

Pennsylvania
PENNSYLVANIA NATIVE PLANT SOCIETY

notes

VOLUME 21 NO.1 2019

The Outside Story *Jack-in-the-Pulpit, or is it Jill?*

Meghan McCarthy McPhaul

Jack-in-the-pulpits (*Arisaema triphyllum*) are not the most colorful spring flowers, but what they lack in beauty they make up for in interesting characteristics. These easily-identified plants are full of surprises, from their ability to change from male to female (and back) to the bite of their calcium oxalate crystals, which can make your tongue feel like it's full of burning splinters.

Jack-in-the-pulpit surfaces in wet, shaded woodland areas in mid-spring as a purpley-brown spike, all tucked up within itself. As the days meander toward summer, this spike unfolds into leaves and flower, with the plants growing as tall as two feet. The floral anatomy here includes a spadix of tiny flowers contained within a hooded spathe: Jack enclosed within his pulpit.

Of course, not all the flowers are "Jacks;" some of them are "Jills." And last year's Jill could very well be this year's Jack — and vice versa. Jack-in-the-pulpits change sex from year to year based on how much energy a plant contains in its corm, a bulbous underground stem that stores the plant's carbohydrates.

"Producing fruit takes a lot of energy, usually more than any one plant has stored in its corm," said Dan Jaffe, a botanist with the New England Wild Flower Society. "Most plants will produce male-only flowers while they are storing up additional energy. The male flowers produce pollen, which doesn't require much energy. As the plant matures it will continue to photosynthesize and store energy in the form of sugars in its root system. Once enough energy has been stored, the plant will produce female flowers, and if pollinated will then produce berries. After fruiting, the plant will revert back to being male, and the cycle will continue."

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Jack-in-the-pulpit on forest floor.
Photo: Ian Gardner

PRESIDENT'S NOTE

Hello — I'm very excited to be in this position and writing my first newsletter address! First, I would like to thank Jean for her many years of leadership and for her continued support.

I work at a nature center where we guide many elementary school children on various fieldtrips depending on age. The older children learn about IPM (Integrated Pest Management) where we discuss invasive species and their effect on the ecosystem. During one fieldtrip several years ago, a young boy raised his hand and shouted "Why doesn't someone DO something about this?" I explained that people are, but it requires a lot of time and money, etc. However, I could not get that question out of my mind. I always enjoyed gardening, so a discussion with coworkers led to the creation of a native plant pollinator garden at the nature center. The more I researched native plants, the more passionate (or obsessed?) I became about them. This led to more gardens around the nature center and a total re-landscaping my entire yard. I wish that young boy would know the impact his question had.

One person can make a difference. As I read the unsettling results of the first global scientific review of insect population decline, I find hope that the trend can be reversed and that our native plant niche can play a part in more sustainable agriculture and landscaping practices.

From our personal gardens to taking a more active role in government decision making, we can all have an impact on educating the general population on the benefits of native plants.

Our goal is to continue outreach at events throughout the state; however, it is impossible for us to staff all these events. If you know of an event in your area and would like to manage a PNPS information table, please send an email to info@panativeplantsociety.org. Also, please consider hosting an event if you are part of an organization. See the article later in this newsletter concerning the direction we will be pursuing in the Chapters Update.

Watch for our monthly e-newsletter! This email will be sent out around the middle of the month with a calendar of events throughout the state. Check to see what is happening in your area! Please contact info@panativeplantsociety.org if you would like to have something posted, or if you would like to receive it and have not.

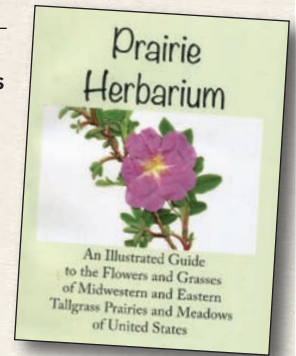
Danielle Lanagan



NEW BOOK

PRAIRIE HERBARIUM:
An Illustrated Guide to the Flowers and Grasses of Midwestern and Eastern Tallgrass Prairies and Meadows of United States.

By Harold W. Gardner and Mark A. Berhow



This book features 213 digital images of fresh cut flowers and grasses. Superimposed on the flower image is a seed-head and seeds of the species. The book is available at Amazon, Barnes & Noble, and Lulu Press. The best price is Lulu Press: www.lulu.com/shop/harold-w-gardner-and-mark-a-berhow/prairie-herbarium/paperback/product-23945216.html

Preferred soil moisture for the plants can be obtained from the authors at either hrlldgrdnr4@aol.com or berhowma@comcast.net

CALL FOR ARTICLES PNPS NOTES

PNPS is seeking articles to appear in future Newsletters. The subject of articles must relate to native plants: highlighting particular plants, the use of natives in the landscape, or their occurrence and or preservation in the wild. Send your article submissions along with credited photos to Jean Najjar at info@panativeplantsociety.org by June 30th.

