



Missouri Native Plant Society Hawthorn Chapter Newsletter

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We would like to read about announcements, impressions, species accounts, photos, poems, links to scientific articles or other creative nature writing from you, too. Please submit during the second half of every month.

This is the 37th year Hawthorn has supplied a newsletter to chapter members.

April 2022

Future Activities Calendar

Our traditional meeting time is second Mondays at 6:30.
We will present a ZOOM meeting Mon 11 April.
You will receive a link the weekend before.

Saturday 9 April: 9 am [set-up] to 1pm. After two years of not having a native plant sale at Bradford Farm in Columbia due to Covid 19, it is now back and scheduled for April 9 from 10 am to 1pm at MU Bradford Research Center on Rangeline Rd. SE of Como. For complete information see the attached news release from grownative.org. We need volunteers to set up, break down, and work booth.

Mon 11 April 6:30 Chapter Zoom meeting. It will be open ~6pm for socializing. **Link will be sent to our membership Fri or Sat.** Nadia, our chapter VP, offers a program explaining plants that are nitrogen fixers. This was the focus of her PhD thesis. After Nadia's program, we need to discuss logistics for spring plant sales, possible mosey dates and locations among other business items.

This is probably a good time to mention **some other native plant sales coming up:**
Sun, April 24: Earth Day all day street fair. Hawthorn Chapter of Missouri Native Plant Society will be selling native plants. Please volunteer to help set up before 10 am then work booth. Or work booth and break down around 6pm. There is always time to wander the fair.

Wed, May 4: 3 - 6 pm, Songbird Station in Columbia. Hawthorn Chapter will sell native plants in the parking lot. We need a few volunteers to set up early and break down after.

Sat, May 21: 10 am to 1 pm, Bass Pro Shop on North Hwy 63 in Columbia. Multiple vendors of native plants. We need volunteers to set up, break down, and work booth.

MONPS Weekends in 2022: Dates, Locations, Potential Mosey Sites

Spring April 1-3 Bolivar: Corry Flat Rocks, Bona Glade, maybe Schuette Prairie

Summer June 3-5 Festus: Don Robinson SP, Valley View Glades, Hickory Canyon, Victoria Glades, Washington SP

Fall September 16-18 Eagleville: Dunn Ranch, Rolling Thunder Prairie (IA)

More details can be found in upcoming Petal Pusher and later on the MONPS website. These weekends are very educational and FUN!

Be sure to check on the MPF/GN site under Activities for webinars on **alternate Wednesday afternoons at 4pm**. January's were about glade management and forest health. Our chapter pays to be a member so these on-line activities are free to you as a member. However, if you feel they are giving you a good education, a donation is welcomed



Announcements

Thanks Nadia for giving our program 11 April.

Thanks to Joanna for her iNaturalist workshop and report.

Thanks to Emily, Elena, and Lea for helping to set our nursery up for spring growth.

Thanks to Michelle for proofing the newsletter.



GOLD LINKS

All new MPF/GN events posted here: <https://grownative.org/events/>

Save migrating birds from window strikes

<https://abcbirds.org/glass-collisions/>
<https://www.birdsavers.com/make-your-own/>

Bird-safe windows

Transparent, reflective glass confuses birds. Up to a billion a year in the U.S. die from collisions with glass—nearly half from hitting home windows. These DIY fixes discourage birds from trying to fly through windows: Mark glass with tempera paint, stickers, or tape, making gaps in the pattern no larger than 2 inches tall by 4 inches wide—or 2 inches by 2 inches for greater deterrence. The American Bird Conservancy has more ideas at abcbirds.org/glass-collisions. A DIY approach to helping avert bird collisions: Create patterns on windows with tempera paint, stickers, or tape. <https://www.birdsavers.com/make-your-own/> To help birds that've collided with glass, see if your area has a bird strike watch program. Audubon Society chapters have volunteers who monitor bird strikes and collect data that can be used to make cities and towns more bird safe. Window photo by REBECCA HALE, NGM STAFF

Careful spring cleaning

Before firing up the mower or hedge trimmer, check grounds and shrubs for small animals, birds, and nests. If you find a creature needing relocation or help, search for a nearby animal rescue/rehab expert at AHnow.org.

