

green horizons

Growing tomorrow's future today.

Spring 2021

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

Essential Gardening: Finding comfort in the garden during the pandemic.

Kim Lovelace-Hainsfurther, Forest Keeling Nursery

Some of my favorite childhood memories are of time spent with my Grandmother. My Grandparents always had a robust garden and it always needed tending. I would go out with my Grandmother in the early morning and help her pick beans, tomatoes, zucchini, cucumbers and squash. After serving up lunch for Grandpa, Grandma and I would head to the front porch swing and commence snapping beans in preparation for canning.

This was time to enjoy an ice- cold glass of lemonade as well as stories of Grandma's childhood, funny things my Dad did as a kid, a few Bible lessons, and when Grandma ran out of stories, she would simply hum to the tune of songs I recognized from church. I have such wonderful memories of growing up near my Grandparents in rural Missouri. Time felt different then, somehow slower and richer.

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"Picking pawpaws" Credit: Kim Lovelace-Hainsfurther



Left: Traveler Loom, Right: Art yarn and bowl, Credit: Lynn Barnickol

Wood, Wool and the Weaving Shed



Lynn Barnickol

Collaborating with my spouse on related interests began when we reached retirement age. Our story begins as children. For my 10th birthday my Dad gave me a motorized scroll saw. Its reciprocating action generated more noise than sawdust, but it was good for cutting thin pieces of wood for making birdhouse parts and jigsaw puzzles. My degree in Wood Science helps me to understand wood and my wood shop has grown over the years to include a lathe, table saw, planer, bandsaw, sanders, and scroll saw.

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The Essential Gardener Cont'd.....

2020 was many things. It was tragic. It was frightening. It was surreal in so many ways. It's still hard to wrap one's head around the fact that the entire world basically shut down. And now, after more than a year, we are still restricted, we are zoomed out and just beginning to peek back out into the world. Our world will never look as it did prior to the pandemic. New ways of going about our day-to-day lives have been created from our nation's resiliency.

Sadly, many businesses were forced to close indefinitely. Other essential businesses remained open with heavy restrictions and safety protocols in place. Curbside pick-up became a thing and delivery options quickly multiplied and serviced the American people who were quarantining in place.

Nurseries and forestry related businesses were determined essential, and in most states, doors of these businesses remained open. Quickly, the green industry saw a healthy increase in demand for plants, especially food producing plants. There were multiple conditions created by the pandemic that led to the gardening industry experiencing an influx of new gardeners as well as renewed interest in gardening, especially for growing food producing plants. According to the 2021 National Gardening Survey published by the National Gardening Association, 18.3 million new gardeners were engaged in 2020. Of these, 88% have indicated they intend to increase or maintain this heightened level of gardening in 2021.

The survey points out that many of those new to gardening represent a diverse group of younger and traditionally underrepresented groups. This is good news for the future of gardening. The younger gardeners are driven by growing food and by the benefits of gardening rather than simply beautifying their homes. All age groups related to the mental and emotional health benefits as the number one reason for engaging in gardening.

Specialty crops such as fruit and nut trees, especially those with nutritional and medicinal benefits continue to push ahead in popularity. This growth in popularity is a strong indicator of a shift, not only in the way, but in the why we garden.

Looking back to a year that brought immense collective hardship and heartbreak to our nation, it's comforting to find bright spots. I believe the overwhelming number of those new to gardening and growing food crops speaks volumes of our need to connect, with family, with nature, with our food and with our roots.

We all had to learn to slow down. This unprecedented time-out gave us more opportunities to gather around the family dinner table. Time returned to something to be savored and enjoyed. We had more time to plant and nurture, not only plants but relationships and values.

Many things were in short supply during the Pandemic, RV's, bicycles and plants, to name a few. In fact, there was a shortage of canning jars. I hope this means somewhere a child and grandmother were able to bond over sipping freshly squeezed lemonade, sharing life stories and snapping green beans.



Survey Announcement:

Preferences for agricultural land use, conservation practices, and tree planting

University of Missouri researchers want to hear your input on land use, tree planting, and conservation practices! Surveys have been mailed to a limited number of participants across Missouri. If you received a survey, your responses will provide valuable information that will help inform future research, outreach, and education initiatives. If you are one of the chosen participants, complete the survey before June 30th and you will be entered into a drawing to win one of ten \$25 Visa gift cards! Responses will be collected until early August. Questions can be directed to Raelin Kronenberg, Graduate Student Researcher (rlk5hp@mail.missouri.edu).

Wood, Wool, and the Weaving Shed Cont'd.....

Gail, my spouse, began sewing Barbie Doll clothes on her Mother's Singer sewing machine. Gail focused on fiber arts by taking high school and college level sewing and textiles classes. Her Dad provided encouragement by gifting her a sewing machine used to make some of her own clothing, including her wedding gown. Beyond her focus of sewing and textile arts, Gail also experienced the side tracks of getting married to me, moving numerous times, raising a family, and sewing many of our children's clothes and household accessories.

Fast forward to retirement. Gail started her adventures in wool by repurposing wool sweaters into purses, hats and mittens. She also wanted to learn to spin yarn from wool fleece. Adding a spinning wheel to her crafting collection ensured her passion for making art yarn that incorporates beads, buttons, and other small expressions into multi-thickness yarns of different colors. Those yarns are used in making fabric purses, scarves, hats, gloves, and other accessories. By taking a class at Hill Creek Fiber in Columbia, Gail learned about dying her own wool fibers from native plants such as wild blue indigo; coreopsis, black-eyed Susan; sumac; walnut leaves, bark, and hulls; Osage-orange shavings, and inner bark of black oak. Once yarns began to accumulate, it became obvious that a loom provided even more opportunities to use her growing collection of yarn.

Gail provided photos and asked if I could make her a ridged heddle loom. My response was yes! The obvious question we failed to ask of ourselves was: Have you ever woven anything? We did know our warp from our weft. We did know the shed is the gap made in the warp for the weft. We did not know about the neutral position of the heddle so we needed to remanufacture the heddle guides. Getting the tension of the warp set correctly was challenging. After



Ridged heddle loom, Credit: Lynn Barnickol

some YouTube videos and some good-natured razzing, the ridged heddle loom was declared a success. She is able to make long textiles that are the raw material for dish towels, table napkins, and scarves. Some of Gail's yarn finds its way into her weaving projects.

