the Center for Agroforestry in conjunction with the Forest and Woodland Association of Missouri <http://www.centerforagroforestry.org/pubs/newsletters.php>

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Editors: Mike Gold, Hank Stelzer, Hannah Hemmelgarn, and Raelin Kronenberg

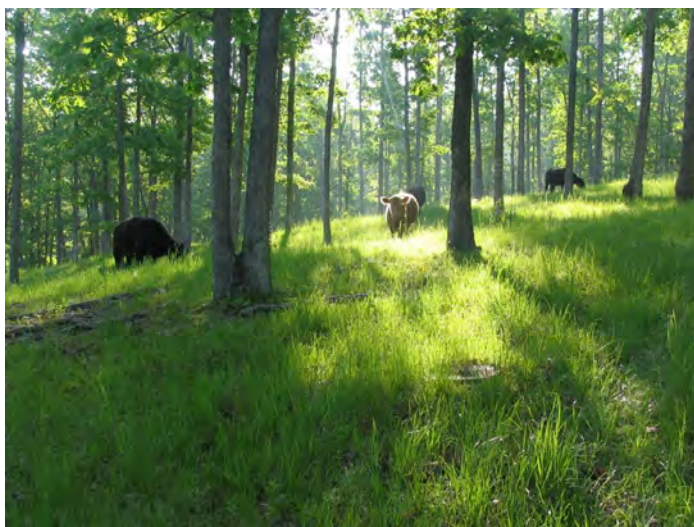
## Silvopasture in Missouri:

### Investigating the potential of woodland grazing systems

Ashley Conway, Ph.D., Research Assistant Professor, Silvopasture, Center for Agroforestry

Silvopasture, the intentional, designed integration of livestock with trees and forage or crops using managed intensive grazing, is one of the oldest agricultural systems in the world. Most farmers and ranchers today have adapted to modern markets by producing food in a very specialized manner, with limited or no integration between different agricultural products. At University of Missouri Center for Agroforestry, our silvopasture research aims to shift this paradigm to explore practical, productive, and profitable ways to re-integrate livestock with the natural landscape while increasing biodiversity in spaces that have been used exclusively for grazing.

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Harwood Silvopasture – Livestock Grazing in Thinned Native Oak Stand – Wurdack Research Center, Cook Station, Missouri.  
Photo credit. Dusty Walter.

## Remembering Scott Brundage



"A champion of managed forests"

Dusty Walter, CAFNR AES  
Natural Resource Management

On August 8, 2020, Mr. R. Scott Brundage passed away at the age of 84. With Scott's passing, forestry has lost a strong champion. His voice will be missed, but his legacy will continue wherever and whenever forestry is practiced.

In the mid 1990s, like many other past forestry students attending the University of Missouri, I found myself taken under the wing of Scott Brundage. At the time, I had no idea how long our friendship would continue, how many laughs we'd share, or the direction and paths that he would enable me to travel.

Scott believed that forests could make money. When I met him, he was president of the Missouri Consulting Foresters Association and had a Christmas Tree Farm. Initially, that was all I knew of the man. However, he had a strong work ethic and a desire to mentor others. He soon invited me to work for him, both on consulting jobs and shearing Christmas trees. In Scott, I found a teacher outside the classroom – one who put into practice what I was being taught and did so in a way that, yes, was ecologically sound, was good for forest health, enhanced the land for wildlife, and always applied to make economic sense! From planting thousands of trees, to management across thousands of acres, and overseeing the final harvest, Scott had done it all – forestry was in his blood!

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Participate in Research! Pg. 11

Despite considerable interest in silvopasture, the demand for recommendations on how best to implement these systems regionally has outpaced the available information. Silvopasture is a flexible and versatile practice, but this means that local practices for one geographical area may not be well suited for other areas. Therefore, regionally-specific research is needed to inform management recommendations for local producers interested in knowing how they can build a functional silvopasture on their land with the best plant species.

Additionally, the majority of available silvopasture research has looked at establishing timber, specialty crop, or biomass trees into existing pastures to provide shade for the livestock and an additional stream of revenue for producers. This type of silvopasture may not work for every situation, and there are a number of people who are interested in learning how to make use of existing naturally wooded areas on their property in a responsible and ecologically sound manner. However, there are risks to grazing cattle in woodlands, and the best recommended practice at the moment is to exclude livestock entirely.



*Pine Silvopasture System. Photo Credit Olga Romanova*

This summer, researchers at UMCA, in collaboration with the Missouri Forage and Grasslands Council and other departments across MU, received a \$249,731 Research and Education grant from USDA Sustainable Agriculture Research and Education (SARE) North

Central. This grant, titled “Investigating the Potential of Woodland Silvopasture Systems: Prevalence, Practices, Perceptions and Performance,” will fund work over the next three years to address this growing area of interest among producers in the temperate Midwest.