Field trip recap: practicing iNaturalist use at Chert Hollow Farm

Text and photos submitted by Joanna and Eric Reuter

Budding and experienced naturalists gathered at our rural Boone County property on a sunny, warm, late-March Sunday afternoon to learn about and practice using the iNaturalist app to identify and study native plants. An initial creek-bottom walk turned up blooming harbinger of spring (*Erigenia bulbosa*); we also studied plants that still had seed heads from last year (for example, elephant's foot, *Elephantopus carolinianus*) and plants that aren't yet budding but will add to our wildflower display in the coming weeks and months (for example, blue phlox, *Phlox divaricata*). We also diverged into a brief discussion of some coal exposures: a geological perspective on native plants! [Photo above] We practiced taking observations by using the app to take photographs and recording relevant information.

Convening on an outdoor patio with WiFi access, we then went through the process of uploading these to the iNaturalist database and discussed how to use the website. >

A secondary walk up to a small upland prairie restoration area gave us the chance to consider the sometimes-unclear boundary between native, native-but-planted, and non-native species by discussing whether natives like rattlesnake master and Indian grass count as iNaturalist's "wild" definition if they were seeded by humans



it as an incentive to improve their observational skills and awareness in the outdoors, as well as the thrill of meeting other new and experienced users. Our deep thanks to all participants. Based on the success of the initial event, we'd love to host another one at a later date.

[The iNaturalist website](#) has a great "help" page for those new to iNaturalist. [View \(and join\)](#) the Missouri Botanists' Big Year 2022 project.

[Recordings of two iNaturalist webinars](#) are now available on the Missouri Native Plant Society's webinar page:

- iNaturalist as a Tool to Enhance Understanding of Missouri's Flora, presented by Joanna Reuter to the Hawthorn Chapter, February 2022
- Citizen Science with iNaturalist and the Missouri Botanists Big Year 2021 Project, presented by James Faupel to the St. Louis Chapter, July 2021



rather than reproducing on their own, and how/whether one can tell the difference. The backdrop of planted pines and native cedars provided another discussion point, as pines are clearly introduced (if for beneficial reasons) but cedars, though native, often behave as an invasive and are aggressively managed here. [Photo left]

The group then split, with some participants returning to the patio for more digital practice and others continuing on for a longer landscape walk.

Participants seemed to have a great time, expressing excitement at learning how to contribute to iNaturalist and use

Read about the 99M-yr-old flower

[CNN Space and Science page 2 Feb 22]

Primary reason to **NOT** buy peat based soil: it's a high carbon bank and it is non-renewable.

Sign up for MO Prairie Journal

<https://moprairie.org/mission/missouri-prairie-journal/>

Find links to educational webinars every Wed afternoon on the MPF site.

Here is a link to a Missouri Bee Identification Guide

put out by St Louis Zoo (Edward M. Spevak), and MDC (Michael Arduser)

The presentation at the Jan meeting was about bumble bees; Emily found the link to watch the [PBS Nature program about bees](#).

Christi wants to share: <https://news.yale.edu/2021/10/14/weed-winter-how-plants-detect-seasonal-changes>

Smithsonian's The Plant Press

Intriguing articles and essays from newly identified plants to artists found in archives. Newest edition of [The Plant Press](#) is available. You can sign up to receive this newsletter personally in upper right corner.

Elena offered to share this article on [butterfly identification](#) from MPF.

Dates for the following activities will be decided during appropriate meetings; all need discussion and agreement. If you are inclined to have ANY interest in these activities, Please attend meetings to give us your opinion on dates and times.

Joanna is offering to guide moseys to two near-by areas

Pinnacles Youth Park in northern Boone County features a narrow limestone ridge with natural arches. In addition to the geologic interest, the park hosts a very diverse and interesting set of plants, including woodland wildflowers, cliff-associated species, and small patches of prairie/glade-associated plants. Hikes vary from easy to rugged. Some routes require crossing Silver Fork Creek; waterproof boots are often helpful for this. Interesting plants can be accessed via an easy-moderate hike with no stream crossings. The choice of route can be adjusted based on weather conditions and to suit the comfort level of field trip attendees. [April to early June offers a diversity of spring ephemerals.](#)

Rocky Fork Lakes Conservation Area is dominated by land used for coal strip mining, but amongst the old mining scars are two patches of prairie with considerable diversity. The southern prairie is a new destination for this group. The hike of a bit over a mile each way is well worth the effort for the reward of visiting this biodiverse and beautiful prairie with species including wild indigo, wild quinine, compass plant, coreopsis, rattlesnake master, prairie blazing star, and more. [June through August presents the best diversity here.](#)

What do I do with this weedpatch?!