THANK YOU NEWSLETTERS SPONSORS!

Readers will notice several ads in this issue of PNPS Notes. In an attempt to cover the production costs we offered member businesses an opportunity to place sponsorship ads in this issue. The response was amazing! We actually ran out of space and had to start a waiting list for the next issue. Thank you to everyone who offered your support! This opportunity is limited to member businesses and organizations that share our interest in promoting native plants. To become a sponsor please email Jean Jean Najjar at info@panativeplantsociety.org

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THREE SPRING NATIVE FAVORITES

Jake Fitzpatrick, Nursery Manager at Bowman's Hill Wildflower Preserve, recommends this trio of spring flowering natives to brighten your landscape and attract native pollinators and birds. To learn more about Bowman's Hill Wildflower Preserve check out their website: <https://bhwp.org>.



Virginia bluebell (*Mertensia virginica*)

The term “spring garden” comes to mind when picturing this splendid and dependable treasure of the Preserve. The new emerging purple-tinted leaf clusters, with their graceful display of flowers, make this plant a favorite of gardeners. Being ephemerals, they die back soon after blooming in early spring. However, many Virginia bluebells will have seeded, rewarding the gardener with new seedlings the following year. Easily transplanted, look for two-inch, two-leaved seedlings with purple-green coloration.



Wood poppy (*Stylophorum diphyllum*)

Another important plant in our propagation efforts, the wood poppies' colorful sunshine-yellow flowers bloom a bit later than Virginia bluebells and last for many weeks. Wood poppies also generously produce new plants along the sides of the parent plants. One of the most encouraging characteristics of this native plant is its ability to do well in full or partial shade, and to tolerate quite a bit of sun with no change in bloom production.



Golden ragwort (*Packera aurea*)

Our final featured plant has a more defined use profile: it is an under-used groundcover. The leaf shape is very pleasing while the flowers atop the tender, straight stems have a definite woodland charm. With a deep golden yellow color, this plant blooms and grows easily in shade while quickly spreading outward in rich soil. It can spread in more difficult conditions as well. Requiring little maintenance, golden ragwort is a favorite semi-evergreen ground cover — particularly in areas where you can allow it to spread widely.



THE PENNSYLVANIA PLANT CONSERVATION NETWORK

Shaver's Creek Environmental Center

By Kristi Allen, Program Coordinator
Pennsylvania Plant Conservation Network
PA Department of Conservation and Natural Resources

The Pennsylvania Plant Conservation Network (PPCN) is a new program spearheaded by the Department of Conservation and Natural Resources (DCNR). The mission of the PPCN is to work collaboratively to promote and coordinate the conservation of native plant species and plant communities through advocacy, education, and stewardship.

Throughout 2019, PPCN is building network capacity and may take on a limited number of pilot projects that highlight conservation needs and capacities in Pennsylvania. The goal is to cultivate collaborative projects across the network in ways that meaningfully advance plant conservation in Pennsylvania. PPCN will be gathering information and feedback from potential network partners as they move toward that goal.

They are holding their first public meeting in conjunction with the 2019 Rare Plant Forum on Friday, April 26th, 2019 from 10am–2:30pm at Shavers Creek Environmental Center (near State College) for a collaborative discussion about the goals of the PPCN. The 2019 Rare Plant Forum will occur the following day — Saturday, April 27th from 9am–3pm at the same location.

Any professional, volunteer, representative of a conservation group, or plant enthusiast is welcome to attend this meeting on Friday to hear about current plant conservation projects and the proposed framework for the PPCN.

Space is limited and registration is required.

To register: www.brownpapertickets.com/event/4049657

Please direct any questions or concerns to the PPCN Program Coordinator, Kristina Allen. She can be reached via email at C-Krallen@pa.gov

Jack-in-the-Pulpit

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Male flowers are generally accompanied by a single leaf comprising three leaflets. Females, thanks to their additional energy stores, usually sprout two leaves. Beyond that, the plants look basically the same, unless you open the spathe to examine the flowers within. Male flowers appear in a loose cluster of tiny, pale yellow pollen blooms. The female flower resembles a cylindrical cluster of small green berries, which will mature and become the plant's crimson fruit in late summer.