The primary goals of this project aim to address major questions about the current level of silvopasture practice among Missouri producers, what producers feel the biggest barriers to adopting silvopasture are, and what the ecological and economic impacts of establishing a woodland silvopasture might be for our temperate region. Specifically, the project will:

- Evaluate current livestock grazing practices in wooded areas, perceptions of silvopasture, and potential for adoption among livestock owners.
- Utilize information gathered from the survey to develop a peer-learning network (PLN) among livestock producers in Missouri
- Evaluate a designated research site for baseline ecosystem measurements prior to silvopasture conversion, and monitor metrics for three years during the conversion process.
- Evaluate the economic costs of converting woodland silvopasture and estimate the value of the forage produced.

Over the course of this project, we hope to learn more about what livestock producers in Missouri need to improve the long-term sustainability of their land and their operation and investigate if woodland silvopasture is a viable option here to help reach these goals.

Scott was a founding member of the Missouri Consulting Foresters Association. He also served as president for many years. He always supported managed forests, and management by a professional. He believed that every forest acre should have a plan! And, that if it costs money, it should make you money! Recently I shared some memories of Scott with Mr. Fred Crouse, and he summed up one of Scott's philosophies in this way: "The way a forest was managed should make you a dollar, and allow you to keep as much of that dollar as possible." To that end, Scott wrote many articles – for the Walnut Council and handouts for landowners. A few of those titles include: Evaluating White Oak Logs; Selling Timber on the Shares: a good or Bad Deal, and for Whom?; When to Prune Black Walnut Trees; Grapevines – Another Reason to Hate Them. And, he wrote one titled The Dirty Dozen, which I feel captured much of his management philosophy. Here's the opening paragraph by Scott: "On our Tree Farms, which we intensively manage for forest products including high quality timber (i.e., prime sawlogs and veneer) and wildlife (e.g., deer and turkey), we try to kill twelve species of trees, shrubs, and other plants which have little or no future forest products value. These dozen plants will ruin the future of our Tree Farms both for timber and wildlife production. The twelve species are called "weed species." We weed our gardens and flower beds, and we weed our crop fields, and we should weed our woods to make them more productive for both wood and wildlife."

Scott was a forester, an avid hunter, and an educator. He grew up in Indiana and received a Master of Science Forestry Degree from Purdue University. But his home with wife Ginny and sons Robert and Thomas was in Missouri. He was the founding father and past president of Missouri Big Bucks Club. He joined the Walnut Council in 1994, and by 2000 he had encouraged me to join as well. With Scott as chapter president, I served as secretary of the Missouri Chapter of the Walnut Council for many fun years. Scott went on to be president of the National Walnut Council and served on the board, as well as the Walnut Council Foundation Board of Directors. He served on the MU School of Natural Resources Advisory Board. He was a member of Missouri Farm Bureau and served on their Forestry Committee. He was also instrumental in starting the Missouri Forest Resources Advisory Council (MoFRAC). Serving on all these boards and committees was not just a title or resume builder to Scott. In so many ways, he held the forestry profession and others feet-to-the-fire.

When Fred Crouse and I met to share a toast to Scott and our memories of him, Scott's strong voice resonated, "Let me get this straight," and "I don't have a question, but I do have a comment." If you were presiding over a meeting and Mr. Brundage had something to say, you'd do well to pay attention. You might not always agree with every comment or question Scott had, but his combination of knowledge and experience were second to none. Scott talked-the-talk and walked-the-walk and held us all to a high standard.

Personally, I will miss Scott Brundage. He was a dear friend and mentor to me. His legacy and advocacy for managed forests will continue. Whether through diverse groups and boards on which Scott served, or in the experience and knowledge he passed on to so many of us as young foresters, Mr. Scott Brundage will continue to improve the woods and forests he loved.

Scott, I hope you are in a place with only veneer walnut trees and stave-quality white oak, and with monster bucks dancing through the woods. Peace to you, my friend.

If you'd like to honor Scott by contributing to his lifelong passion, contributions can be made to the following:



The Walnut Council  
Foundation  
1007 North 725 West  
West Lafayette, IN  
47906-9431



Dusty Walter  
CAFNR AES Natural Resource  
Management  
Superintendent, Wurdack Research  
Center  
Co-Superintendent, Land of the Osages  
Research Center





## Prairie in Progress at Bluebird Meadow

How Great Rivers Greenway transformed a sod farm into a thriving prairie along the Dardenne Greenway in St. Charles County

*Anne Milford, Communications Coordinator, Great Rivers Greenway*

Great Rivers Greenway is the regional park and trails agency serving St. Louis City, St. Louis County and St. Charles County. Created by a vote of the people in 2000, they are tasked with connecting the St. Louis region with greenways. With 128 miles built to date, their work is guided by community and partner input to build, care for and bring to life a network of greenways. Whenever possible, they incorporate habitat restoration into their greenway projects.