[What to do to avoid a weed patch]

Submitted by Becky Erickson

What a frustrating dilemma. I sympathize. Please indulge my explanation. Try to visual and extrapolate the same effects on our soils.

I recently listened to a Q & A on NPR with George Weinstock of the Genome Project at Washington U in StL. I can't quote anything exactly from him. Just take that I am relaying information as in a conversation. You may look among his 109 publications to find exact data.

He expresses that there is a whole ecosystem growing in and on your body [EEEEEE-gads! Where is the sanitizer?! Fill the bath tub!] NO. STOP. Without this unseen ecosystem we cannot be healthy. There are fungi, bacteria and viruses from our guts to our skins that are symbiotic. Most of them are benign and symbiotic; without which we cannot function properly.

At a time when a new virus or bacteria invades us [or any mammalian body], many factors of the immune system take over automatically to neutralize the new attacker. Our bodies show symptoms of a high fever, excess mucus, undesirable fluids expelled from both ends of the digestive system. The symptoms make us lie down in a warm place to sleep, drink gallons of clean water; eventually the immune system neutralize the invader. Hopefully it is a healthy body with a full complement of symbiotic microbials, or the invader takes over the body.

Through "modern medicine" we have developed antibiotics. When we are on death's doorstep from a bacterium, we are often given antibiotics to squelch the invader. This will save the life of the body, but it also kills off a great majority of the symbiotic microbes. Once you, or your dog, or horse, have recovered, with the help of antibiotics, from winning the biological onslaught, the hundreds of symbiotic microbes must be recovered and returned to a correct balance so the immune system can recover from the last battle ready to fight again. This balance recovery can take longer than the initial illness.

If you have actually read this far, you are about to put it down because you thought: "But this is a newsletter about wild plants and ecosystems. What is all this gibberish about me?" So very much research has been done on humans and other animals we farm. I have just presented you with something you can relate to [yes, incorrect grammar]. I think the analogy can be stretched to *Plantaea* and soil science.

DDT was first synthesized in 1874, but it wasn't until 1939 that Swiss biochemist Paul Hermann Müller discovered its potency as [an all-purpose insecticide](#). During WWII, DDT was used to kill mosquitoes and lice on soldiers. Soon after that, DDT was used widely to kill fruit flies, plant hoppers, and other harmful agricultural insects. Rachel Carson explained its effect on the environment about 50 years ago in her book *Silent Spring*. DDT is still available outside US.

Since then, **thousands of carbon and chlorine based chemicals have been developed to eradicate unwanted vegetation and insects**. And YES they all affect *Animalia*. These chemicals could be a great advantage to our well being and ease of management of undesirable plants and insects if they were used carefully and judiciously. But they have been broadcast over large areas in excessive quantities, with enormous consequences of collateral damage effecting the general bio-systems much like a large dose of antibiotics administered to a mammal aimed at one invader which effectually kills off many other symbiotic organisms. **What we have is large areas of weakened/sick/nearly-sterile ecosystems**. Your land is part of this problem.

[Skipping lots of exruciating details] We have now arrived at a place you can relate to on your own land. "I want to grow a meadow/field of native plants, but they are not germinating/ growing/thriving well." Like the food that runs through your gut, food your body can't assimilate after a 6-week dose of

Excellent info from GN
[Native Landscape Care Calendar](#) - for pros and homeowners. Also - a brief [one-page care overview](#)
And just added: extensive Butterfly Host Plant list

You can now [subscribe to National Geographic Magazine](#) on line for \$19/year.

To learn more about **Deep Roots KC** or to view previous educational webinars, visit <https://deeprootskc.org/>

Links to two of our Chapter Autumn Zoom Presentations

[Lea's Outdoor Native Plant Classrooms](#)

[Becky's Pollinator ID & Garden Plants:](#)

(the NOTES show up in the bottom; you need to click "notes" at the bottom of the screen to see verbiage).