Fungus gnats and flies, attracted by the plant's color and odor, are the main pollinators of Jack-in-the-pulpit, although they have a tough go of it. Because of the spathe's deep cylindrical lower structure and the location of the flowers at the base of the spadix, would-be pollinators often get stuck in the plant.

"The way the flower is arranged is similar to a fish trap — wide in one direction, narrow in the other," said Jaffe. "As [insects] bumble around in the spathe, trying to find a way out, they get coated in pollen in male flowers and transfer that pollen to the stigmas in female flowers."

While the spathes of the male flowers have a small opening at the base, by which lucky pollinators may eventually emerge — carrying their burden of pollen — there is no such escape hatch in the female plant. Any insect that finds its way into a female Jack-in-the-pulpit may spend the rest of its life within the spathe.

Although Native Americans found a variety of uses for the dried corm of Jack-in-the-pulpit (also called Indian turnip) — from grinding it into flour to relieving colds, fevers, and snakebites — all parts of the plant, in raw form, are quite poisonous



Jack-in-the-pulpit fruit.
Photo: Jean Najjar



Jack-in-the-pulpit flower.
Photo: Karen Smith



Jack-in-the-pulpit leaves.
Photo: Jean Najjar

to humans. The flowers, roots, and leaves of Jack-in-the-pulpit contain high concentrations of calcium oxalate crystals. These crystals, the major ingredient of painful kidney stones, cause severe burning and swelling.

That seems to only be a danger to humans, however, as many animals eat both the corms and berries of Jack-in-the-pulpit. The corms are a favorite late-spring snack for black bears, which neatly extract them from the ground. Deer eat the roots, while wood thrush, turkeys, and other wild birds eat the berries, which are a particular favorite of ring-neck pheasants.

None of these animals seems willing to snack on the Jack-in-the-pulpits growing beneath the wild rose hedge along our driveway; it seems the thick brambles keep them protected. Each spring we look eagerly for the plant's first spikes. As spring turns to summer, we watch them grow and develop tall green leaves and striped spathes, each one containing a little Jack — or Jill — within its hooded pulpit. ■

Meghan McCarthy McPhaul is an author and freelance writer. She lives in Franconia, New Hampshire. The Outside Story is assigned and edited by *Northern Woodlands* magazine, northernwoodlands.org and sponsored by the Wellborn Ecology Fund of New Hampshire Charitable Foundation: wellborn@nhcf.org

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Hedgerows

Defining Edges with Diverse Plant Communities

Photo: Whatcom Conservation District www.whatcomcd.org/hedgerows

By Cathy Pierce
Winghaven Nursery, Coburn PA

What do you picture in your mind when you see the word, “hedgerow”? In preparation to write this article, it occurred to me that the term has fallen into antiquity, and most people probably aren’t sure what a hedgerow is anymore. The textbook definition is that a hedgerow consists of a long, fairly narrow arrangement of usually native, woody and herbaceous plants, including trees, shrubs, grasses and forbs, and often including vines. Hedgerows come in many forms

and serve a number of different purposes. The celebrated hedgerows of Britain served as fences for livestock. The urban/suburban hedge marks a boundary and provides privacy for swimming pools and movie stars. As a response to the Dust Bowl, hedges were planted on American farms to act as windbreaks, preventing soil erosion. Some hedges are planted simply for their ornamental value!

Have you noticed yet that hedgerow contains the word, “edge”? In ecology, an edge is defined as the place where two environments meet. That’s where you will find the highest level of biodiversity. They

are resource-wealthy niches, providing both food and protection. Hedgerows, whether wild or intentional, fulfil this valuable function by forming connections between isolated patches of habitat. Pollinators and birds alike rely on these corridors to travel safely and with less effort from place to place. It would be nice if contractors were required to leave a twenty foot wide hedgerow through the middle of new housing developments, but for now, it’s up to us to restore these vital habitats. Trees and shrubs in hedgerows furnish nesting sites for birds. Native plants supply the correct food for moth and butterfly larva, which in turn feed baby birds. Native bees pollinate the fruit, flowers and grasses, ensuring the future for all. Biologically diverse communities reflect the interdependency of all life forms that inhabit them and remind us of our own dependence on nature.