Presently Gail and I continue to collaborate on making spinning and weaving tools made from wood. Those projects range from making lathe turned drop spindles that look similar to a toy top, but are an ancient method of spinning yarn.

We also made a stationary Navajo loom; A-frame tapestry looms, hand-held, portable tapestry looms, and an inkle loom. Rounding out the tool selection are battens for creating the shed; shuttles for passing the weft yarn through the warp; forks that fit through the warp to tightly pack the weft together, large diameter knitting needles, and crochet hooks.



Left: Inkle loom, Right: hand crafted yarn-work tools

The lathe is also used to make yarn bowls that look much like deep soup bowls, but have a slotted side for the yarn to pass through. Woods used in our projects include combinations of native Missouri walnut, cherry, sugar maple, white oak, red oak, elm, Osage-orange, yellow poplar, Kentucky coffeetree, and honeylocust. Cardwell Hardwoods in Jefferson City is the source of most of my wood, along with a few storm damaged trees.

Besides collaborating on fiber tools, we both team up in the kitchen and on gardening projects. Those endeavors lead to wood projects like salad bowls, cutting and charcuterie boards, stirring utensils, and pizza peels for the culinary arts. Seed pot makers and planting dibbers are for gardening. We also collaborated in designing and making bed frames, dining tables, and end tables. Wool and wood share similar letters, are comprised of fibers, and are raw materials that are attractive, practical, and can be sourced from renewable natural resources.

Collaboration on our interests, developed from childhood hobbies, is satisfying and pays off in retirement. We are in a small retail shop, the Art Bazaar, in Jefferson City and an ETSY Shop named TurnUpGreen.



Call Before You Cut

George Kipp, Missouri Department of Conservation Forester

Every forest landowner knows their land is one of their most valuable assets. A properly managed forest can generate income for generations, in addition to providing high quality hunting grounds, clean air, clean water, and numerous other ecosystem services. With spring turkey season wrapping up, many landowners have been out in their forests and have questions about what to do to achieve their goals. Others may have been contacted by a logger or have interest in clearing their land for pasture. Getting information about forest management and making long-term decisions that can affect a forest for decades is a daunting task, but there is help available.

The Missouri Department of Conservation has partnered with several other states to provide a hotline and website where non-industrial private landowners can get tailored information about forest management and timber harvesting. The Call Before You Cut hotline is available free-of-charge at <http://callb4ucut.com/missouri/> or by calling (877) 564-7483. After contacting Call Before You Cut, landowners will receive a free information packet about forest management and timber harvest, and, if they own over 40 acres, a free consultation from a consulting forester.

Getting professional forest management advice is one of the best things a forest landowner can do for their woods. Professional foresters help a landowner take stock of their forest resources and develop a plan to sustainably manage timber harvests. A professional forester works with the logger and landowner to make sure a timber sale is conducted with all the best management practices in place. This ensures a healthy, sustainable forest now and for the future.



Fantastic Moths & Their Woody Host Plants

Text by Mary Nemecek and Linda Williams

Photos by Linda Williams

Most consider butterflies the crown jewels of the Lepidoptera world, but somewhere between where the trees meet the sky and shrubs anchor their roots in the earth live some fantastic moths, which depend on woody plants for most if not all of their lives. They range from large to small and soft to stinging. Some never eat as adults and some feed on flowers during the day, right outside your window.

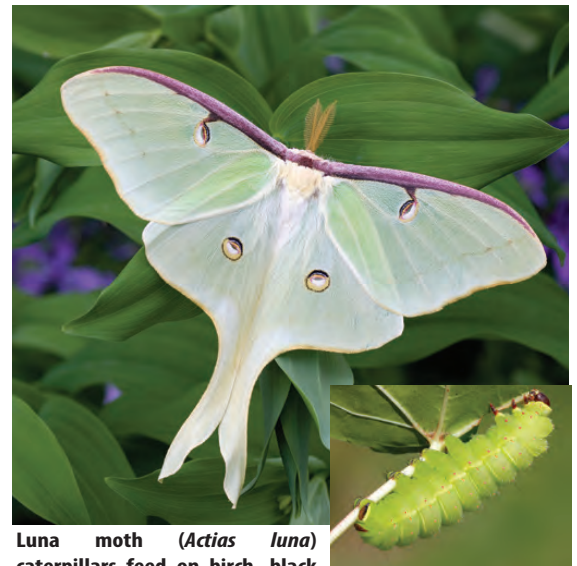
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Giant Silk Moths

Surely the most spectacular of these are the giant silk moths. They have large, brightly colored, velvety wings with pudgy, furry bodies. Adult males can rival any fancy human headwear with their feathery antennae. Their family name comes from their ability to produce silk when they spin their cocoons. Individually, many are named for heroes of ancient mythology. Members of this family include the largest moths in Missouri beginning with cecropia (*Hyalophora cecropia*), named after the mythical first king of Athens. Not far behind in size and stature is the polyphemus (*Antheraea polyphemus*), namesake of Homer's one-eyed Cyclops. The adult proudly displays an ornamental "eye" on each hindwing. The title of "most beautiful" may belong to the Luna moth (*Actias luna*) who, like the others, is active and breeding only after dark, but she alone is named for the goddess of the moon. The polymorphic Io moth (*Automeris io*) male is fairly plain yellow with brown splotches on the forewing, and the female is a rich mahogany color; the caterpillar can sting. She aptly represents the priestess that Zeus changed into a cow to disguise her beauty. The silk moth family hosts many more species, but closing out those acclaimed in mythology is promethea (*Callosamia promethea*), a champion of man who stole fire from the gods and gave it to the mortals.

All of the species of the silk moth family feed solely on leaves from woody plants, gorging themselves into large, intriguing caterpillars. Most silk moths are generalists, eating from a variety of plants rather than one species or one family of plants. For example, the cecropia, whose favorite host plants (specific plants on which the caterpillars will feed) include apple, ash, box elder, cherry, poplar, elm, and maple, and others. The location of the caterpillars is often revealed by their large frass (fecal pellets) that will dot the leaves and ground beneath them.

As adult moths, they do not feed or drink at all, living only a few days to mate and lay hundreds of eggs. Each female of the species, after emerging from its cocoon, will "call in" potential mates by releasing pheromones at a certain time of night. For instance, the cecropia call right before dawn, and a single female can lure in dozens of males from miles away.



Luna moth (*Actias luna*)
caterpillars feed on birch, black gum, hickory, pecan, persimmon, sweet gum, and walnut. Two or more generations in Missouri. Adults do not feed.