[St Louis chapter presentations are posted on the state website.](#)

Public Enemy #1



antibiotics to rid your body of Lyme, the soil in your yard does not have a healthy nutritive balance nor the native mycorrhiza needed for the original native plants to feed and thrive.

Chances are there is **WAY too much nitrogen** in the soil left from attempts to keep turf grass or agricultural annuals happy. Only annual weeds thrive in excess nitrogen. Most natives prefer higher quantities of phosphorus and potassium available from ash left from fire. With high nitrogen, natives grow lots of leaves on tall stems which wither in late summer heat and drought.

The other soil problem is lack of carbon *and natural mycorrhiza [from Dictionary.com] "a symbiotic association of the mycelium of a fungus, especially a basidiomycete, with the roots of certain plants, in which the hyphae form a closely woven mass around the rootlets or penetrate the cells of the root"*. Grass and tree roots are only secondary to holding soil together; mycorrhiza is the primary soil binder. Many mycorrhiza assist plants with nutritive uptake and communication with each other.

When soil is plowed/tilled/dozed for building human structures, carbon is released into the atmosphere and the microscopic fungus hyphae are broken. When this action is repeated once or twice per year during agricultural practices, soil biodiversity is depleted. Add herbicide and insecticide residue and it is far from a welcoming place to start life. You put your bag of wonderful wildflower seed mix on this land expecting a miracle and what you get is a weed patch.

Requesting this feat from your field is much like your contracting a new virus several time per year over several years; your body is depleted of balanced nutrients and other microbes. Then when you are asked to cover 26 miles on foot, you could get there in a week where a healthier body could do it in 10 hours or maybe 6 hours. Hopefully for your own body, you would include supplements of several intestinal bacilli and vitamins appropriate to improve your immune system so your strength and stamina would improve.

- 1) So, for your soil, do NOT till it before planting. By tilling, you release whatever carbon is stored to the depth you till. You also raise weed seeds that need sunlight and surface nitrogen to germinate. The first two years, these weeds can out-compete the plants, and you. You need to add and rake in sawdust, wood chips and other raw organic waste so natural bacteria can use up the excess nitrogen in the soil when they digest the wood. This initial work will allow the deep-rooted native seed to get ahead of shallow-rooted annual weeds.
- 2) NEVER add any synthetic fertilizer. An annual dusting of lime will release nutrients from clay.
- 3) You also need to purchase mycorrhiza to apply to the area you want to seed or plug-plant. This area of soil science has improved and techniques of mass production have improved enough that mycorrhiza is available from many sources on line; I find some generalist species incorporated in some potting mixes.
- 4) You do need to go through the newly planted area to pull/treat over-exuberant weeds. If it is a big field, it needs to be mowed at 8-10" about 1 July and 15 August.

I don't want to get into further details here as there are LARGE quantities of information on the subject on line. Also refer to Prairie Moon Nursery, and Hamilton Outpost, and Missouri Wildflowers catalogs on line. They ALL have good information about establishing natives in patches or large fields.

"Nothing Eats Them" Exotic garden plants can wreak unexpected havoc with indigenous species and ecosystems. **Excerpt from [NWF Magazine](#)** Barry Yeoman; Gardening; Mar 27, 2017

We don't know what the next invader will be. But we can guess it will pass into the country unimpeded. That's because the United States has a feeble system of regulating garden imports. Each new species is presumed harmless until proven otherwise—and by the time a verdict arrives, the harm is often beyond repair.



Kousa dogwood (left) was first imported from Asia in the 19th century. Unlike native dogwood fruit, kousa berries (right) are not eaten by native wildlife. "They're not part of the food web," explains one scientist.



Fewer flowering dogwoods means less food for fruit-feeding creatures, from waxwings to bears and foxes. The caterpillars of spring azure butterflies also miss out on a key food source. And kousa berries? They're monkey food, which makes them valuable in Asia but not in North America. **"Nothing eats them"**

I killed eight last fall. PLEASE be aware and act.

Perfectly camouflaged, this oriental mantis waits on flowers to eat **EVERYTHING** that lands on it: all beetles, butterflies, bees, other mantids, hummers, and finches who come for seed. It is imperative to rid your area of this ecological menace. Catch and kill the bird-sized adults.

Egg cases look like a tan foam golf ball stuck on a vertical twig/wire.



