Volume 20, Number 1

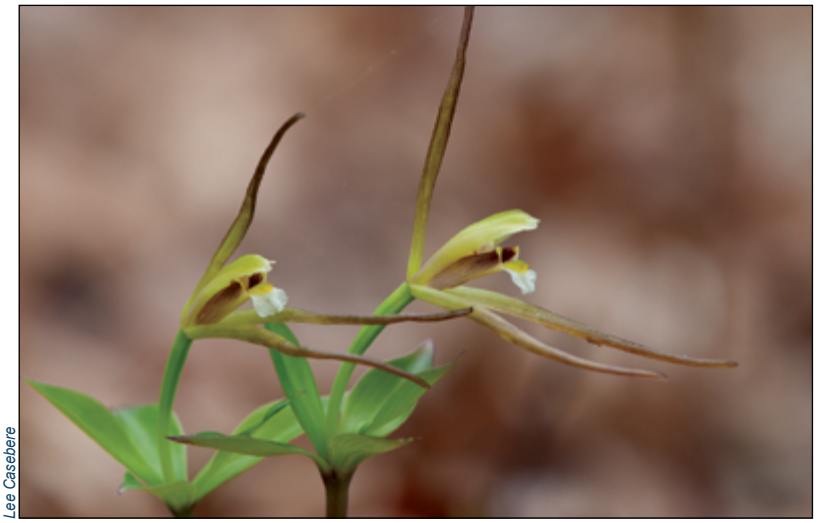
inpaws journal

Indiana Native Plant and Wildflower Society Spring 2013

The Whorled Pogonia Orchid

By Michael Homoya

Plant Profile



Lee Casebere

One of Indiana's 42 native orchids, the large whorled pogonia is rare in the state, known to grow in only 10 counties. Yet one can reasonably expect to find a population in a day's careful survey of suitable habitat. But don't be fooled by its native look-alike.

Brown County is one of the most popular tourist areas in Indiana, if not the Midwest. People come from miles around to see the rugged beauty of Brown County State Park, to stroll among the art and craft shops in Nashville, and to browse antiques offered for sale in establishments scattered throughout the county. They come to ski, to listen to live country and bluegrass music and to hunt and fish. But probably most of all, they come to simply take in the clean air and pastoral scenes that so characterize Brown County's landscape. Yes, there is much to see and do in Brown County.

But there is even more. Quietly tucked away in the woods amidst all of the activity is an item that easily 99 percent of the visitors to Brown County don't see, or likely even know about. It's a plant named the whorled pogonia, or *Isotria verticillata* to botanists. It's not just any plant. It's an orchid—the kind of plant most people associate with tropical jungles rather than the hills of the Hoosier state.

The large whorled pogonia is perhaps the most exotic-looking of the 42 species of wild orchids in Indiana. Its mysterious and foreign qualities are most evident in the flower, which, with its long, spreading sepals, looks more like the threatening pose of some weirdly-shaped spider than an orchid blossom. It definitely is an orchid though, for all of its flower parts are arranged in a manner unique to the orchid family.

For a plant to be an orchid, it must have, among other things, flowers that have three sepals, three petals and a special reproductive structure called a column. The most distinguishing feature of the orchid flower is its lip. The lip is normally the lowermost petal, and is generally larger and shaped differently from the others. It is commonly a different color as well. These features are all present on the whorled pogonia flower, which appears in early May (in southern Indiana) to early June (in northern Indiana).

When not in flower or fruit, plants of the whorled pogonia bear a remarkable resemblance to the sterile plants of the common Indian cucumber root (*Medeola virginiana*). Even experienced botanists generally need a second look to confirm an identification. Both the cucumber root and the whorled pogonia have a whorl of leaves of similar shape and size at the top of a solitary stem, both form colonies comprised of many clonal individuals, and, to add to the confusion, both invariably occur side by side in mixed populations!

Upon close examination, one can see that the orchid's leaves are generally broadest toward

Orchid – continued on page 14

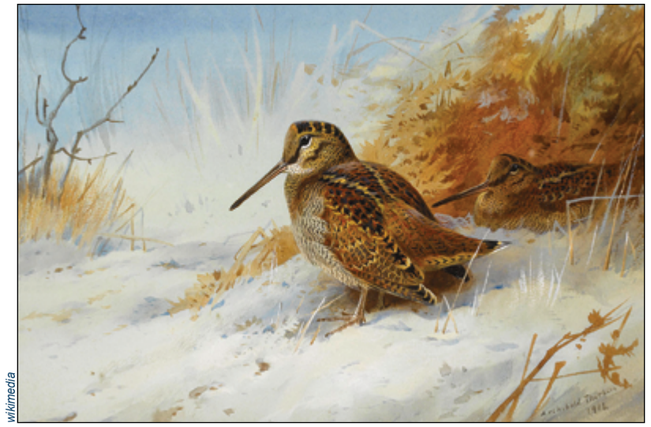
Inside

Creature Feature

Twittering Timberdoodles

By Janet Martin

A few years ago, driving down a country road just before dark, I noticed a brown lump about the size of a football in the middle of the road. Thinking it might be a rock or a large dirt clod, I slowed down. Soon I realized that what lay in the road in front of me was definitely not a rock. It was an American woodcock that quickly flew to the side of the road and settled down into the vegetation. Its coloration—tan, brown, and gray hues—allowed it to practically disappear among the dried leaves and twigs. I rolled down my window and watched the curious creature for a few minutes before it scurried away into deeper cover.