The agency's conservation work takes different forms depending upon the location and the project. One example is Bluebird Meadow, the 34-acre native wildflower meadow along the Dardenne Greenway: BaratHaven in St. Charles County. Formerly a sod farm, it's now a thriving prairie and natural floodplain for Dardenne Creek that offers valuable resources to pollinators, birds and wildlife. It's also a picturesque landscape enjoyed by neighbors and all the people who walk, run or ride bikes along the greenway.

### Sod farm to Prairie Transformation Timeline

#### 2017- Site Preparation and Planting

In 2017, Great Rivers Greenway took the first steps to transform the sod farm into a field of native flowers and grasses. Thanks to a grant from the National Fish and Wildlife Foundation facilitated by Missourians for Monarchs, all of the seeds for the new prairie were provided at no cost. The site was cleared of sod and weeds and seeded with warm season grasses and sedges at a rate of seven pounds of seed per acre. Crews maintained the site to promote root growth for the native grasses while preventing annual weeds from setting seeds.

#### 2018-2019-Native wildflower seeding & maintenance

During the winter of 2018, the entire site was seeded with a mix of 25 different species of dry prairie forbs including Wild Bergamot, Purple Coneflower, Rattlesnake Master, Partridge Pea, Common Milkweed, Lead Plant, Tickseed Sunflower and Prairie Blazing Star. Like the warm season grasses and sedges, these seeds were also provided by Missourians for Monarchs. The team monitored the area throughout the growing season to make sure the native plants were taking root and invasive species and annual weeds were not establishing themselves across the site.



Learn more about Great Rivers Greenway's Conservation work here <https://greatriversgreenway.org/conservation/>

You can watch the prescribed burn at Bluebird Meadow here: <https://www.youtube.com/watch?v=biHeUOucMoE&t=9s>

If you want to visit the "Prairie in Progress" in the Dardenne Greenway, you can plan your visit here: <https://greatriversgreenway.org/greenway/dardenne-greenway-barathaven/>



#### 2020-Controlled Burn

To help keep the prairie healthy and beautiful, they completed another important step in its continued growth and establishment – a prescribed burn. In February 2020, conditions were just right for the use of a controlled fire to remove dead vegetation and eliminate undesirable invasive plants. Because of their deep root systems, the native plants not only survived the burn but thrived thanks to the nutrients released into the ground by the burning process. They are also getting more sunlight than before since the covering vegetation was burned off during the fire. Great Rivers Greenway will continue to monitor and maintain the site to help keep the native plant communities in balance and invasive weeds out.

## Jumpstart Your Project with Fall Planting

*Kim Young, Forest Keeling Nursery*



Fall is here and it is a great time to plant container grown trees, shrubs and perennials. Many people associate planting as a spring activity, but there are tangible benefits to planting in the fall. In most cases, fall planting allows easy access to planting sites. Soil is normally workable, not too wet and not too dry. Spring time can bring excessive rains and flooding, causing delays in planting. Planting too late in spring does not allow ample time for plants to become well established and they are unprepared for heat, drought and competition.

Fall holds all the necessary conditions for successful plant establishment. The soil temperatures are warm enough to encourage root growth and establishment. Roots will continue to grow through the winter until the ground freezes. The roots are establishing when they don't have to support new stems, leaves and flowers. All the plants energy goes to establishing roots.

The optimum time to plant container grown stock is September 01 to Thanksgiving. This window can be stretched depending on weather conditions and soil temperatures. Deciduous trees and shrubs can be planted as long as the soil is workable. Plants will need a deep soaking at the time of planting and will need continued watering until dormancy.

As the soil begins to warm in the spring, the roots become active and continue to grow. As plants begin to break dormancy, they have an established root system to support a surge of new growth. This advance establishment allows the plants to better compete with our Midwest summer conditions, weed competition, high temperatures and lack of moisture. Fall planting of container stock can gain up to a year in plant establishment and growth.

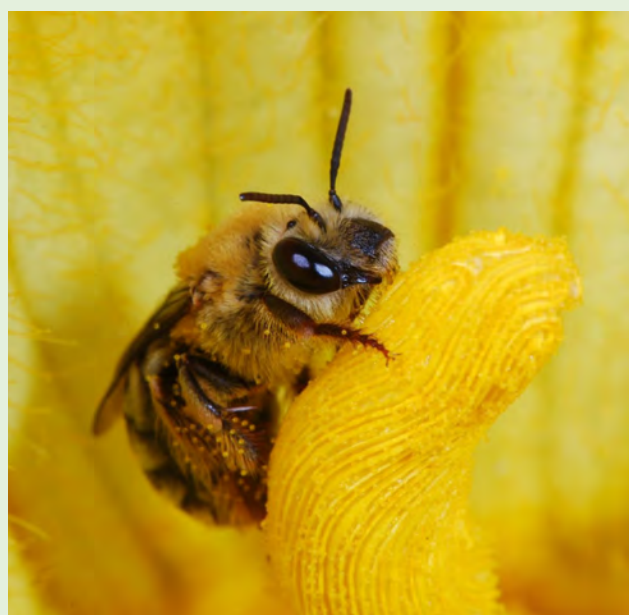
## Native Plants and Your Vegetable Garden

*Carol Davit, Missouri Prairie Foundation  
Executive Director*

Did you know native companion plants facilitate pollination of fruits and vegetables?