Put them in a jar over a year, or soak them in something flammable and light on fire to be sure they are dead before disposing in the trash.

The biggest city you have never heard of - I have been to [Cahokia Mounds](#). It is definitely worth the trip. [Cahokia Mounds State Historic Site](#).

Link to

Braiding Sweetgrass

by Robin Wall Kimmerer. If you want to assist Robin's cause with a purchase of one or more of her books, please do. If you cannot afford this purchase at this time, [this link is a gift of a free download](#).

Ubiquitous Plastic from NatGeo weekly e-newsletter 27Aug 2021.

[Midway](#) through it explains the complete plastic cycle.

here," says Doug Tallamy, a professor of entomology and wildlife ecology at the University of Delaware. "They're not part of the food web."

Kousa dogwood is just one of scores of exotic plants imported by the U.S. garden industry that have triggered widespread and unforeseen ecological damage. Hemlocks from Japan ferried in an insect called the hemlock woolly adelgid, which has destroyed native hemlock canopies in at least 17 states from Maine to Georgia, depriving streams of the cooling shade that brook trout need to survive. (The adelgid has invaded almost half of the native hemlock's 2.3-million-acre eastern range.) Japanese knotweed, with its aggressive horizontal stems, has crowded out indigenous vegetation eaten by invertebrates, and scientists suspect the loss of these animals may, in turn, be starving green frogs. Autumn olive, a woody shrub, has taken over grasslands, making it harder for birds such as grasshopper sparrows and bobolinks to nest successfully.

Maps for [142 individual species](#) in MO and descriptions for [25 species](#) have been combined by [MO Invasive Plants Task Force](#).

Spotted lanternflies are eating their way across America.

Laura Tangle; Invasive Species. Feb 04, 2022
Excerpt from NWF Magazine

I reported on this critter last year with similar info from NYTimes. It started in NJ; last year was prolific in Ohio which is on our doorstep . . .

NEITHER A FLY, AS ITS NAME IMPLIES, nor a moth, which it resembles, the [invasive](#) spotted lanternfly is a beautiful bug—but a very bad one, at least in the United States. What to do if you see one? "Kill it! Squash it, smash it ... just get rid of it," advises a [Pennsylvania Department of Agriculture alert](#). Native to Asia, the lanternfly, a planthopper, was first reported on this continent in 2014 in Pennsylvania. By late 2021, it was established in 10 U.S. states and had been sighted in 10 more—a list that keeps growing, says [Julie Urban](#), a Pennsylvania State University evolutionary biologist who has studied the species for two decades.

Some secrets to its success: "Unlike most sap-feeding insects, the lanternfly doesn't lay eggs only on a handful of host plants," says Urban. The insect, in fact, deposits egg masses—each containing 30 to 50 eggs—on "virtually *anything*," she adds, including automobiles, train cars, shipping crates and airplanes. Another adaptive trait, lanternflies thrive on more than 100 plant species, including valuable crops. According to a [2019 study](#), the pest could cause annual losses of \$325 million in Pennsylvania, where it already is costing farmers tens of millions a year, mainly by killing grapevines.

Even if it doesn't kill its host, the pest produces copious quantities of a sticky liquid called honeydew as it feeds, which "can make it feel like it's raining on a sunny day if you're picnicking under a tree," says University of Maryland entomologist [Michael Raupp](#). Honeydew also fosters growth of a black mold that can block sunlight and inhibit photosynthesis.



Stunning with wings unfurled (above), lanternflies multiply quickly (below).



Tick Study Interim Results

MDC and A.T. Still University in Kirksville partnered in a new research study asking people to save ticks they encounter and mail them to the University. The ticks will be used for two-year scientific research study to help better understand the statewide distribution of tick species and the human pathogens they carry. [Get more information and images](#)

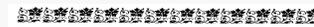
Since this is a 2-year study, you can submit ticks this year

Drying polyester fabrics in a tumble dryer throws microplastics into the air.



Consider participating in [Project Budburst](#)

“Budburst is a collection of researchers, educators, **gardeners**, and community scientists working together to illustrate the human impacts on the natural world around us. We tell that story through data collection, data sharing, education, and personal connections. [Phenology](#) is the study of the timing of the biological events in plants and animals, such as flowering, leafing, hibernation, reproduction, and migration. Community scientists like you will help us collect data on how plants respond to climate change by tracking their phenology over time. The more data you collect, the more we can understand the effects of climate change, and develop ways to mitigate it.” Copied from the Budburst home page.