wikimedia

The American woodcock (Scolopax minor), *shown here in a 1916 watercolor by Archibald Thorburn, has amazing behavioral and physical adaptations, including a bill that is sensitive, flexible, and can be opened underground.*

Woodcocks, otherwise known as "timberdoodles," have amazing behavioral and physical adaptations. Their unusual spring courtship displays begin at dusk with the male waddling around on the ground in an open field while belting out a loud, buzzy Peeennt! The bird suddenly springs into the air and flies in wide ascending circles, becoming a mere speck in the sky, sometimes reaching heights of 300 feet. The outer three primary feathers of the timberdoodle's wing are narrow and vibrate, making a bizarre twittering, whirring sound near the top of this display flight. Next, the bird spirals toward the ground, performing tight acrobatic loops while uttering soft chirps. When he reaches the ground, he starts the process all over again. On bright moonlit nights, the show may continue well into the dawn.

The female waits nearby, watching these aerial dances. If impressed, she will later mate with the accomplished performer. Her nest, on the ground in a nearby wooded area, consists of a scrape lined with dead leaves. She usually lays four pinkish eggs that are speckled with brown. Soon, the adorable downy chicks emerge and leave the nest a few hours after hatching. The female tends the young until they are completely independent at around five weeks of age.

When foraging for food, a woodcock uses a rocking motion as it struts across the ground. These movements are thought to generate vibrations that will cause earthworms to move and, therefore, be more easily discovered. The woodcock inserts its long, slender bill and probes about in the soft ground to find juicy earthworms and other invertebrate goodies. The tip of the bill is sensitive and flexible, allowing the woodcock to probe deep into the soil and open its bill underground to snatch nearby prey.

"Like a masterpiece from the mind of Picasso, its ears are located in front of its eyes, at the base of its bill."

The woodcock has a unique adaptation among birds. Like a masterpiece from the mind of Picasso, its ears are located in front of its eyes, at the base of its bill. This feature is believed to assist the bird in hearing earthworms move underground. Its large black eyes are set far back on its head, allowing it to see well in the dark and watch for predators from all angles. Since woodcocks feed at night in open fields with sparse cover, keen eyesight is essential for their survival.

American woodcocks perform their display flights in late February through early April. The best place to observe these spectacles is a damp open field, near a wooded area. Check these areas at dusk or right before dawn and, hopefully, you too will witness their amazing aerial display!

Janet Martin also wrote "Spring Quartet" on page 13.

Easy, elegant, attractive to butterflies

Culver's Root

Garden Greats

By Sue Nord Peifer

One of my favorite Indiana native plants for the garden is *Veronicastrum virginicum*, culver's root. Surprisingly, this plant is not commonly used in our gardens, though it is widely distributed in nature across eastern North America and Indiana. A plant with such ease of care and elegant stature deserves to be a regular part of our perennial plant palette and not just relegated to the natives section of the garden center. This prairie species is at home in the sunny or part shade perennial bed or cutting garden. Not fussy about soil, culver's root requires only good drainage in average garden soil. Once established, this species is low maintenance and drought tolerant.

Sue Nord Peifer

In the garden Culver's root (Veronicastrum virginicum) *looks better and blooms more prolifically than in the wild.*

Culver's root slowly forms clumps and generally reaches a height of 3 to 5 feet, depending on seed source. The form is upright and tidy. White blooms, often with a pale pink blush, appear virtually all summer, beginning in June. The first blooms formed at the stem tips are clusters of upright spires like elegant candelabrum. Using the stems in long lasting bouquets and trimming the spent flowers allows the lateral buds to break so that more flowers are produced throughout the season.

The bounty of blooms makes Culver's root a valuable pollinator plant. Various bees, butterflies, and hummingbirds will visit the spires. An interesting side-effect of moving some natives to a garden is that they actually look better and bloom more prolifically in a garden setting when compared to those in the wild. Culver's root is an excellent example of that. Given elbow room, regular watering and deadheading in the home garden, this plant will be shorter, bushier and produce many more blooms. *Veronicastrum* may be propagated by seed and infrequently self-seeds in the garden. However, this plant is so easy to dig and divide in spring that waiting for seedlings seems unnecessary.

Sue Nord Peiffer, a founding member of INPAWS, enthusiastically plants natives in her own garden when not working at the Madeline F. Elder Greenhouse at the Indianapolis Museum of Art.

Correction

We strive to make only small mistakes, but in the last issue we made a big one. We attributed the article called "Woodland Surprise" about sharp-lobed hepatica to Patricia Cornwell. It was in fact Gene Bush who wrote the article. It was entirely our error. Our apologies to Gene and Patricia.

Favorites for the Designed Garden

Garden Greats

By Wendy Ford

As a garden designer, I select native plants to fulfill specific purposes such as screening, filling spaces, or adding color, plus they need to be neat and tidy, well-behaved, and contribute at least three seasons of interest. Here are some favorites that often make the cut.

Julie Weisenhorn, U. of MN©

©2009 Will Cook

Prairie dropseed (top) and witch hazel *are among the well behaved plants favored by designer Wendy Ford of Landscape Fancies. Other favorites are pictured on page 14.*

Witch hazel

This small understory tree lights up the dormant woodland with tiny fragrant yellow or orange blossoms in fall or spring. In the home landscape its ridged oval leaves (think green Ruffles® potato chips) provide screening against ugly sights in the neighboring yard through the summer followed by red or yellow fall color and vase-shaped branches reaching heavenward through the winter. There are two choices: fall-blooming *Hamamelis virginiana* (common witch hazel), native to Indiana; and March-blooming *H. vernalis* (Ozark witch hazel), native to the south central U.S. The popular 'Arnold's Promise' promoted in catalogs is a cultivar of an Asian species.