If you are a fruit or vegetable gardener, you likely devote time to your gardening efforts all year long: in fall and winter you may be planning what to plant the next growing season, and, during spring and summer, you are planting and tending your garden, and harvesting produce.

Gardeners—and anyone who likes to eat—depend on pollinating insects for most of the vegetables and fruits we enjoy from farms and our own gardens. By transferring pollen among the flowers of the same species of fruits and vegetables, pollinators allow fertilization to occur and make fruit and seed development possible.



*Photo: Squash bee in a pumpkin blossom by Ed Spevak*

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Non-native honeybees are important pollinators of many of our food crops, but numerous species of native bees and other pollinating insects are significant as well. In fact, many native bees—of a variety of sizes and shapes—are the only insects that pollinate certain species. For example, squash bees are vital for squash flower pollination.

Native bees need not only nectar and pollen from fruit and vegetable flowers, but also from many native flowers. You can help support native bees and other pollinators by planting a variety of native wild flowers and native flowering shrubs and trees, including ones listed here.

Sustaining and increasing native bee populations with native plants helps ensure there are plenty of pollinators for the fruits and vegetables you grow.

The Grow Native! program has developed this fact sheet with information on native plants you can add in or near your vegetable garden/fruit planting that attract the specific insects that pollinate flowers of specific crop plants.

Find suppliers of native plants from Grow Native's Resource Guide, which lists Grow Native! professional members who sell native plants, shrubs, trees, and provide native plant services as well.

## Are You a Host with the Most?

*Carol Davit, Missouri Prairie Foundation Executive Director*



The foundation for insect and other animal life is plants. Not just any plants, but plants native to a given location, where insects in that same geography evolved with those same plants.

Over thousands of years, insects developed the ability to digest natural toxins in plants that evolved to protect plants from being eaten. Many insects developed not only a tolerance for these plants, but also dependency. For example, milkweed plants contain cardenolide toxins that monarch butterfly caterpillars have developed a tolerance for, and they are in fact dependent on milkweed plants as their exclusive food source.

There are many other insect/native plant relationships besides monarchs and milkweeds. In the book *Nature's Best Hope*, by the entomologist Dr. Doug Tallamy, he compares a native white oak tree in his yard with a non-native Bradford pear in his neighbor's yard. He found 410 caterpillars on the oak, and one caterpillar on the Bradford pear. Those caterpillars are crucial food for the babies of songbirds, and other animals.

We are included in nature's web of life, not just in our role as consumers of plants and animals, but also in the plants we choose to plant in our yards and property. If we choose to fill our landscapes with non-native plants like Bradford pear, non-native honeysuckle, and burning bush, that would be like inviting friends over for a smorgasbord of plastic food.

By planting non-native plants, we are essentially laying out an inedible buffet table for the songbirds we like to see around our homes, and they will suffer for it.

Don't be a party pooper. The Missouri Prairie Foundation's Grow Native! program provides you with many resources so you can be a host with the most—enjoy!



*Photo Credit: Linda Williams*





## Employee Spotlight: Getting to Know a Forest Pest Surveyor Intern- Brayden Howard

*Sarah J. Phipps, State Survey Coordinator,  
Missouri Department of Agriculture, Plant Industries*

"I grew up in a rural community in Hartsburg, MO. I'm attending the University of Missouri-Columbia with a major in Forestry and will graduate in May 2021."

### ***Why does the forestry field interest you?***

I decided to go into the forestry field since I have always enjoyed working and spending time outdoors and the woods have always been a place that has interested me. When I took my Dendrology class, it really showcased that forests are more than just trees and inspired me to want to learn more about the field.

### ***What internship position did you work this summer?***

I worked in the Plant Industries Division at the Missouri Department of Agriculture based out of Jefferson City. For this job, I was hired to trap and survey for invasive insects affecting Missouri's trees or ones that have the potential threat of becoming established here in Missouri.

### ***What insects did you survey for during your internship?***

I surveyed for the Asian longhorn beetle, emerald ash borer, spotted lanternfly, oak splendor beetle, gold spotted oak borer and assisted with the gypsy moth survey. I also surveyed for the invasive plant- tree of heaven because this tree species plays a very important role in the spotted lanternfly life cycle, as it is one of the few tree species that they will lay their eggs on.