Eastern redbuds are iconic spring bloomers, but mystery remains about the timing of their flowering and fruiting.

[The Redbud Phenology Project](#)

seeks to answer questions such as:

1. Does the timing of redbud flowering vary by location or elevation?
2. Is there a cycle to abundant years of redbud fruiting?
3. Are redbuds flowering and fruiting earlier in the year?

Questions? Contact Erin Posthumus, USA National Phenology Network, at erin@usanpn.org or Dr. Jorge Santiago-Blay, National Museum of Natural History, at blayj@si.edu and Penn State York, blayj@psu.edu.

By signing up as a Nature's Notebook observer and tracking the seasonal activity

If Omicron virus has been found scientifically in whitetail deer in AR, IL, KS & OK, [[NY Times 7 Feb 2022](#)] it is safe to assume covid is in whitetail here in MO. Covid ran rampant throughout the mink industry kennels in OR/ WA and China. All of those minks were destroyed in summer when their hides could not be salvaged. One way to keep covid, tick diseases, and cwd in check is to kill deer.

Please encourage anyone who hunts to kill all deer that is legally possible.



VOLUNTEERING OPPORTUNITIES CPS Outdoor Classrooms

Many of you have expressed interest in helping to manage the myriad of native plant gardens around town and at Columbia Public Schools as a reason to get outside and a process of education. Doing this community service is applicable to your MMN re-pay requirements. Even if you have not had MMN training, working in these gardens will help you learn how to recognize good native plants from undesirables. Lea is the leader for this volunteer group [named Volunteer of the Month by City of Columbia last summer].

Activities are announced weekly, so sign up now to know when and where to get started. Lea knows where all the gardens are and offers a schedule, received from her by email, when group weeding parties occur. If you have confidence in your knowledge of species recognition, don't be shy! – [ask Lea for a garden](#) and do what you can to remove 'bad plants' when you want to work. If you need assistance with id and technique, go with a group several times before you strike out on your own. langtrea@gmail.com call or text 864-7647.

If you ever want to participate in these activities, please contact Lea at langtrea@gmail.com. Photos of these projects are in a Powerpoint I did last year: [Lea's Outdoor Native Plant Classrooms](#)



You're Gonna Miss Them When They're Gone Insect Refuge

Ann Wakeman saw this article online and wondered if it would be something to send out to the membership. She did some editing since the original was written for European audiences. There is a book mentioned, for those who might really be interested in working on their own bee hotel.

Insect Hotels: A Refuge or a Fad? If you are a gardener by hobby and a nature enthusiast by heart, chances are that you are already familiar with the concept of insect hotels (also known as bee hotels). Offering a sanctuary to beneficial insects, especially pollinators, insect hotels are considered to be the urban solution to declining population of beneficial insects in human environments due to habitat loss, pollution and abuse of pesticides. Insects provide many benefits to the ecosystem through pollination, nutrient cycle, and also as food source for birds.

Countless gardening stores and home furnishing stores sell insect hotels. Numerous blogs and websites have step-by-step manuals on how to build one yourself. All units are aesthetically pleasing which motivates well-intentioned buyers into adopting the concept. However, these insect hotels are often badly designed and they offer unsuitable home to the target insects. The warning sign of such designs is the unnecessary use of pine cones, glued snail shells, wood shavings and clear plastic tubes. Too many off-shelf insect hotels or build-your-own websites do not come with clear guide on maintenance, which is very important in ensuring the survival of the insects we intend to host.

Large insect hotels (aptly called insect condominiums) using wooden pallets are becoming very popular as individual or community gardening projects, sometimes to include non-insects such as frogs, toads and hedgehogs. In contrast, natural insect habitats occur as small separate nests, and large insect hotels pose risk of disease and parasitism to the insects inhabiting in high density inside. In fact, it's been observed that increasing number of badly designed artificial nesting sites contributed to higher loss of solitary bees by parasitism. Parasitism happens when kleptoparasites lay their eggs in tubes or cells occupied by bee larvae. Their larvae will hatch, consume the stored pollen and kill the bee larvae inside. Insect hotels (especially large ones) make it very susceptible to parasitism. When not managed, the parasites will end up spreading to the rest of the insect hotels and will continue on for following seasons. In similar note, mold brings diseases to insects. It grows when moisture condenses and gets trapped in

of an eastern redbud tree where you live, you will collect important information to help scientists answer these questions!