Prairie dropseed

I like to use *Sporobolis heterolepsis* (love how this rolls off the tongue!) in large swaths or even in a bed of 15 or so all to itself, planted on two-foot centers to show off the structure of individual plants. The fine leaves of this prairie grass form tidy two-foot mounds of light green in summer. In early fall they send up stalks of tiny seeds that smell like buttered popcorn. Later the leaves turn shades of gold and red, then fade to a wheat color in winter. I shear them down to two inches with a hedge clipper in March and use early tulips (Turkish!) to hold the space until spring sunshine stimulates new growth.

Hairy alum root

Our native coral bell, *Heuchera villosa*, has given rise to a number of hybrid selections that enable me to design with color—leaf color, that is. The closest in appearance to the native is *H. villosa* 'Autumn Bride', a workhorse of a perennial whose mounds of tidy light-green velvety leaves send up stalks of tiny white flowers in, you guessed it, autumn. But if you want showy color all season, choose the chartreuse 'Citronelle', the burnt orange 'Caramel', the chocolaty 'Brownies', or the brownish purple 'Mocha'. All keep their leaves through the winter instead of melting into the ground like many perennials. I try to place them so they are sheltered from the beating afternoon sun.

Eastern bluestar

It's odd that such dainty powder-blue May-blooming flowers carry a jawbreaker name like *Amsonia tabernaemontana*. But the three-foot clumps of leafy stalks are what carry the day, providing the ultimate filler when you need a mass of light green to span the gap between showy flowers and background shrubs, or to fill unused bed space that you'd prefer not to let go to weeds. The nice thing is, this plant turns a pleasant buff color in the fall and holds the space attractively until winter's end, when you cut the stalks to the ground. A dazzling relative, Arkansas bluestar, *A. hubrichtii*, native to the south central U.S., has threadlike leaves that turn a brilliant gold in the fall and make a dramatic edging for a large shrub border.

Favorites – continued on next page

A Case of the Blues

Botany

By Patricia Happel Cornwell

The more I study native plants and wildflowers, the more I am reminded that "wild" and "native" are not at all the same thing.

Last May I found 30 delicate plants with small blue flowers bordering my woods here in southern Harrison County. The plants were 18 to 24 inches tall, with thin stems, linear leaves, and had ¾-inch blossoms with five blue petals veined in deeper blue.

Where flowers had gone to seed, the stems bore small round globes, striped green and white. The flowers opened each morning and dropped their petals, one by one, in the afternoon. We were in the midst of a drought, and by mid-June the plants were brown, the capsules full of flat black seeds.

Three of my books had photos that matched the ones I took. I had wild blue flax! There was just one problem. The books gave different species names to identical flowers, but none showed the plant itself. I still didn't know which blue flax I had. (There are also five yellow-flowered species of flax in Indiana.)

The only good picture I found of a blue flax plant was on an Illinois website which identified it as native blue flax, *Linum lewisii*. The flower matched, but the plant did not. There were inaccuracies in the narrative, so I discounted this ID and kept looking.

wikimedia

*Wild perennial flax (*Linum lewisii*), was one of the native plant species first collected by Meriwether Lewis during the Lewis and Clark expedition of 1804-06. A plant of western plains and prairies, it is not native to Indiana.*

Common blue flax, *Linum usitatissimum,* is a cultivated annual from Europe, the plant from which linen and linseed oil are made. *The Audubon Field Guide to North American Wildflowers (Eastern Region)* describes *L. usitatissimum* as "an annual with solitary stems and few flowers," which at least superficially sounded like my slender plants. From June to October, *L. usitatissimum* blooms on roadsides in "scattered counties" in the northern half of Indiana, according to Kay Yatskievych's *Field Guide to Indiana Wildflowers*.

Linum perenne is another European import, a perennial common only in the western U.S. and often confused with *L. lewisii*, the only true native American blue flax. The Audubon guide describes *L. perenne* as "a tufted plant with leafy stems that bear loose, much branched clusters of blue flowers."

In my book with the snappy title *Wildflowers, Grasses & Other Plants of the Northern Plains and Black Hills*, I found a penciled note under a photo of *L. perenne*: "Niccolet Interpretive Center SD 8-11-03." I had seen blue flax before! I had completely forgotten that sighting years ago while traveling in South Dakota to visit my daughter and her family. No doubt I took photos, but I have no memory of the plant.

Wild perennial flax (*Linum lewisii*), the true native, was one of four native plant species first collected by Meriwether Lewis during the Lewis and Clark expedition of 1804-06. A plant of western plains and prairies, it blooms from May to July. It has

Blues – continued on page 11

Favorites – from page 4

Marginal wood fern

What's not to like about leafy fronds that stick around through the dead of winter, shoring up the garden's structure when deciduous leaves have dropped and perennials have disappeared? The two-foot vase-shaped fronds of *Dryopteris marginalis* emerge light green in spring and turn a darker grayish-green by summer. I have not personally grown this plant but, having admired the staying power of its bronze-tinted Asian cousin, the autumn fern, *D. erythrosora*, I sought out a native version, and I think it's going to be my new best friend. Its native habitat is shaded rocky crevices, but give wood fern a rich, humusy soil in a cool shade garden, and it should willingly hold the space after your hostas go poof.