### ***What types of different survey techniques did you learn?***

I learned various survey techniques this field season. For the first week of my internship, I conducted visual surveys on maple and other hardwood trees looking for traces of the Asian longhorn beetle. In early spring, I placed purple prism traps with an attractant lure in stressed ash trees to check for emerald ash borers in counties where they had not yet been found. In early summer, I placed purple prism traps in oak trees to check for oak splendour beetle and gold spotted oak borer. I wrapped up the survey season by inspecting tree of heaven locations that were identified earlier in the year to verify that no sap feeding spotted lanternflies were present.



### ***What is something you learned?***

I learned that the earlier we start looking for an invasive pest, the earlier they will be found and the sooner an action can be put into place to help stop and lower the negative impact on the trees in the state.

### ***What is the most rewarding part of your internship?***

The most rewarding part of the internship, although was not very good for the trees, was when I found emerald ash borer in my traps. This was good for me because when I found EAB, I knew that I was doing my job correctly.

### ***What are your future career plans and describe how you anticipate using your experience gained from your internship in your future job?***

My future career plan is to get a job that utilizes what I have learned within my forestry degree. This internship has provided me with the knowledge of various ways to survey for invasive forest pests and the understanding of the biology, insect pheromones, and life cycles of the various pests to aid with the success of the survey.

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***How did the Covid virus impact your survey season and what precautions did you have to take while out in the field?***

The biggest impact on the season was not being able to place emerald ash borer traps in the Springfield area because of overnight stays in hotels. Also, when people would inquire about the work I was doing in the field, we would have to maintain a safe distance while talking to each other. Also, the addition of having to wear mask and gloves when going into stores and filling the vehicle up with gas.

***What was the outcomes of your field season?***

This field season, I confirmed emerald ash borer in five new counties: Carroll, Johnson, Livingston, Monroe and Sullivan counties with a sixth county, Saline county, confirmed by Lee Conner. Thankfully, no specimens were trapped or signs or symptoms observed from Asian longhorned beetle, oak splendour beetle, gold spotted oak borer or spotted lanternfly. The gypsy moth survey is still ongoing. I urge you to keep an eye out for these invasive pests as more eyes looking encourages early detection of these pests!

***What do you wish the average citizen understood about your work?***

This job is very important for the future to help protect our forest because they are valuable.

***How would you describe the “big picture” purpose of the Plant Pest Control program?*** The Plant Pest Control Program works to help get a head start on insect and disease pests that threaten Missouri’s agricultural and forest resources by conducting early detection surveys. Program staff also oversee annual certification and inspection of nurseries and greenhouses and certifies Missouri plant commodities for export.



Processing the emerald ash borers that were collected from the purple prism traps.





# The White Oak Initiative



*Steve Westin, Private Land Forestry Programs Supervisor, Community and Private Land Conservation Branch Missouri Department of Conservation*

The White Oak Initiative (WOI) is working to ensure the long-term sustainability of America's white oak and the economic, social and conservation benefits derived from white oak dominated forests. While currently white oak growing stocks are sufficient to meet demand, forest monitoring and long-term projections indicate problems in maintaining high-quality white oak regeneration in most states where it is found.

White oak is critical to many wildlife species, and to industries making forest products such as furniture, flooring, cabinetry, barrels for wine and spirits, as well as for recreational activities like hunting, generating billions of dollars to local economies throughout the white oak region.

The WOI is composed of white oak dependent or interested industries, trade associations, conservation organizations, government agencies, universities, and non-profits working to ensure the long-term sustainability of America's white oak, and contributing to the conservation of white oak and white oak-dominated forests. Forestry staff from the Department of Conservation and the University of Missouri are involved in the Initiative.

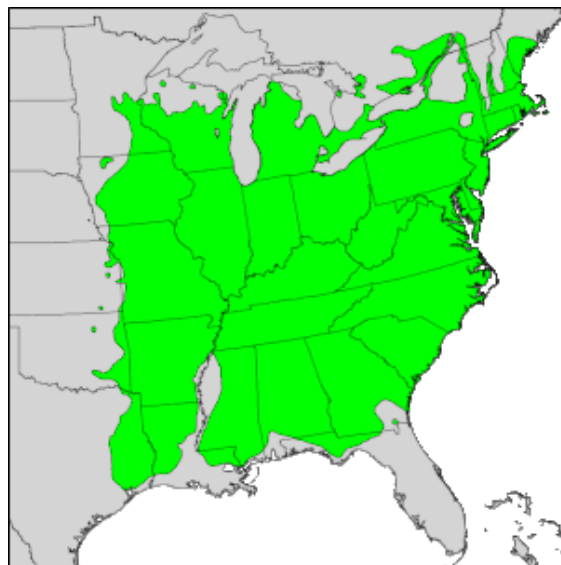
## Meeting the Challenge

White oak is found throughout Missouri and comprises the greatest total volume of trees in the state. However, without action, our white oak forests will face a major reduction in a generation, with significant impacts on wildlife, forest ecosystems, timber supplies and local economies. White oak is threatened by inadequate management, pests and invasives, and changing markets. Research shows that while the existing stocks of commercial-sized white oak are sufficient for estimated near term future demand (10-20 years), there are clear indications of long-term sustainability problems. White oak forests are dominated by older mature oak trees. The number and area of seedlings and small trees are significantly declining.