The cecropia (*Hyalophora cecropia*), the largest moth in Missouri, produces only one generation per year, and the caterpillars feed on a variety of woody plants including apple, ash, boxelder, cherry, poplar, elm, and maple. Adults do not feed.

Sphinx Moths

Next in notoriety are the sphinx moths. This is a diverse group with varying habits and traits, 43 species of which are found in Missouri. Some of them will hiss when bothered, such as the caterpillar of the walnut sphinx moth (*Amorpha juglandis*), while others such as the catalpa sphinx moth (*Ceratomia catalpae*) caterpillar are gregarious and stay in groups until they reach their third instar (third period of molting)—an eating army that, in years when their populations are booming, can defoliate (yet not kill) trees.

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Like the silk moths, the catalpa sphinx moth does not feed as an adult. However, the snowberry clearwing moth (*Hemaris diffinis*) will consume nectar during the day. Another difference is the snowberry clearwing—often called a hummingbird moth—uses woody vines such as native honeysuckle (*Lonicera*) as well as buckbrush and woody shrubs as its host plants. Defoliation of trees and other plants by caterpillars occurs in nature and should not cause concern as new foliage will return that season or the following year.

Mind the Spines

While many moth caterpillars look fierce, such as the imperial moth (*Eacles imperialis*) or the hickory horned devil (*Citheronia regalis*), it is the fuzzy and spiny ones that should be viewed with great caution. The black-waved flannel caterpillar (*Megalopyge crispata*) looks fuzzy, but those thin hairs hide poison-filled stinging spines that can cause severe reactions. The stinging rose caterpillar (*Parasa indetermina*) is brightly colored with protruding spines that also deliver a painful sting that many liken to stinging nettle. The slug caterpillars are interesting in that they lay flat, transparent eggs, which allow the development of larva to be observed.

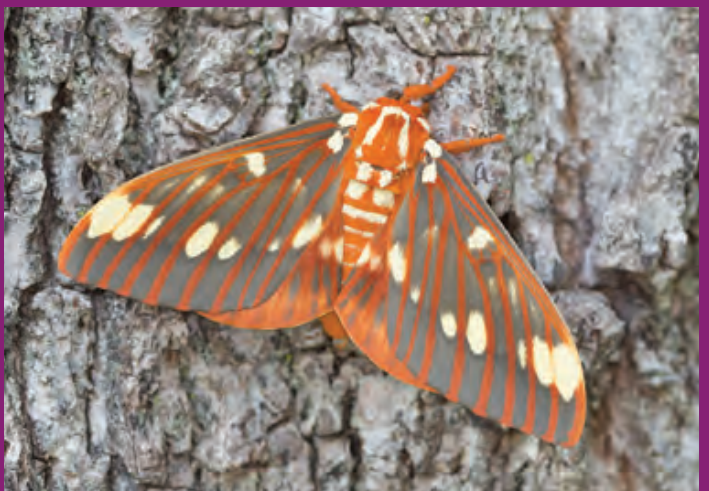
These caterpillars feed on a variety of woody plants such as cherry and oak and can be exciting to find in the field. Look but don't touch—it is best to leave these alone without disturbing them.

Try This at Home

When considering plants for home landscaping to attract wildlife, nectar-producing plants to support butterflies are, of course, a must, but remember to include native trees and shrubs as well. They host many of these incredible moths and their caterpillars, which are not only beautiful, but also play an important role in feeding other species such as nesting birds. If you are looking for plants that host the most diverse numbers of species, start with oaks (*Quercus*), which host more 500 species of caterpillars, and black cherry (*Prunus*), willow (*Salix*) and birch (*Betula*) trees, which all host more than 400 species of caterpillars. Trees and shrubs can bring amazing Lepidoptera to your yard!



This variegated form of the late instar caterpillar of the Abbott's sphinx moth (*Sphecodina abbottii*) has an "eye" marking complete with a white reflection spot. This species produces one generation per year, its primary host plants being grape (*Vitis*) species and Virginia creeper (*Parthenocissus quinquefolia*). The adults will make a buzzing sound when feeding and like to nectar on native honeysuckle (*Lonicera*) and Viburnum.



The hickory horned devil caterpillar of the regal moth (*Citheronia regalis*) is aptly known as an "armored behemoth." This species produces one generation, whose pupae overwinter underground. The caterpillar will turn blue-green before pupating, and their locations are often given away by their 1 cm frass. Host plants include ash, bitternut, cherry, hickory, pecan, persimmon, sumac, sweet gum, sycamore, and walnut. They do not occur in the northern parts of the state.





The polyphemus moth (*Antheraea polyphemus*) produces two to three generations in Missouri. The caterpillars feed on apple, ash, birch, dogwood, elm, hickory, maple, oak, willow, and other shrubs and trees. Adults do not feed.



The promethea moth (*Callosamia promethea*) produces at least two generations in Missouri with caterpillars feeding on ash, buttonbush, cherry, magnolia, sassafras, spicebush, sweet gum, and tulip tree. Females will lay rows of 4-10 eggs on the upper sides of host plant leaves. Older caterpillars will not eat past midvein; after eating, they will move to a branch and detach the half-eaten leaf, perhaps to rid any evidence of their whereabouts from would-be predators. Adults do not feed.



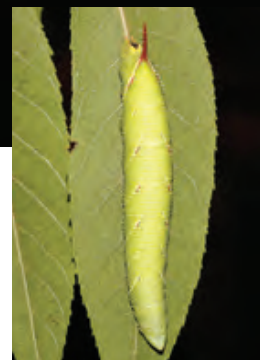
OF MISSOURI'S roughly 3,000 species of moths, many live in multiple habitats, while others are restricted to specific communities like prairie or forest. The larvae of some moth species are dependent on the foliage of prairie plants for food*, while others must have leaves of trees and shrubs to eat. You can support a diversity and abundance of these nocturnal wonders of the Lepidopteran world by choosing native plants, including many of the shrub and tree species listed here, for your home landscaping. Find suppliers at www.grownative.org.

*see "Prairie Moths" by Philip Koenig in the Summer 2016 (Vol. 37, # 2) issue of the *Missouri Prairie Journal*.

Kansas Citians **Mary Nemecek** and **Linda Williams** are both members of MPF, Burroughs Audubon of Greater Kansas City, the Idalia Society, and are both Missouri Master Naturalists. Nemecek is also an affiliate board member of the Conservation Federation of Missouri. Williams conducts Lepidoptera surveys in Missouri for various organizations including MPF.