Note: If your local nursery doesn't carry one of these, please ask for it, because there are wholesale sources within the state.

Wendy Ford has happily transitioned from a career in publishing to a small garden design business, Landscape Fancies. She delights in creating concept plans that help people visualize their dream landscapes and work in stages to achieve their goals.

Walkers of all ages are invited

Come Hike With INPAWS

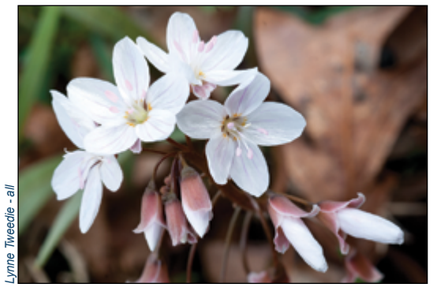
Indiana's spring ephemerals are an annual delight. Pictured here (clockwise) are Jack-in-the-pulpit, spring beauty, and squirrel corn.

Saturday, April 13, 2013

Shrader-Weaver Nature Preserve, Fayette County, Indiana. 10:00–12:30

Leader: Brent Smith, Professor of Biology, Earlham College

What to See: Shrader-Weaver is quite a spectacular place. The total acreage is about 100 acres, containing an old-growth upland stand, a younger forest, and a mature swamp forest. There are a LOT of big trees in the upland and lowland stands, with one of the largest populations of old-growth black walnuts to be found anywhere. The spring ephemerals are really



Lynne Tweedie - all

spectacular here and, with a little luck, will be near or at peak bloom! An easy two-mile trail on flat to gently rolling topography.

Questions? Contact Brent Smith by email (brents@earlham.edu) or phone 765-983-1457. No RSVP required. We will hike rain or shine.

Saturday, April 13, 2013

Sponsored by the Southwest Chapter of INPAWS. 11:00–3:00

Ouabache/Wabash Trails Park in Knox County, near Vincennes (knoxcountyparks.com)

Leaders: SWINPAWS members Michael Broz, Terri Talarek King, and Linda Wilcox

What to See: Wildflowers and the native plants of woodland and wetland, along streams, and near the Wabash River floodplain in this 254-acre county park. Park trails range from easy to moderate. Morning walk with Michael Broz Trail 1 will start from Hedstrom Shelterhouse near park office. At 12:30 SWINPAWS will meet and lunch at Hedstrom Shelterhouse (bring your own food and drinks). The 1:30 walk with Terri Talarek King on Trail 7 will start from the Sacajawea Shelterhouse in lower park area.

Questions? Contact Terri Talarek King at naturefrog57@gmail.com or 812-881-8987.

For directions and more information about hikes, please visit inpaws.org.

Sunday, May 5

Bendix Woods Nature Preserve, St. Joseph County, Indiana. This is a joint field trip between INPAWS (state) and INPAWS North Chapter. 2:00–4:00

Leaders: Scott Namestnik, Senior Project Scientist and Botanist with Cardno JFNew, and Deb Marr, Associate Professor of Ecology, Indiana University–South Bend.

What to See: The spring wildflower display at Bendix Woods Nature Preserve has been described as one of the finest native floral displays in the state. Our hike will traverse old-growth beech-maple forest, within which we should see ephemeral gems including wild ginger, purple spring cress, blue cohosh, squirrel corn, Dutchman's breeches, yellow trout lily, false mermaid, wild geranium, blue phlox, large-flowered trillium, red trillium, Canada violet, and the locally rare crinkleroot, in addition to several ferns and a diversity of mesic upland forest sedges. Pace will be slow with frequent stops to discuss the plants and allow time for photographs. Some small hills on well-established trail.

Questions? Contact Scott Namestnik at scott.namestnik@cardno.com or 574-229-8748. An RSVP to John Smith at johnjs@goshen.edu or 574-533-9496 is requested by May 2. We will hike rain or shine.

Saturday, June 8

Pokagon State Park & Trine State Recreation Area, Steuben County, Indiana. 1:15–3:30

Leader: Fred Wooley, Pokagon State Park Interpreter

What to See: First the kettle-hole lake environment and surrounding fen and marsh of Lake Lonidaw and wetlands of the Pokagon

Lynne Tweedie

*The celandine poppy (*Stylophorum diphyllum*) is a spring ephemeral that produces yellow sap once used by Native Americans as a dye. The term* "diphyllum" *connotes that only plants with two leaves produce flowers.*

State Park Potawatomi Nature Preserve. Then we'll carpool two miles to Trine State Recreation Area to visit another kettle-hole lake and a fen under restoration. We may stop to check on progress of the WHIP grant project to restore an overgrown fen and surrounding openings. Gently rolling to flat terrain and some fen-side walking possible. Depending on conditions and group size, we may enter a fen for a closer look at certain plants, so wear footwear you don't mind getting a little mucky. Total walking is less than a mile.

Questions? Contact Fred Wooley by email (fwooley@dnr.IN.gov) or phone 260-833-3506. No RSVP required. We will hike rain or shine; thunder and lightning, no.

Old Growth Forest Hikes

Act Fast!

Space is limited

You are invited to explore old growth forests featuring spring wildflowers on hikes led by staff of Indiana DNR Division of Nature Preserves on two dates. Act fast! Registration for both dates ends April 6 and numbers are limited.

On ***Saturday, April 20,*** seven hikes will be offered in Jennings, Lawrence, Marion and Parke Counties. All will begin at 10:00 local time. Ecologists and experts from the Division of Nature Preserves will guide hikes at Calli Nature Preserve, Donaldson's Woods, Eagle's Crest, Falls Canyon, and Rocky Hollow–Falls Canyon.