To protect and enhance American white oak, we need to work together — thinking, planning and acting — to prevent a crisis. Starting today, we must help landowners and forest managers actively manage our oak forests to restore their health by removing competing tree species, prevent diseases and invasives, and create openings for this sun-loving tree to flourish.

## White Oak Challenges:

- Lack of active forest management, leading to dense low-quality stands — shading the oak seedlings and preventing the growth of quality trees and the regeneration of new oak trees.
- Widespread invasive species and disease.
- Changing climate conditions affecting oak growth and regeneration.
- Marginalization and fragmentation of forest land.
- Lack of recognition of long-term threats to oak forests.



*White oak range*

Landowners interested in enhancing existing white oaks in their woods, or regenerating new white oaks for the future may contact their local MDC forester, <https://mdc.mo.gov/regional-contacts?county=All> , or professional consulting forester, <https://missouriforesters.com/> .



## The Fight Against Feral Hogs

Lucas Bond, Missouri Department of Conservation

*A group of ten hogs can destroy 10 to 20 acres overnight, including crops, causing financial burdens on Missouri's landowners and agricultural producers.*

JEFFERSON CITY: Feral hogs are invasive, destructive pests that roam wild in certain areas of Missouri and other states. They're aggressive animals known to prey on turkey poults, fawns, freshly seeded fields, fully mature crops, as well as other wildlife. They're known to carry diseases that can be transmitted to humans, dogs and domestic pigs such as swine brucellosis, pseudorabies and others.

A group of ten hogs can destroy 10 to 20 acres overnight, including crops, causing financial burdens on Missouri's landowners and agricultural producers. Damage caused by these pests was estimated at more than \$1.5 billion, 10 years ago in the United States and is much higher today. That is exactly why Missouri has put together a task force to eradicate these pests.

Missouri's current effort to eradicate feral hogs from the state is a multi-agency mission that involves the Missouri Department of Conservation (MDC), Missouri Department of Agriculture (MDA), U.S. Forest Service (USFS), USDA Animal and Plant Health Inspection Service (APHIS), and many more strong partners that make up the Missouri Feral Hog Elimination Partnership (MFHEP). This group, which is chaired by MDC and MDA, was formed in 2015 and is the next generation of a task force that was formed by Gov. Matt Blunt in 2007 with a goal to eradicate feral hogs from Missouri. The partnership's collaborative efforts have produced significant results, particularly in recent years. In 2020 alone, trappers have eliminated 7,482 feral hogs in Missouri through July. Since 2017, 33,932 have been eradicated.



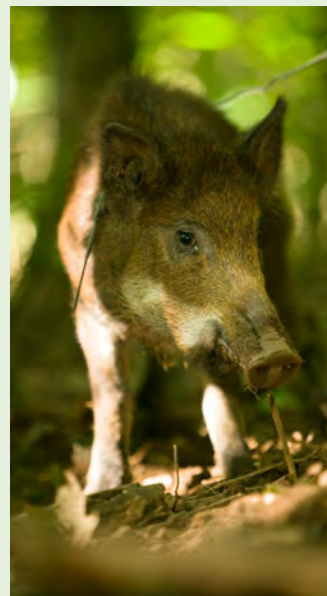
Example of feral hog damage to pasture. Photo Credit: Panther Media GmbH / Alamy Stock Photo



"We are turning the corner in our war on feral hogs," said Jason Jensen, who is MDC's incident commander for feral hog operations. "The incident command structure that we have employed has all the players in the partnership on the same team working in a very coordinated way. This helps to ensure accountability while avoiding duplication of effort and resources."

Jensen says that the fight is far from over, but MFHEP is definitely making a dent in feral hogs.

Report feral hog sightings or damage, and learn more about feral hog elimination at [www.mdc.mo.gov/feralhogs](http://www.mdc.mo.gov/feralhogs). Sign up to receive updates from the Missouri Feral Hog Elimination Partnership at <https://short.mdc.mo.gov/ZoP>.