Want to find out what's involved? Watch a recording of our virtual info session and training where we explain the significance of this project, walk you through the steps of creating a Nature's Notebook account and registering a redbud tree, and describe how to make observations and submit them online. [Watch the video.](#)

Stay up to date on the Redbud Phenology Project - [sign up](#) for emails with news, resources, results, and more!

plastic materials used in insect hotels as tubes and blocks. Lack of good roof/shelter on insect hotels, risking constant exposure to rain also contributes to mold growth.

The key solutions are correct designs, maintenance and nurturing environment

While it seems on the surface that the insect hotels are more of a disadvantage and less of a sanctuary to the inhabitants, the concept is not a write-off. Everyone, from retailers to gardeners, is responsible to practice due diligence to ensure that these structures are designed and managed to minimize negative effects. The key solutions are correct designs, maintenance and nurturing environment.

Here is the right approach to insect hotels:

1. Insect hotel or insect refuge? Start by thinking which type of insect you wish to host. For majority that are ground nesters such as bumblebees, mining bees, polyester bees and many types of beneficial wasps, an insect refuge is a more effective approach instead.

2. Be realistic – small is better: Assess your area where you plan to set up your insect hotel or refuge. Think small and have multiple units housing one species rather than a single large one that attempts to host an entire zoo, requiring potentially conflicting environments. For example, hosting frogs and toads require humid environment with partial shade, while bee hotels need to be dry and in full sun. After you gain experience, you can build and create a different unit for another species.

[Ed note: I have included a photo of an insect hotel suggested by NatGeo. According to these instructions, it is too large and messy. This design can lead to predation, fungus, disease and parasitism. Go with several smaller simpler designs spaced well apart.]

3. Choose responsible design: There are a number of good guides online written by entomologists and wild bee experts. Marc Carlton has written extensively on right designs for bee hotels, in English. For non-bee hotels suitable for lady bugs, lace wings and non-migrating butterflies, **Melanie von Orlow has written a book with detailed manuals, *Bee Hotel: All you need to know in one concise manual.***

4. Build your own, build it right: Sourcing your own materials gives you peace of mind that your insect hotel is made of natural, untreated wood and without chemicals such as varnish, paint and wood protectant that will repel insects. To promote sustainability, consider using recycled or natural materials from your garden. If tubes are drilled into blocks, tubes should be smooth without splinters. Good insect hotels should be built sturdy with solid back and roof/shelter to protect from rain.

5. Install it well: For example, bee hotels must be positioned in full sun, facing south east or south, at least 3 feet off the ground, with no vegetation in front of it obscuring the entrances to the tunnels. It must also be fixed securely to prevent shaking and swaying from wind.

6. Maintain and clean: This is the most overlooked part of having insect hotel. Taking care of insect hotel is just as important as building one. For example, bee hotels should be inspected at the end of summer to remove and clean dead cells. This will prevent mold and mites that would multiply on the dead bees or larvae. Some experts recommend bringing occupied insect hotel into cool dry area such as garden shed during winter to protect the overwintering inhabitants from wind and rain. Without timely maintenance and clean-up, a once-occupied insect hotel may not attract a new batch next season.

7. Replace when it is time: Insect hotels can degrade naturally after two or more years because the material used is untreated. Change the nesting blocks or parts every two years to avoid build-up of mold, mites and parasites overtime.

Tips to make your garden an insect refuge:

Create sustainable nature: To encourage insects, especially pollinators, grow beneficial plants that provide nectar and pollen.

Choose native species whose flowers to promote natural biodiversity and avoid non-native plants.

8. An overly-manicured garden is not a refuge: Some non-migrating butterflies overwinter as pupae attached to plants, so refrain over-trimming during autumn and spring. Look out for ground nests of mining bees, bumblebees and beneficial wasps before mowing or mulching your garden. It is easier to protect existing ground nests than to artificially create one.