On ***May 11*** at 10:00 local time, seven hikes will begin at preserves in Fayette, LaGrange, Marion, and Porter Counties at Dunes Nature Preserve, Olin Lake, Shrader-Weaver National Natural Landmark, and Warbler Woods.

Expert Leaders include members and friends of INPAWS Tom Post, Derek Nimetz, Rich Dunbar, Roger Hedge, Ken Brunswick, Jason Larson, Tom Swinford, and DNP Director John Bacone.

Registration and details are available at www.naturepreserves.dnr.in.gov.

Hikes

Lynne Tweedie

Roots and young shoots of the ephemeral bellwort (Uvularia grandiflora) *can be eaten. Traditionally, the plant was used to treat sore muscles, backaches, toothaches, and swelling.*

@inpaws.org

Check out INPAWS' great blog at inpaws.org

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Submissions

All are invited to submit photos, articles, news, and event postings. Acceptance for publication is at the discretion of the editor. INPAWS welcomes differing points of view.

Please submit text and high resolution photos (300 ppi) via e-mail to journal@inpaws.org or via land mail to INPAWS JOURNAL, 5304 Carrollton Avenue, Indianapolis IN 46220. Submission deadlines for specific issues are:

Spring–February 23 for April 1 mailing
Summer–May 23 for July 1 mailing
Autumn–August 23 for October 1 mailing
Winter–November 23 for January 1 mailing

Mission

To promote the appreciation, preservation, conservation, utilization and scientific study of the flora native to Indiana and to educate the public about the value, beauty, diversity, and environmental importance of indigenous vegetation.

Membership

INPAWS is a not-for-profit 501(c)(3) organization open to the public at inpaws.org.

Share

Please direct Information of interest to webmaster@inpaws.org.

Gardens Wanted

Annual Garden Tour

Sunday, September 22, 2013

Want to see how native plants contribute to a garden in early fall? This year, the Central Chapter of INPAWS is planning a native plant garden tour for September. The tour, with the theme "Appreciating and Learning from Native Environments," will offer opportunities to view and learn about using native plants in spaces that vary widely in size and setting. Knowledgeable gardeners will be at tour sites to answer questions and discuss garden design, dividing perennials, and transplanting in fall for spring enjoyment. Tour organizers will take photographs of the gardens in late April, July, and early September so visitors can see how each site changed with the seasons. At some of the gardens we'll demonstrate outreach activities for children and enjoy the participation of local master gardeners.

The tour will feature three highly designed gardens at public sites including a school, a park, and a museum with a rain garden.

Katherine Newkirk

Betsy Wilson (in red) guided visitors through her bird and butterfly garding during INPAWS 2012 tour.

The committee is currently seeking inspiring residential sites in central Indiana to include on the tour; small properties to large estates are all welcome, as are a variety of garden types, e.g., prairie, rock garden, swale, woodland, etc. If you would like to share your garden with others and have 50% or more native species (trees, shrubs, grasses, vines and/or flowers), please submit your property (or recommend a friend's property) for consideration. Provide a brief description of your gardens, your name, address, and other contact information to Ann Foster at gardentour@inpaws.org.

Stay up-to-date with INPAWS' great blog at inpaws.org

PRESIDENT'S MESSAGE

Art Hopkins

INPAWS leaders recently held an all-day strategic planning retreat, our first ever. We worked hard all day, on a perfectly good Saturday. We brainstormed, imagined, debated, prioritized, and revised. I'm happy to report that we also ate pretty well (pizza, fresh fruit, salad), shared a few jokes, and emerged at the end of the day still friends, and feeling good about what we had accomplished. I continue to be impressed with the caliber of people who serve INPAWS so energetically—and I urge more members to get involved in our committees, chapters, and other work.

So exactly what did we accomplish? Let me beg off for now. Details to follow. I'll leave you with these words from John Keats, so appropriate as winter slides into spring:

Shed no tear! O shed no tear!
The flower will bloom another year.
Weep no more! O weep no more!
Young buds sleep in the root's white core.

Conservation Taskforce Report
On Indiana's Natural Resources

By David and Jane Savage

INPAWS is a member of the Indiana Conservation Alliance (INCA), a statewide network of about 30 non-profit environmental, wildlife, outdoors, and land preservation organizations. It provides a unified voice for the protection, stewardship, and sustainable use of our state's natural resources. INCA aims to foster and promote a greater environmental ethic in Indiana and advocates for conservation issues with the general public, state legislators, and the media.

Herbert Davis Forestry

This aerial photo illustrates the fragmentation of forestss in Indiana.

An important INCA priority in 2011-2012 was supporting the formation of the Indiana Sustainable Natural Resources Task Force to review and report on Indiana's management of natural resources. The governor and Indiana's legislators decided it was important to ask again whether the state's natural resource policies were adequate to the task of preserving and maintaining our natural capital. This question seemed quite timely since issues such as climate change, rate of biodiversity loss, and nitrogen- and phosphorus-induced pollution of waterways are receiving world-wide attention in the scientific literature. (Nature, Vol. 461, p. 472, 2009)

The Task Force, chaired by W. William Weeks of the Indiana University School of Law, included two members of the Indiana Senate, two members of the Indiana House, and six members representing various conservation and landowners' organizations. The Task Force received reports from the Indiana Department of Agriculture, the Indiana Department of Environmental Management, and the Indiana Department of Natural Resources. Reports were then solicited and received from experts in the state on specific natural resource issues such as biodiversity, wildlife, forests, soil, water quality and quantity, air and atmosphere, outdoor recreation, and public lands.