*"Given the significant damage that feral hogs can cause, it is important to consider the potential economic value of this damage in order to substantiate the importance of feral hog management. USDA Wildlife Services conservatively estimates that feral hog management in Missouri led by the MFHP (2016-2019) prevented a minimum of \$24.9 million of agricultural production and environmental damage."*  
-Didero & McKee 2020

Map and Quote from: "Report on the Economic Value of Cooperative Feral Hog Elimination Efforts in Missouri." Prepared by Nicole Didero, Economist, M.S. & Sophie McKee, Research Economist, Ph.D. USDA APHIS Wildlife Services, National Wildlife Research Center, May 2020



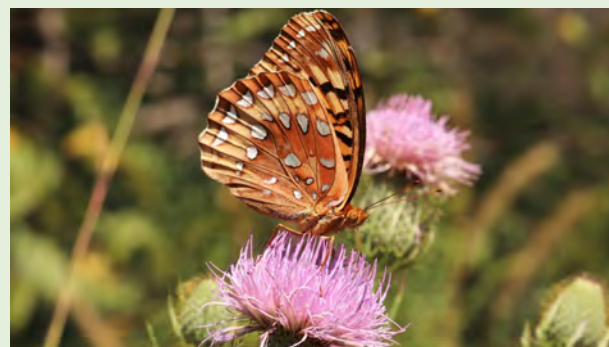
## Wait! Don't Kill that Thistle!

Tim Smith, adapted from his "Missouri's Thistles" Missouri Prairie Journal article

Blooming now in prairies, along roadsides, disturbed fields, and pastures are tall, prickly plants that are often all referred to as "thistles." While there are several aggressively spreading, nonnative thistles that do cause problems in Missouri and surrounding states, there are also native thistles that are not invasive and are beneficial components of native habitats and plantings.

This article on thistles from the Missouri Prairie Journal provides detailed drawings and a key to help you identify thistles. An easy rule of thumb to follow, however, is to check the underside of the leaves. If the underside is whitish, the thistle is native; if the underside is green, it is non-native\*, and treatment is recommended so the plant doesn't set seed and spread. If spot treatment is not possible, you can cut down the flower stalks to avoid seed development.

Non-native "thistles" include spotted knapweed (*Centaurea stoebe* ssp. *micranthus*), musk thistle (*Carduus nutans*), Canada thistle (*Cirsium arvense*), bull thistle (*Cirsium vulgare*), and Scotch thistle (*Onopordum acanthium* ssp. *acanthium*), with the first two species being the most widespread in Missouri.



Native species include field thistle (*Cirsium discolor*), which can be abundant in open woodlands or savannas undergoing restoration, and in prairie plantings, but is not likely to persist in high numbers. Another common native species is tall thistle (*Cirsium altissimum*). A native inhabitant of prairies, it seldom grows in great abundance. In summer, it provides a nectar source for butterflies and later, seeds for visiting goldfinches and other birds. Thistledown, the fine hairs attached to the mature seeds of this and other thistles, are used by a variety of birds and small mammals for lining nests.

\*an exception to the "green underside = non native thistle" rule is the native swamp thistle (*Cirsium muticum*), which in uncommon small wetland areas in the Ozarks called fens. It is native, the underside of its leaves are green, and it is known from only seven counties in Missouri.



## Landowners with Conservation Easements - Participate in a Paid Research Study

A research team from the School of Natural Resources at the University of Missouri is conducting research regarding landowner perceptions of conservation easements. The goal of this project is to gain insights into landowners' motivations for placing their land under conservation easement, the challenges encountered, and their attitudes and takeaways from the experiences.

If you are a Missouri landowner who has placed a conservation easement on your property and you may be willing to participate in a one hour phone or video-call interview for this project, please fill out this short questionnaire [https://missouri.qualtrics.com/jfe/form/SV\\_2366dlPWAS1pv7L](https://missouri.qualtrics.com/jfe/form/SV_2366dlPWAS1pv7L). The questionnaire is voluntary and should take five minutes or less to complete. It will ask you some contextual questions about yourself and your property, as well as your preferred way of being contacted by the research team for the interview. At the conclusion of the interview, a check for \$25 will be provided for participation. If you have any questions about the project, the questionnaire, or the interview process, please reach out to Sarah Brown ([sabqf5@mail.missouri.edu](mailto:sabqf5@mail.missouri.edu)) or Prof. Robin Rotman ([rotmanr@missouri.edu](mailto:rotmanr@missouri.edu); Phone: 573-882-5693).



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## Calendar of Events

### **Understanding Access to Federal Assistance for Conservation on Working Lands**

*September 17, 24, & October 8, 2020 | 12:30-1:30pm CST | NCAT | free webinar series*

This three part series is supported by the Natural Resources Conservation Service and the National Center for Appropriate Technology. The webinars are intended to give farmers and ranchers a basic understanding and familiarity with the Conservation Assessment Ranking Tool (CART), including how CART can be used to evaluate working lands for conservation assistance and funding consideration, and how landowners can request and assessment. Registration and more information is available at <https://register.gotowebinar.com/register/711289874181944590>

### **Women Caring for the Land Learning Circle**

*September 21, 2020 | 1:00-3:00pm CST | Women Food and Ag Network | free virtual discussion*

Women landowners are invited to join a virtual learning circle discussion about ways you can make changes to improve the long-term value of your farm while maintaining short-term profitability. A panel of Iowa women landowners will tell their stories and answer questions about how they have transitioned to using cover crops and no-till pollinator plantings, Prairie Strips, CRP and more. Learn more and register at <https://wfan.org/events/2020/9/21/women-caring-for-the-land-learning-circle?amp%3Bqid=>.