The walnut sphinx moth (*Amorpha juglandis*) produces at least three generations in Missouri; caterpillars feed on American hornbeam, butternut, hickory, hop hornbeam, and walnut. Adults do not feed.





Conservation Program Updates from the USDA NRCS (Natural Resources Conservation Service) and FSA (Farm Service Agency)

Joe Alley, NRCS State Forester

Conservation Reserve Program – Forest Management Incentive (CRP FMI)

Earlier this year, the Farm Service Agency announced a new opportunity for Conservation Reserve Program participants. Established by the 2018 Farm Bill, the Forest Management Incentive (FMI) provides funding for implementing specific activities that will improve forest health, promote forest management, and enhance wildlife habitat on existing CRP tree acres. There are \$12 million dollars available for FMI nationwide. Eligible CRP practices that are common to Missouri include CP3 (Pine Establishment), CP3A (Hardwood Establishment), CP4D (Permanent Wildlife Habitat – generally a shrub practice), CP11 (re-enrolled tree planting), CP22 (Riparian Forest Buffer), and CP31 (Bottomland Hardwood Restoration). Owners of eligible CRP practices must apply for FMI through their local FSA office. A Forester or other qualified conservation planner will evaluate offered fields to determine if the proposed activities are needed and applicable. Following is a list of approved activities and their associated payment rates.

CRP Forestry Management Incentive - CRP Notice-924					
Component Code	Practice Code	CRP FMI Scenarios	CRP FMI Payment	Unit	Comments
Component Code	Conservation Cover - CPS 327				
21FMICONSVC1	327	Introduced spp	\$97.70	AC	
21FMICONSVC2	327	native spp	\$72.00	AC	
21FMICONSVC4	327	pollinator spp	\$591.41	AC	
21FMICNSVC22	327	monarch spp mix	\$752.39	AC	
Component Code	Prescribed Burning - CPS 338				
21FMIPRBRN5	338	steep terrain, volatile or woody fuel	\$14.80	AC	Applies to all terrains and fuel types where applicable.
21FMIFRBRK1	394	constructed, light equipment	\$0.02	FT	for handtools (rakes, leaf blowers, etc)
21FMIFRBRK2	394	constructed, med equipment, flat-med slopes	\$0.41	FT	mowing and disking
21FMIFRBRK4	394	veg. perm firebreak	\$0.21	FT	only applicable where cool-season vegetation is absent
Component Code	Early Successional Habitat Management - CPS 647				
21FMIERSHDV2	647	disking	\$71.88	AC	
Component Code	Tree & Shrub Pruning - CPS 660				
21FMITRSHPR2	660	pruning - low height	\$128.84	AC	<18 ft
21FMITRSHPR3	660	pruning - high height	\$252.41	AC	≥ 18 ft
Component Code	Forest Stand Improvement - CPS 666				
21FMIFSIMP1	666	pre-commercial thin, hand tools	\$243.62	AC	See CRP FMI Guidance

Note that it is the CRP owner's responsibility to maintain "undesirable vegetation" that poses a threat to the planned cover in an CRP practice. Undesirable vegetation has been determined to include both native and non-native invaders. This means that vegetation (trees) planned for treatment through FMI must be part of the original planned and approved cover (the trees that were originally established for CRP enrollment).

Being Climate Smart with CRP

USDA announced in April that a new CRP enrollment will be opened soon with a more targeted focus on the program's role in climate change. At the time of this writing, the application period has not been determined. Some highlights of upcoming changes include:

- Adjusting soil rental rates
- Increasing payments for Practice Incentives
- Increasing payments for water quality practices
- Establishing a CRP Grassland minimum rental rate
- Moving State Acres for wildlife Enhancement (SAFE) practices to Continuous signup
- Establishing national grassland priority zones
- Making Highly Erodible Land Initiative (HELI) practices available in both the general and continuous signups

Follow this link for additional information or reach out to your local FSA office.

<https://www.usda.gov/media/press-releases/2021/04/21/usda-expands-and-renews-conservation-reserve-program-effort-boost>



Good Fences Make Good Neighbors Part 1: General Fence Law

Hank Stelzer, MU Extension

Time and Mother Nature (particularly over the past winter and spring) can wreak havoc on fence lines. If you are faced with repairing or replacing a boundary fence line, now is a good time to review Missouri's current fencing and boundary laws, particularly if you are new to the Show-Me State.

In Part I of this three-part series, we will look at fencing and boundary laws in "general fence law counties." Part II will look at the differences in "optional fence law" counties. Part III will deal specifically with liability for trespass by livestock and boundary line disputes.

More information can be found in MU Guide G810: Missouri Fencing and Boundary Laws and Guide 811: Missouri's Fencing and Boundary Laws: Frequently Asked Questions. Do not rely upon this series or G810 or G811 for legal advice. This information is a general statement of the law. Direct your questions to an attorney. Your attorney can get relevant facts and act on them in your best interest.

General vs. Local Option Fence Law Counties

Missouri's first fence law was enacted in 1808 while Missouri was still within the Louisiana Territory. Since that initial law there have been many changes to the "general" fence law of the state.

In 1963 the Missouri Legislature enacted major changes in the fence law by authorizing the "local option" fence law. Adoption of the local option for a county required a majority vote at a county election. The issue could be put on the local ballot either by motion of the county court or upon the petition of 100 real estate owners of 10 or more acres in the county. Currently, 19 of Missouri's 114 counties have adopted the Optional County Fencing Statute (Figure 1).

The latest major revision to the State's fence law came in 2016. That change pertains primarily to "general fence law counties," but also impacts the entire state.