But don’t grab your garden tools yet! There are many things to deliberate when planning a hedgerow of your own, but probably the most important thing is site condition. Length and width, soil type and depth, moisture and drainage, wind and

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Bumblebee (*Bombus* sp.) on great blue lobelia (*Lobelia siphilitica*)

Photo by Jean Barrell

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www.panativeplantsociety.org/plant-sale-vendors.html

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Hedgerows

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sun exposure, these must be assessed before plant selection can begin. While we can adjust for size and amend the soil, sun and wind are fixed and demand their due respect. Beyond these, think about the purpose and function you'd like your hedgerow to perform. Will it look wild and untamed, or somewhat sculpted? Would you like to harvest some fruit from it? Is your goal to provide nectar throughout the season for pollinators? Perhaps you have a fencerow that needs more of a prairie motif. Whatever your goals, there are plenty of attractive and useful native plants to fulfil them.

If you have a sunny, exposed site consider a few plants that offer protection like conifers and ninebark or gray dogwood. These will help block the wind for fruiting and ornamental choices such as Elderberry, American Plum, Northern Bayberry, Crabapple, Allegheny Serviceberry and Witch Hazel. Hickory, Black Locust, Maple, Oak, and Sycamore trees stand up well to the wind. Forbs and grasses for

exposed areas include Butterfly and Common Milkweed, Little Bluestem, Golden Alexander, Wild Columbine, Lupine, False Indigo, Penstemon and New England or Aromatic Aster.

Perhaps you have a few large trees that provide shade for part of the day. Almost all plants benefit from a little respite from the midday sun, and the vast majority of native plants will thrive in this environment, so have a blast! But if your hedgerow will have to compete for sunlight in a truly shady spot, try trees typically found in the understory such as Flowering Dogwood, Redbud, Birch and Striped Maple, and shrubs like Spicebush, American Hazelnut, Maple Leaf Viburnum, and Mountain or Sheep Laurel. People commonly plant ferns in the shade, and while there are many native ferns, they are not as valuable to wildlife as most flowering groundcovers and sedges. Try white or blue Wood Aster, Goat's Beard, Bellwort, Wild Ginger, native Pachysandra, Violas, Stonecrop, Golden Ragwort, Foamflower, even Virginia Bluebells!

One last consideration, and this is important. When selecting plants for your hedgerow, or even just for general land-

scaping, endeavor to choose plants of various heights. The purpose is to provide layers, micro-habitat if you will, to attract a wider variety of visitors. For example, some birds feed on the ground, some in bushes and lower branches of trees and others only in the high canopy. Same goes for insects, mammals and amphibians. A more diverse plant community will support a more diverse animal community. No one gets marginalized.

It's so encouraging to see the pendulum swinging back toward planting more natives in the landscape. We really need more trees and shrubs, especially! So if you've decided to plant a hedgerow of your own, I'd love to hear about it. In addition to the PNPS Sale, I'm at the Furnace Mansion sale as well as the Master Gardeners, and at the Boalsburg Farmers Market on Tuesdays beginning in May. Or, I can come out and suggest plants for your site upon direct consultation. Regardless of where you buy your native plants, please keep planting them! Before you know it, you'll be mowing less and enjoying the company of a whole host of winged friends. We can make a difference, one yard at a time! ■



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Return service requested.

Please remember to renew.

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PNPS FACEBOOK GROUP HOW TO JOIN

Our Facebook group has grown into an active community of over 6,300 members over the past few years. We welcome anyone interested in sharing photos or activities related to native plants, or learning more about them. This is a closed group but you can join. Just visit the group and submit a request. You will be prompted to answer a couple of questions before an administrator can approve you. These are the questions: "Do you want to join?" And, "what state do you live in?" Requests will be declined if these are not answered, even if someone sends you an invitation to join. We do this to reduce spam and abuse.

Here is the link:

www.facebook.com/groups/panativeplantsociety

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CALENDAR OF EVENTS 2019

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Manheim Township Public Library, Lancaster, PA

APRIL 27* Earth Day Birthday at Millbrook Marsh
Nature Center, State College, PA

APRIL 27* NEPA Green Fair, Nay Aug Park, 1901
Mulberry St, Scranton, PA

MAY 4* Central Pennsylvania Native Plant Festival and
Sale, Boalsburg, PA

MAY 11* MAEscapes Native Plant Sale York, PA

JUNE 5-8 Native Plants in the Landscape
Conference Millersville University, Millersville PA

JUNE 23* Millbrook Marsh Native Plant Walk, State
College PA

AUG 3-4* Festival of Wood, Grey Towers National
Historic Site in Milford, PA

Visit our website for an up to date listing of events:
www.panativeplantsociety.org

* Seeking volunteers for this event please email Jean at
info@panativeplantsociety.org.