### **Scaling Up Pastured Livestock Production**

*September 23, 2020 | 12:00-1:00pm CST | FACT | free webinar*

Join FACT to learn about what it takes to scale up pastured meat production. Presenter Franklin Egan, PhD, Director of Education with Pasa Sustainable Agriculture will share the results of a new study called on the subject, which was produced in partnership with 10 pastured livestock farms in Pennsylvania and explores how much land and feed it takes to produce grass-finished beef, pastured pork or chicken. Lessons learned will help farmers improve their yields and bottom line. More information and registration at <https://www.anymeeting.com/AccountManager/RegEv.aspx?PIID=EF52DB8887483C>.

### **Establishing a Pecan Orchard**

*September 24, 2020 | 6:30-8:30pm CST | Noble Research Institute | free webinar*

This course will cover all of the necessary details to prepare landowners/managers to start a pecan orchard. Participants will learn: how to properly select the orchard location, how to design an appropriate orchard layout for management goals, the importance of variety selection, and other considerations such as soil, irrigation, and pollination. More information and registration at <https://www.noble.org/events/establishing-a-pecan-orchard/>.

### **Future of Farming and Food Town Hall: Climate and Energy**

*September 24, 2020 | 7:00-8:30pm CST | Kansas Rural Center | virtual meeting*

This town hall will offer opportunities to share information and community dialogue on the unique challenges of opportunities communities face in response to this topic, within the context of an election year and the new realities of responding to the COVID-19 pandemic. The focus for this session is climate and energy. More information at <https://fair.mofga.org/>.

### **Online Common Ground Country Fair**

*September 25-27, 2020 | MOFGA | online event*

This year, MOFGA's country fair features three days of live programming online, with workshops, talks, and demonstrations. There will also be educational offerings, a content library and a marketplace for vendors. Keynote speakers are Leah Penniman, Barbara Damrosch, and Winona LaDuke. More information at <https://fair.mofga.org/>.



## Calendar of Events

*Continued*

### **Elderberry Processing and Market Opportunities**

*September 29, 2020 | 12:00pm CST | Savanna Institute | free webinar*

Terry Durham of River Hills Harvest and Chris Patton of the Midwest Elderberry Cooperative will discuss elderberry processing for commercial and small scale use, food safety compliance with GAP and FSMA, retail direct marketing opportunities for new and existing growers, wholesale/contracted berry and flower sales opportunities. Details and registration for this and other Savanna Institute events at: <http://www.savannainstitute.org/events.html>.

### **Entangled Life: How Fungi Shape Our World**

*September 27, 2020 | 1:00-2:15pm CST | Banyen Books | free webinar*

Join Merlin Sheldrake, author of *Entangled Life*, for a mind bending journey into the hidden universe of fungi. This will be a live conversation with opportunities to ask questions. More information about the book and author, and registration for the webinar can be found at <https://www.banyen.com/events/sheldrake>.

### **Designing Silvopasture Plantings**

*October 26, 2020 | 3:00-4:00pm CST | FACT | Free Silviculture Webinar Series*

This is part one of a three part silviculture webinar series. Join Steve Gabriel, an agroforestry extension specialist for the Cornell Small Farm Program, to learn about approaches to planning for woodland conversion and trees into pasture. Topics include tools and methods, mapping, tree spacing and patterning, and more. For additional webinars and registration, visit: <https://foodanimalconcernstrust.org/webinars>

### **Society of American Foresters National Convention**

*October 29-31, 2020 | SAF | virtual conference*

For the first time, the SAF Convention is entirely virtual. A full schedule of presentations and posters can be viewed at [https://www.eforester.org/Safconvention/Schedule/Schedule\\_at\\_a\\_Glance/safconvention2020/Program/Program](https://www.eforester.org/Safconvention/Schedule/Schedule_at_a_Glance/safconvention2020/Program/Program). Keynote speaker Lisa Brooks is an Abenaki writer and scholar who has been awarded for outstanding scholarship in the ecology of culture. More information and registration at <https://www.eforester.org/Safconvention/Home/safconvention2020/Home>.

### **Cultivating (Bio)diversity: Seeding Our Stories, Growing Our Power**

*November 6-7, 2020 | WFAN | virtual conference*

The WFAN 2020 Annual Conference will take place on the web platform Whova. Participants will gather in a space designed to foster connection and community. The event will include workshops, affinity groups, a movie night, yoga sessions, creative expression rooms, and more. Join us in this time of reflection and action planning together. Keynote speaker Christine Nobiss will share her wisdom about seed sovereignty and decolonization. More information at <https://wfan.org/2018-wfan-annual-conference-1>.