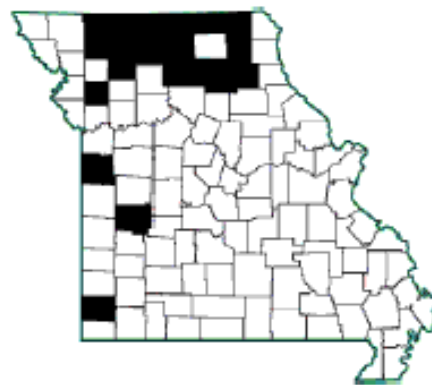
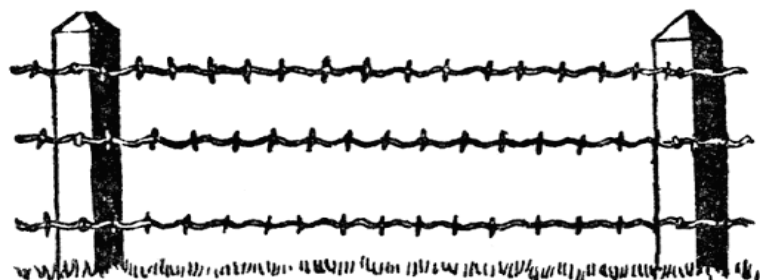


Figure 1: Counties that have adopted the Optional County Fencing Statute

Modified Forced Contribution and Maintenance

This is a major change. Only if your neighbor has livestock placed against the division fence can he/she be forced to pay for half the cost of construction, as well as be required to maintain the right-hand half. If the neighbor doesn't have livestock against the fence, you will have to put up the entire cost of the division fence and maintain the entire fence.

A landowner building the entire division fence must report the total cost to the associate circuit judge, who will authorize the cost to be recorded on each neighbor's deed. If your neighbor later places livestock against the division fence, then you can get reimbursed for one-half the construction costs. Unfortunately, this has not worked well since the law change in 2001.

Two areas continue to be confusing under the updated general law. First, landowners who do not want to contribute will try several things to avoid the law. (1) Not putting livestock in the bordering field. This works if livestock are never in that field (crop, hay, timber). (2) Putting wires and posts 10 feet or some part off the property line to not pay for part. That may work but if it stays there 10 years, you could lose the 10 feet by adverse possession. Second, livestock definition can be misinterpreted. If one show calf or horse stays in the field enclosure or cattle are allowed in to temporarily graze cornstalks, you are a livestock owner for the purpose of the law.

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The Right-hand Rule

Most of us assumed there was a "right-hand rule" as a custom, but there was no such language in the former statute. Now the statute clearly says neighbors who cannot agree on who is to build and maintain which portion of a fence shall apply the right-hand rule. Each neighbor stands on his or her land looking at the common boundary, finds the midpoint, and is responsible for the half to his/her right.

This assumes each neighbor has livestock against the division fence. Where your neighbor doesn't have livestock against the fence, then you will have to build and maintain the whole fence until such time as your neighbor places livestock against it. And you can enter upon your neighbor's land to build and to maintain your share of the division fence. The non-livestock owning individual has no say in said fence either!

Under the prior law, you would have to take your neighbor to court if you and your neighbor couldn't reach an agreement as to which fence portion was whose responsibility to build and to maintain. While this remains true, many courts do not do this as common practice today.

What is a "Lawful Fence"?

Some may think the new statutory definition of "lawful fence" is still too cumbersome and confusing, but you should have seen it under the prior law! Basically, as the law now reads, a "lawful fence" is any fence consisting of posts and wire or boards at least 4 feet high (and mutually agreed upon by adjoining landowners or decided upon by the associate circuit court), with posts set firmly in the ground not more than 12 feet apart. No number of boards or wire is set in law but the fence must maintain livestock.

A question occurs when both neighbors have livestock against the division fence but one neighbor wants a more costly fence, probably because his livestock require a stronger or higher fence. The associate circuit court for your county will be the ultimate decider on that issue. The new statute states that you can build the neighbor's portion in excess of the lawful fence required (but presumably at your own expense). The neighbor (assuming they own livestock) can only be responsible to cover the cost of the legal half.

Actual vs. Double Damages?

Under the new statute, if your neighbor's right-hand division fence is in need of repair and his/her animals trespass onto your

land, then your neighbor is liable for the actual damages done to your crops or livestock, but no longer for double damages. What is interesting to note here is the term, "crops." Are your trees considered a crop? They might not be if you do not have a management plan or you have not been actively managing your woodland before the damage occurred.

Existing Division Fences under the New Missouri Statute

Any validly recorded written fencing agreement in existence before Aug. 28, 2001, will continue to be enforceable under the fencing statute. If no valid written and recorded fencing agreement exists before that date, the fencing rights and duties will be defined under the new statute.

Novel Division Fences

In both the new and the old statutes, neighboring landowners are free to bind themselves contractually to fencing provisions different from those in the statute. And this includes agreeing that no division fence is needed.

When you and your neighbor reach an understanding about what type of division fence to build and who is to build and maintain which portion, put it down in writing, sign it, and record it against the land title (county recorder's office) of all neighbors signing the fencing agreement.

Verbal agreements won't work, as they violate the statute of frauds, which requires that agreements dealing with land and those taking longer than one year be in writing to be enforceable in court. Furthermore, only recorded written agreements will bind successor owners (buyers, gift recipients and heirs).

Part II of Good Fences Make Good Neighbors will be featured in the fall Green Horizons issue.

Fence laws link: <https://extension.missouri.edu/publications/g811>



The Bid Box

Hank Stelzer, MU Extension – School of Natural Resources, University of Missouri

Camden County, Missouri

- 47 acres
- 488 marked trees; predominantly black and northern red oak with some white oak
- Estimated total volume: 77,422 bd. ft.; 32,666 bd. ft. were black oak and 31,721 bd. ft. were northern red oak (Doyle Scale)
 - The consulting forester estimated the market value to be \$16,000.
 - Six bids received
 - \$18,500
 - \$15,600
 - \$15,484
 - \$10,500
 - \$9,600
 - \$8,100
 - The highest bid was accepted
 - Return: \$394/ac

To help you become familiar with some of the aspects of selling timber, check out the following MU Guides:

G5051 – Selling Timber: What the Landowner Needs to Know

G5057 – Basic Elements of a Timber Sale Contract

G5056 – Managing Your Timber Sale Tax

These Guides will help you better understand the ins and outs of marketing your timber and help you help your professional forester!



The White Oak Initiative

Hank Stelzer, MU Extension

The White Oak Initiative works 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.

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 which generates billions of dollars to local economies throughout the white oak region.

The White Oak Initiative is composed of white oak dependent or interested industries, trade associations, conservation organizations, 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.