The following is a summary of the status of each resource and key recommendations reached by the Task Force. The report contains recommendations in each area for funding and sources of funding.

Water

Status: A high percentage of the segments of our rivers and streams are classified as impaired. Water supply issues are possible in the future in central and southeast Indiana because of population growth and the occurrence of heavier rains and longer periods of drought. Indiana is a significant contributor of nitrogen and phosphorus to the Mississippi River system, causing pollution. The state has not fully committed to adequate planning for water supply and resilience.

Key recommendations: Authority for certain water-related functions should be consolidated into one entity. This new water management entity would be responsible for flood control permitting and policy, setting standards for and overseeing drainage, and planning for water availability, storage, and distribution systems.

Soil

Status: Indiana's soil is a world-quality resource. The state is a leader in developing soil conservation programs, but our state has not invested enough in the technical assistance needed to effectively apply these programs on the land. Large amounts of topsoil continue to be lost because of erosion.

Key recommendations: Provide technical assistance in order to achieve erosion control for 30% of Indiana's farmland employing Conservation Cropping Systems Initiative (CCSI) and its evolving principles by 2030. Covering soil at all times will hold soil in place and improve soil quality.

Forest

Status: State forests are managed to high, third-party sustainability standards, but holdings are fragmented, making management more difficult and expensive. Private forestlands, which constitute 84% of forests in Indiana, are not, on the whole, managed to similar standards. Indiana forested land is under stress because of fragmentation, deer over-population, invasive species, and conversion to other uses.

Key recommendations: Indiana should commit to maintaining its current 4 million acres of forest cover. Investment should be made for consolidating ownership within current state forest boundaries and acquiring contiguous forest lands, as well as to acquire riparian forest along major Indiana waterways. The Classified Forest program should be strengthened.

Biodiversity and Wildlife

Status: Indiana has made noteworthy efforts in establishing sizeable wildlife management areas such as Goose Pond Fish and Wildlife Area. Overall, habitat continues to be fragmented and threatened significantly by invasive species.

Key recommendations: The Bicentennial Nature Trust, established in 2012 by executive order, is a great start for land protection. This should be continued as a commitment for at least eight years. Continued support for land acquisition is essential.

Air and Atmosphere

The Task Force felt it lacked sufficient experience and expertise to develop firm recommendations on this resource.

Indiana's economic success and quality of life for Hoosiers depend on healthy, functioning natural resources. Representative Mike Karickhoff (R –Kokomo) and Senator Richard Young (D – Milltown), both members of the Task Force, have filed HB 1426 and SB 547, respectively (both for water management authority) to encourage continued discussion and policy changes relative to Indiana's water resources. We urge all INPAWS members to read the full Task Force report at www.nature.org/snrtf and click on "Read the Report."

Blues – *from page 5*

been recorded from Manitoba to South Dakota and Wisconsin, west to Utah, and north to Alaska. *L. lewisii* is not native to Indiana.

I sent my flax photos to Kay Yatskievych at Missouri Botanical Garden and Mike Homoya at DNR for clarification.

According to Kay, there is only one record of the introduced perennial *L. perenne* being collected in Indiana, and that was in Porter County in northwestern Indiana in 2002. As to the annual *L. usitatissimum*, she said that outside of certain northern counties, it has only been collected in southern Indiana in 1998 in Floyd County and, prior to that, once in Monroe County. Mine in Harrison County would be only the third record in the southern half of the state. Interestingly, all three counties border the Ohio River.

"None of the blue flax species is considered native to Indiana or even nearby," Mike stated. "*Linum lewisii* is a western species, and apparently most of the prior collections (claimed to be *L. lewisii)* in eastern states are cases of misidentification. They should have been called *L. perenne*. Like *L. usitatissimum*, it is another European species that escapes and naturalizes here."

Kay wrote: "I think you have *L. usitatissimum*. I suggest that you look at the sepals and the leaf venation on your plants and see if that fits." Unfortunately, the plants were no longer viable and I had not collected any plant parts. Nor did my photos show enough leaf detail to do what Kay suggested. Still, it is most likely that I had been visited by *L. usitatissimum,* a wild, but not native, species. If blue flax returns next May, I will be ready with both camera and flower press.

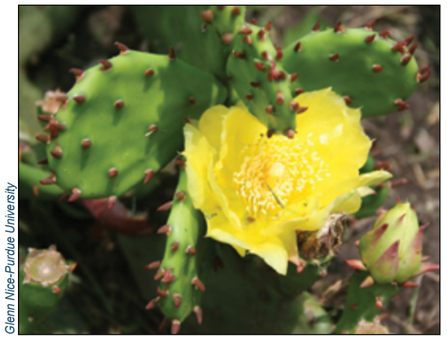
Patricia Happel Cornwell grew up on a farm in Floyd County, where she first became enamored of wildflowers. She and her husband John live on 19 acres registered as a National Wildlife Federation Certified Wildlife Habitat in Harrison County. She became an Indiana Master Naturalist in 2010.

David and Jane Savage are long-time INPAWS members and co-chairs of INPAWS' Conservation Committee.

Gardens of the Nature Conservancy

By Ellen Jacquart

The Nature Conservancy of Indiana decided to build a new office in 2009, and from the beginning the plan was to surround it with native landscaping, making a vegetation oasis in downtown Indianapolis. The Efroymson Conservation Center, our office at 620 E. Ohio Street, was completed in 2010 and is a Platinum LEEDs building with all kinds of energy and water-saving bells and whistles. But to the native plant enthusiasts on staff, the most exciting part of the project was the 14,000 square feet of native landscaping with which to play!