9. Limit or no use of pesticides: Using pesticides (such as insecticides, fungicides and herbicides) will be counter-effective as it not only repels away or kill beneficial insects already living in your garden, it also disrupts the natural balance of a local ecosystem. Practice good housekeeping and maintenance so that you will never need to rely on pesticides in the first place. If such need arises, seek environment-friendly remedies or consult professionals instead.

Creating space for insects can be a very rewarding experience and it will teach you, your family and your community about natural diversity and sustainability. Make sure your next project becomes a refuge and not a fad. Your little friends and Mother Nature will thank you for it.

Topics for This Year's Petal Pusher

the state MONPS newsletter

Petal Pusher Topics for 2022

Due date	Pub Date	Theme	Contributors
April 20	May 1	Past Contributions of MONPS	-Malissa Briggler
June 20	July 1	All About Botanical Latin	-James Trager??
Aug 20	Sept 1	Parasitic Plants	-??
Oct 20	Nov 1	Invasive Species Control for Winter	-Malissa
Dec 20	Jan 1	MONPS Chapters	-Dana Thomas (develop questionnaire)

Send submissions attached in Word format.

Send photos attached separately in jpg format.

To: Pam Barnabee pamela.barnabee@gmail.com

You don't need to be an expert, but if you have good repeatable experience as a naturalist on any of these subjects, you are welcome to offer your knowledge to the rest of us.

If we have members who are curious about any of these topics, Michelle Pruitt [michelle.pruitt@gmail.com] is willing to do an amateur proofread for you if that would be helpful. Send to her early!

ALWAYS - 20th of even numbered months. If you don't understand subjects, parameters, or submission format, contact Michelle Bowe, PP editor MBowe@MissouriState.edu.

- Potential Emerging Invaders. **Have you seen a new plant invader?** Someone from MoIP as contributor; Malissa Briggler volunteered. Any one of us could study invasive plants; MPF Journal featured invasives during 2020. Just search 'invasive plants' and pick one to report on.

- Favorite Natural Areas. Suggested to also have chapters solicit articles from their members. This means YOU can write about your favorite Natural Area

- Better Know a Genus. These are species accounts. You observe/research a species or genus and describe the whole life cycle including preferred habitat and vectors/predators.

Regular Recurring Columns:

Conundrum Corner Contributors needed!

Invasive Tip of the Month Tips to identify and eradicate invasives, with a different species in each issue. Contributors needed!

Other Recurring Columns: **Casey's Kitchen** Casey Burks

Name Change of the Month Justin Thomas. Other volunteers welcome.

Poetry Corner or Quotation Corner Send suggestions for poems or quotes for inclusion. Note that for poems, we must have permission from the publisher.

Where are we going Features we will see on the next field trip. Malissa Briggler?

And here's where you can become newsletter famous by submitting your questions: <https://monativeplants.org/ask-a-question>

Ask a question Questions from website, answered. Facilitated by Jerry Barnabee.

Please Step Forward For Service

Please contact one of the officers to volunteer a little time to a very good environmental and educational service. We need people to serve as officers, to grow plants for fundraising, to man our information booth at events such as Earth Day and Bradford Plant Sale, and to care for native gardens in public places.

MEMBERSHIP FORM Missouri Native Plant Society Hawthorn Chapter

How were you attracted to join MONPS?

Membership runs from July 1 through June. You must be a member of the State Missouri Native Plant Society (MONPS) in order to join a chapter. You may send state and chapter dues to our membership chair, Paula Peters.

Please check membership category you desire:

Minimum required annual membership per household is \$10 for students or \$15 for non-students [state+chapter]

*These amounts include both state and chapter dues

_____ Student \$10.00*

_____ Goldenrod \$15.00*

_____ Sunflower \$30.00*

_____ Blue Bell \$55.00*

_____ Blazing Star \$105.00*

_____ Surcharge for paper state Petal Pusher by mail (+\$10.00)

_____ Chapter only \$5.00 – this option is for members who already belong to State and another chapter

_____ Amount Paid

Make checks payable to:

Missouri Native Plant Society

Mail payment and this form to:

Diane Privitt

3810 Koala Dr

Columbia MO 65202

Name: _____

Address: _____

Telephone: _____

Home _____

Cell _____

E-mail: _____

Chapter newsletters and messages will be sent by email