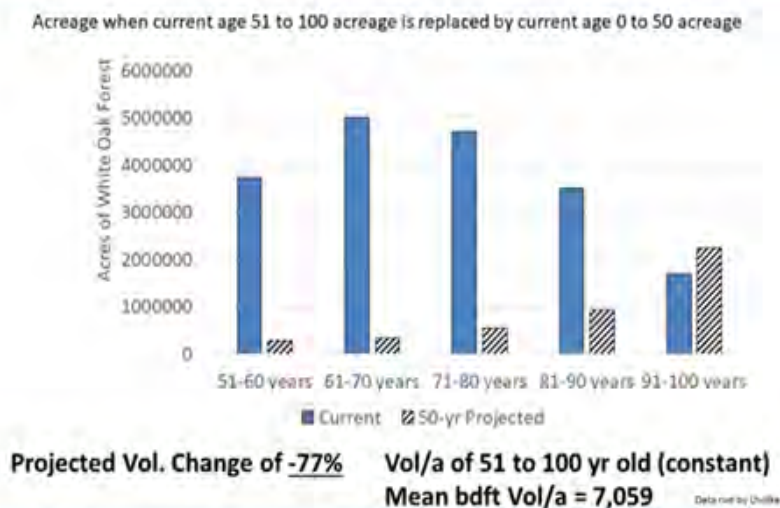
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Meeting the Challenge

Without action, our white oak forests will disappear within a generation with significant impacts on wildlife, forest ecosystems and timber supplies. Research shows that while the existing white oak stocks are sufficient for the near future demand (10-20 years), there are clear indications of long-term sustainability problems (Figure 1).

Potential 50-yr Demographic Change Age Classes 51 to 100 years



White oak faces many challenges, namely:

- Lack of active forest management, leading to overcrowded, low-quality stands that prevent oak seedlings from growing into quality trees.
- Widespread invasive species and diseases.
- Changing climate conditions affecting oak growth and regeneration.
- Marginalization and fragmentation of forest land.
- Lack of recognition of long-term threats to oak forests.

How the Initiative Works

Over the years, many individuals, businesses, and organizations have been worked to support white oak. The vision of the Initiative is to take this fragmented support to the next level through a coordinated and large-scale response across multiple states, interests and industries, a truly comprehensive effort to ensure the long-term sustainability of the species. To date, the Initiative is comprised of private landowners, universities, state and federal agencies, conservation organizations, trade associations, and forest industries including wine/spirits, flooring, cooperage, and timber.

The White Oak Initiative is designed to actively create and champion activities to conserve our white oak forests throughout the white oak range. Initiative actions include:

- Supporting research on oak health, population, age, genetic diversity, and economic and job impact.
- Technical assistance for both private and public landowners to encourage the growth of white oak.
- On the ground implementation strategies to engage and support family forest owners and assistance to public land foresters.
- A communication strategy to educate landowners, the public and others about the issues and opportunities.
- Policy solutions to support state and federal programs supporting white oak sustainability.

The initiative is supported by two coordinated USFS landscape scale restoration (LSR) grants and significant private and state financial contributions. Staff from the American Forest Foundation and the University of Kentucky are directly advancing the work of the White Oak Initiative.

For more information or to get involved, please contact Melissa Moeller, White Oak Initiative Director at mmoeller@forestfoundation.org and visit the Initiative's website at <https://www.whiteoakinitiative.org/>.

MDC Reorganization

*George Kipp, Private Land Forestry Program Supervisor,
Missouri Department of Conservation*

“Why change?” was one of the first questions posed by Missouri Department of Conservation Director Sarah Parker Pauley during the rollout of the new organizational structure to staff in early 2020. This, however, is not a mere rhetorical question. The world is changing at an increasingly fast pace. Challenges in natural resources management such as a feral hog invasion, severely declining bird populations, Chronic Wasting Disease in deer, and Rapid White Oak Mortality have strained the Conservation Department’s workload and forced a hard look at how to address these and future challenges. The new organization model gives the Department the flexibility to deploy staff quickly and efficiently to high priority challenges, as well as the meeting the demands of daily operations.

The new organization structure is centered around delivering on MDC’s core functions: MDC takes care of nature, MDC connects people with nature, and MDC maintains public trust. This also empowers the eight geographic regions to deploy staff and resources efficiently and effectively to address threats to nature and deliver on MDC’s core programs. Other benefits of the new organization structure include unifying Department strategic priorities, integrating natural resource management across disciplines, centralizing standards, and enhancing the Department’s focus on customer service and continuous improvement.

A deputy director is assigned to each of the core functions and those functions are further subdivided into branches and sections. The Deputy Director for Resource Management leads the core function of taking care of nature. This core function is further subdivided into five branches: Statewide Resource Management, Regional Resource Management, Protection, Science, and Community and Private Land Conservation. Statewide Resource Management is divided into sections that provide policy and planning input for the regions, as well as manage statewide programs and services.



Regional Resource Management is divided by the eight geographic regions of the Department, each represented by a Regional Administrator. The Regional Administrator manages staff to meet priority challenges and maintain Department core functions. Protection is responsible for enforcing the Wildlife Code and Science is responsible for coordinating and delivering scientific research to support Department operations.

Community and Private Land Conservation provides planning and policy input to regional staff and programs that deliver services to communities and private landowners, as well as managing statewide programs and services.

The Deputy Director for Engagement leads the core function of connecting people with nature. This core function is also subdivided into 5 branches: Policy and Governmental Affairs, Education, Communication, Relevancy, and Legislative and Agriculture Liaison. The Deputy Director for Business leads the core function of maintaining public trust, which is subdivided into the different business and support sections that provide business, technological, and financial support for agency operations and services. This new organization structure, while a significant departure from the old, gives the Department greater flexibility to respond to current and future challenges.



Deer Fencing - Protect your plantings

Barry Eschenbrenner, Co-superintendent, Horticultural and Agroforestry Research Center (HARC)

We grow many crops and trees at the MU Horticulture and Agroforestry Research Center (HARC) in New Franklin, MO. We have found that if we don't protect the new plantings, the deer will either eat or "buck-rub" (scrape) the crops/trees. We have tried several different fence styles here at HARC. Some electric, some not. We have had success with all of them, it just depends on what you prefer. They all basically use the same amount of support posts, so that is kind of a wash, no matter what system you use. We have some great fence here at the HARC farm. Woven wire with smooth wire on top can be electrified. We have observed that deer just jump through if the fence is not "hot". We electrify fence depending on the activities and use in that particular area of farm.



Mesh Fence (not electrified)

When using hot wire, a good fence charger is a must. There is always maintenance with this system, you have to check the fence regularly to make sure it is not "shorted out". When animals get into the fencing, they can knock it down. We consider it a daily chore to check the fences. Ninety nine percent of the time it's fine, but you do need to keep checking. The drawbacks of the polypropylene fence are in its appearance. It is difficult to keep the fence tight. The plastic gets warm and then looks "saggie". It is plastic, so we really don't know how long it will hold up in the sun. This is the 5th summer for our first fence, it is still working.