Glenn Nice-Purdue University

The gardens around the office are known as the Bracken Family Gardens in honor of Frank Bracken, a former chair of the Indiana Chapter trustees, and his family. The native landscaping in the gardens around the building has been used in some traditional ways—to screen parking lots, soften edges, and add color to the site. But the lot was large enough to also use it to tell the story of our conservation work in Indiana.

Nature Conservancy

The Eastern prickly pear cactus, Opuntia humifusa, *is the only cactus native to Indiana.It flowers here in June and July.*

Signage in the Nature Conservancy's new gardens aims to educate Hoosiers about the benefits of native plants.

Throughout the gardens, plants are organized into groupings that represent our best-loved preserves. For instance, one area along Ohio Street has a grouping of red cedar, pale purple coneflower, woodland sunflower, and little bluestem to represent Teeple Glade Nature Preserve in Harrison County. Protecting and managing the glades of Harrison County has been a priority of ours for over 30 years, and dozens of glades have now been protected through the Conservancy's work.

The entrance to the building from the north parking lot features a black oak sand barrens planting to represent Prairie Border Preserve in Jasper County. In partnership with the Department of Natural Resources–Division of Nature Preserves we've now protected over 2,000 acres of this community type in northwest Indiana and manage these areas with prescribed fire and control of invasive plants.

Another landscape grouping along the north side of the building has black walnut, redbud, wild ginger, and Virginia bluebells, reminiscent of Big Walnut Natural Area in Putnam County. This is another area whose preservation we've shared with Department of Natural Resources–Division of Nature Preserves, protecting a nearly 3,000-acre corridor along Big Walnut Creek.

The bioswale retention area between the parking area and the building has been planted with many different natives accustomed to living in a periodically wet environment. These plants include blue flag iris and tussock sedge as well as attractive wetland shrubs such as meadowsweet, winterberry, and red-twigged dogwood. This area is designed to resemble a dune swale at Ivanhoe Nature Preserve in Lake County. This bioswale is both visually appealing and functional. It was built for water collection, principally water running off the parking lot. It allows water to puddle and then slowly filter down through the soils and back into the water table.

Native plant enthusiasts on staff were most excited about having 14,000 square feet with which to play!

A LiveWall system, a 16-foot retaining wall of concrete blocks and plants, uses species such as wintergreen, stonecrop, and columbine to mimic a cliffside plant community such as those found at Carnes Mill Nature Preserve in Crawford County. We found that some parts of the "cliff" were sunnier and drier than expected, and so have added more sun-loving cliff plants like Virginia creeper, false aloe, and prickly pear (yes, prickly pear!).

The initial plantings included about 80 species of trees, shrubs, grasses, ferns, and wildflowers. Since then, we've been gradually adding new

TNC Gardens – continued on next page

Spring Quartet

By Janet Martin

Before the wildflowers awaken from their winter slumber, tiny amphibians fill the air with a cheerful chorus. The opening act is the soft, quacking calls of the wood frog. This tiny masked frog emerges soon after a spring thaw and can be heard during warm spells, even in the dead of winter.

Next to join the chorus is the spring peeper with its bell-like chimes. This minuscule songster, not much longer than a thumbnail, produces a note so loud one would expect it to come from a much larger creature. Individuals make a high-pitched "peep, peep, peep," and large groups of spring peepers create a deafening din.

TNC Gardens – continued from page 12

species to different areas of the garden and are up to 113 species. That still leaves another thousand or so native species we can add—the possibilities are endless!

So far, all of the maintenance of the gardens has been by Conservancy staff and Marion County Master Gardeners. The drought this summer took a toll on the trees and shrubs, but the herbaceous plants were amazingly resilient, greening back up once the rains finally returned. Particularly drought-tolerant were leadplant, compass plant, prairie dock, side oats grama grass, and, of course, prickly pear.

Thanks to the generosity of INPAWS we were recently able to put in signs around the gardens that explain the value of native landscaping and the importance of conserving these native plants in the wild. You're welcome to visit the gardens anytime to enjoy this oasis of native landscaping in downtown Indianapolis.

Ellen Jacquart is the Director of Northern Indiana Stewardship for The Nature Conservancy, coordinating land management on Conservancy lands and working on invasive species issues. On her own time, she battles multiflora rose and autumn olive on her land in Monroe County and gardens as best she can in the pottery clay–like soil of northwest Monroe County.

Adding to the harmony, the western chorus frog contributes a pleasing trill, reminiscent of one strumming a fingernail across the edge of a comb. Lastly, the gray tree frog adds percussion with its woodpecker-like rhythm and grunts.

Even more amazing than this quartet's melody, is their miraculous adaptation to extreme cold. Scientists have discovered that during periods of freezing temperatures, these frogs produce glucose that acts like natural antifreeze. It protects their cells from damage, even though their outer body may freeze solid. During this period, all signs of life—breathing, heartbeat and circulation—stop. When the warm weather returns, they come back to life and the music begins again.

©Todd Pierson

For more information and to hear the calls of Indiana frogs, visit: http://www.in.gov/dnr/fishwild/3325.html

Janet Martin is an Assistant Manager and naturalist with Southeastway Park, part of Indy Parks. She is the principal writer for the Indy Parks Nature Blog and a frequent contributor to the Midwest Native Plants, Gardens and Wildlife Blog. Janet also enjoys doing nature education through public presentations and workshops.