Because we do not like the appearance of the polypropylene mesh, we started building "poly wire" electric fencing. The poly wire is great to work with, it's quick to construct, easy and effective. As an electric fence, it is always "hot". You can put wires at different spacing because it is very easy to change the position of the insulators. Your posts for this system are T-posts for the fence line and oil pipe for the corner post. We use a 10' T-post. The number of wires used is up to you. We went with 7 wires, the wires closer to ground are closer together. That is for raccoon control. Drawbacks to this system include the need for ongoing fence maintenance and the posts are tall, so harder to drive into the ground. To date, this fence is keeping deer out, the jury is still out relative to raccoon exclusion.



Elderberry Fence (not electrified)

The first deer fence we put up at HARC was a heavy duty polypropylene mesh from A.M. Leonard. We went with 7 ½' tall fencing. It works well to keep the deer out. We didn't buy any of the accessories that A.M. Leonard sells. We used material we had on the farm (wire, 2 x 6's, connectors). If you use their accessories, we are confident you would also have a great deer-proof fence. This fence had the second highest cost of all the fences we have constructed. It has the lowest maintenance, is not electric, and is a great wildlife protector.

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Watermelon Fence

The most recent fence we built at HARC is a combination panel / electric. We use a hog panel at the base and poly wire on top. Hog panels are very stable and the wire is heavy. It is rabbit / small animal proof. This probably our best fence for appearance and animal control. It is also the most expensive.



Hog panel with hot wire fence

If you already have a normal height cattle fence, we have come out about 4' away from that existing fence with a single wire electric fence. Deer seem to have a depth perception problem, so putting two fences about 4' apart does seem to deter the deer. We refer to this as a "kicker wire". This would be the least expensive and least effective option.

The prices of these different systems vary and can change. A good rule of thumb for an acre of reliable deer-proof fence would be around \$2,000. That does not include labor.

This is a general overview of the different fence types used at HARC. If you need specific measurements and costs, please contact us. We plan to creating "fence videos" this summer and we will post them on the Mizzou Agroforestry YouTube channel.

Missouri Forestry Summit to Be Held August 10-11

There are many threats to our forests and woodlands. The online Forestry Summit held in August of 2020 by the Forest and Woodland Association of Missouri (FWAM) detailed an aging forest lacking diversity, a lack of white oak regeneration to replace aging and harvested trees, concerns about tree mortality and how forests will respond to a changing climate.

The next iteration of the Forestry Summit is scheduled for August 10 and 11, 2021 at the Hilton Garden Inn in Columbia. These issues will be discussed further but more importantly, we will explore ongoing management initiatives to combat the many issues and threats to our forests. Breakout sessions will be held to gather ideas for what FWAM, and partners can do to keep our forests healthy.

Natural resource professionals, educators, consultants, landowners and anyone concerned about Missouri forests and trees and with an interest to promote, teach and encourage their management are welcome to attend and will find this event valuable. You can also view the 2020 presentations at <https://forestandwoodland.org/forestry-summit>.

More details, the agenda and registration will be up soon on the FWAM website at www.forestandwoodland.org. This event is a great opportunity to be involved and speak for the trees of Missouri.



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Past issues of Green Horizons are available on the Center's website: www.centerforagroforestry.org



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Calendar of Events

2021 North American Agroforestry Conference

June 28th - July 2nd | 9:00am - 5:00 pm CST | Online

From the Savanna Institute's website: "The work to establish and scale up agroforestry for carbon drawdown has only just begun, but the potential is enormous. One acre of alley cropping can sequester nearly a ton of carbon in woody biomass alone. Silvopasture is #4 on Project Drawdown's list of natural climate solutions. And even just a modest adoption of agroforestry is head and shoulders above other agricultural land-use changes in its potential for carbon sequestration. The 2021 North American Agroforestry Conference will bring together farmers, landowners, researchers, climate scientists, investors, philanthropists, policymakers, and global leaders on climate change, carbon drawdown, and agroforestry. Together we will tackle the major barriers to scaling agroforestry, focusing on solutions and action. We hope you'll join us! For more information and tickets: <https://www.savannainstitute.org/agroforestry-2021/>

Agroforestry Training Academy

July 19th -August 20th, 2021 | Online

The 2021 Agroforestry Training Academy will take place online with recorded presentations and extensive course materials. It will also include meet-up and consultation sessions with agroforestry professionals, researchers, and experienced growers along with virtual farm tours and networking opportunities. A wide variety of topics including an overview of agroforestry practices, planning and design considerations, marketing and economics, and much more! The program fee is \$350, which includes all course materials (electronic and/or hard copies) and access to the Canvas course for one year. Scholarships are available for US veterans, individuals from socially disadvantaged and underserved groups, and Extension or USDA personnel who assist farmers/landowners. For more info and to apply to the academy: <https://centerforagroforestry.org/landowners/the-agroforestry-academy/>

Bees, Beetles, and Broccoli: Establishing & Managing Native Habitat for Beneficial Insects

June 8th, 2021 | Practical Farmers of Iowa & Xerces Society | Online

Did you know only 2% of insects are pests? The rest are beneficial insects that contribute to the farm ecosystem by preying on pest insects, eating weed seeds, recycling nutrients, aerating and building soil structure, providing pollination services and supporting other wildlife in vast food webs. Join PFI member and farmer Jake Kundert and Xerces Society biologist Sarah Nizzi to hear about the decisions Jake and his colleagues have made on the Grow: Johnson County farm to benefit these native beneficial insects and other wildlife. You will also learn about strategies and resources you can use to establish and manage many types of habitat to foster communities of beneficial insects. RSPV here: <https://practicalfarmers.org/events/field-days/live-from-the-farm/bees-beetles-broccoli-native-habitat-establishment-management-for-beneficial-insects/>

Walnut Council Regional Field Day

July 24th , 2021 | Forest Keeling Nursery | Elsberry, Missouri

The Walnut Council annual field day will include information on forest health, timber markets, and invasive species. The day will also include a tour of Forest Keeling Nursery, lunch, an open Q&A session and networking opportunities. Registration is limited, register at: <https://walnutcouncil.org/events/annual-meeting/>

Calendar of Events Continued

Forest Farming Training for Natural Resource Professionals:

Increasing Capacity for Landowner Assistance

June 16th-17th, 2021 | 9:00am, 12:30pm | West Virginia Forest Farming Initiative | Online Training

Want to increase capacity for landowner assistance? This free online training will provide Natural Resource Professionals with the knowledge and skills to understand, identify, and implement forest farming management strategies, which will expand technical assistance opportunities for private forest landowners in the Central Appalachian region. This training has been approved for 5 SAF CFE category 1 credits. Register & view agenda: <https://myemail.constantcontact.com/Forest-Farming-Training-Opportunity-for-Natural-Resource-Professionals.html?soid=1106304554030&aid=opUkCO3xhKE>

Foraging for Soil Health Workshop

July 21st, 2021 | Missouri Forage and Grassland Council | Everton, MO

This day long workshop covers all aspects of soil health in grasslands. Attend presentations from Agronomist Dale Strickler and Soil Health Specialists Ray Archuleta and Doug Peterson on the importance of soil health, how to improve soil, cost share programing, cover crops, warm season grasses and more. There will also be field observations and discussions on a working cattle farm. Registration is limited to 100 people. Register here to reserve your spot: <https://mfgc.regfox.com/foraging-for-soil-health-workshop>

Designing Diversity: Climate-Smart Habitat Management for Pollinators

September 7th, 2021 | Practical Farmers of Iowa and the U.S. Fish & Wildlife Service | Online

Join Erik Sessions to learn about the work he and his family are doing to increase the diversity of their farm and the surrounding property. Learn about strategies and approaches for habitat management to maximize diversity, and hear more about their long-term vision for the land. U.S. Fish and Wildlife Service biologist Gregg Pattison will discuss the importance of diverse and connected habitats for wildlife in the Driftless Region. Register: <https://practicalfarmers.org/events/field-days/live-from-the-farm/designing-diversity-climate-smart-habitat-management-for-pollinators/>

A New Carbon Program for Hardwood Landowners

June 15th, 2021 | 12:00 pm-1:00pm ET | Walnut Council | Online

Alex Macintosh, Director of Landowner Success at NCX (formerly SilviaTerra), and his colleagues Lillian Hogan and Jeff Wright, will share information on their data-driven forest carbon marketplace and how owners of woodlands of all sizes can participate now. SAF continuing education credits will be available. Register here: https://purdue-edu.zoom.us/webinar/register/WN_HGr-CxOdT8yzECd9IDCsjq

Field Days and Events from the Savanna Institute

- Ownership Pathways in Agroforestry, *June 17th @ 11:30 am-12:30 pm*
- Elderberry & Elder Flower Field Day, *July 9th @ 3:00 pm-5:00 pm*
- Black Current Field Day, *July 11th @ 9:30 am-5:00 pm*
- Farm and River Tour, *July 23rd @ 10:00 am-5:00 pm*
- Lily Springs Field Day, *August 28th @ 10:00 am-1:00 pm*

For event details and registration: <https://www.savannainstitute.org/events/>

Agroforestry Webinar Series

June - November | 3:00 pm | Cornell Agroforestry | Online

- Silvopasture Systems in New York and Their Contributions to Capturing Carbon, *June 9th*
 - Getting Started with Ginseng, *July 21st*
 - Past, Present, and Future Nut Production, *September 15th*
 - Sustaining production and profits: research update from the Cornell Maple Program, *November 17th*
- For webinar details and registration: <https://smallfarms.cornell.edu/2021/05/agroforestry-webinar-series-will-showcase-new-research-techniques-and-more/>

Calendar of Events Continued

The Consulting Foresters Fall Meeting

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Horticulture and Agroforestry Research Center Annual Chestnut Roast

October 2nd, 2021 | The Center for Agroforestry | New Franklin, MO

Join the University of Missouri Center for Agroforestry for the annual chestnut roast! Stay tuned for additional event info. Videos from last years virtual chestnut roast can be found at <https://harc.missouri.edu/chestnut-roast/>

Missouri Community Forest Council Conference

August 25 - 27th, 2021 | Branson, MO

The Southwest MCFC is excited to welcome you to Branson for three days of presentations, networking opportunities, and exhibits related to community forestry. Attendee Registration is available as a mail in form and online at: <https://bpt.me/5134236>. MCFC is offering a limited number of scholarships for students and professionals to assist with registration for the conference. For more details, links to register, and access to forms for scholarships, sponsorship, and hotel information go to <https://www.mcfconference.com/>,

Master Gardener Program

Aug. 25 - Nov. 10, 2021 | Wednesday mornings, 9:00 am - 11:30 am. | MU Extension | Face to face & Zoom

The Master Gardener program trains individuals in the science and art of gardening. Graduates become volunteers who advise and educate the public on gardening and horticulture. Local Master Gardener chapters provide ongoing education, organize gardening activities for the public good, conduct research, and many other types of projects. This offering will have two cohorts, one in mid-Missouri (Boone, Cole, and surrounding counties) and one in the Kirksville/Adair County area. You will choose a cohort in the registration, and may select any cohort that is convenient for you. For this offering, the primary course content will be delivered online (via Zoom) on Wednesday mornings, 9:00 to 11:30 a.m. "How to" instructions and tips for using Zoom will be provided by email prior to the first class. In-person lab sessions will illustrate what was covered during the Wednesday classes through tours, demonstrations, and hands-on activities all held in the local cohort vicinity. For the mid-Missouri cohort, the lab sessions will be from 9:00 to 11:30 every other Friday: Aug 27, Sept 10, Sept 24, Oct 8, Oct 22 and Nov 5. but participants can expect morning hours. For the Kirksville/Adair County cohort, lab sessions will be on Thursdays, 9:30 to 11:30 a.m. Friday sessions are optional but strongly encouraged. Lead trainers are James Quinn, retired MU Extension horticulture specialist, and Jennifer Schutter, horticulture specialist in Adair County. Cost: \$200. For more info: <https://extension.missouri.edu/programs/master-gardener>

Pollinator Festival

June 26th, 2021 | 10:00 am - 12:00 pm | MU Extension, Master Gardeners | Independence, MO

The Pollination Festival Celebrates pollinators at St. Paul's Community Garden at the Northeast corner of 36th Street and S. Sterling Ave. on Saturday, June 26, 10am to 12noon. Learn more about pollinators and their important role in the environment and in food production. This event includes activities and information for adults and children. Free to attend. <https://extension.missouri.edu/events/master-gardener-program>