Creature Feature

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©Caleb Siemmons

Pictured above are eggs of the western chorus frog and three spring peepers clinging, singing, and peeping.

Orchid – from page 1

© Jomegat

© Stephen Durrenberger

In "Spring Quartet" (page 13), Janet Martin writes that the tiny wood frog (top) leads off with its soft, quacking call. The western gray tree frog chimes in last with grunts in a rhythm resembling that of a woodpecker.

the tip, whereas in the cucumber root, the leaves are slightly more tapering and pointed. However, given the variation in leaf shape in individuals of both species, leaf shape is not the best diagnostic feature. Instead, the safest way to separate sterile plants of the two is to inspect the stem. The cucumber root has a solid, wiry stem, whereas the whorled pogonia has a thick, hollow stem. One can determine the nature of the stem without cutting simply by lightly squeezing it between thumb and finger. A give in the stem will indicate that it's hollow.

The large whorled pogonia is a rare plant in Indiana, currently known to grow in only 10 counties. Without doubt, the greatest number of occurrences are in Brown and Monroe counties. In these two counties, one can reasonably expect to find a population in a day's careful survey of suitable habitat.

The best habitats to look for these plants are dry-mesic, upland forest sites situated at the break of relatively steep, west-facing hillsides. These sites are part of a transition zone between the dry chestnut and oak-dominated forests of the higher slope and the mesic beech and maple-dominated forests at the bottom of the slope. Typical tree species at these sites include white oak, black oak, chestnut oak, American beech, sour gum and red maple. Growing with the orchids in the understory are low-bush blueberry, black huckleberry, partridgeberry, maple-leaved viburnum, flowering dogwood, Indian cucumber root, sassafras, nakedflower, tick trefoil and a sedge, *Carex picta*. The latter is an especially good indicator of whorled pogonia habitat.

In the northern counties, the whorled pogonia is restricted to bog habitats, where moist hummocks of sphagnum moss provide the primary growing medium. These environments are obviously quite different from those in Brown County, as is best illustrated by a comparison of species associates. Wetland plants dominate the bog habitat, namely tamarack, poison sumac, large cranberry, high-bush blueberry, black chokeberry, bog willow, cinnamon fern, royal fern, marsh fern, bog bean, pitcher plant and red maple.

Garden Greats – from page 4

Clockwise from top left are favorites of garden designer Wendy Ford: Autumn Bride coral bell, blossoms of witch hazel, marginal wood fern, and Eastern bluestar.

Whether in a bog or rugged forest, the whorled pogonia orchid is always a treat to observe, and well worth the effort to find it. If you happen to be in Brown County this spring, include a search for the orchid in your itinerary. You can't see it from a roadside, however, you're going to have to work at it. But consider the reward of discovery, and the distinction of not being included with the 99 percent who will miss out.

Michael Homoya has been a plant ecologist and botanist for the Indiana Division of Nature Preserves since 1982 and is regarded as one of the finest field botanists of the Midwest. He is the author of Wildflowers and Ferns of Indiana Forests: A Field Guide, *and* Orchids of Indiana.

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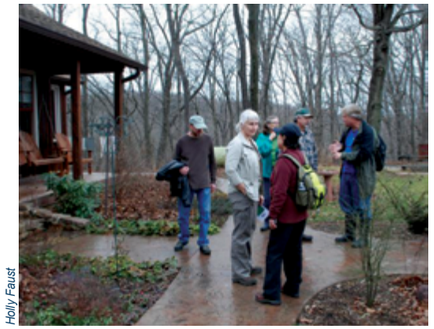
Hike Reports

Hikes

Winter Tree & Shrub Hike

On a Saturday afternoon, January 12, 2013, Purdue dendrologist Sally Weeks showed an enthusiastic group the native shrubs she grows at her Fountain County home. She started with purple-flowering raspberry and went on to Missouri viburnum, wild hydrangea, huckleberry, leatherleaf, mapleleaf viburnum, Virginia willow, chokeberry, alternate-leaf dogwood, Kentucky viburnum, sweetfern, bog birch, American fly honeysuckle, prickly ash, bearberry, St. Andrew's cross, strawberry wahoo, and blackhaw.

We saw many of the same shrubs growing outside cultivation as we walked through the wooded steep ravine behind the house. In an outer yard, Sally showed us a dense patch of coralberry and St. John's wort, which nurture a cacophony of birds several months of the year, as well as her wild raisin, sweetspire, and bladdernut.



Holly Faust

In Janurary, Sally Weeks (in white) welcomed visitors to the gardens she and husband Harmon, have created with natives in rural Fountain County

Be sure to check out Sally's excellent book *Shrubs and Woody Vines of Indiana and the Midwest.* Thank you Sally and Harmon Weeks for sharing your woody treasures with us!!

Reported by INPAWS member Holly Faust, an interpreter for Hamilton County Parks & Recreation, Advanced Master Gardener, and Advanced Master Naturalist.

Spring Ephemeral Hike

The sky was cloudy and threatening to storm as INPAWS members and friends gathered in a parking lot at Ft. Benjamin Harrison State Park April 14, 2012, for a spring ephemeral hike. Our well-prepared guide was Perry Scott, a cellist with the Indianapolis Symphony who appears to know as much about wildflowers as he knows about music.

Spring had come so early I was afraid the first wildflowers might have gone to seed. Not so. In places the forest floor was a lake of blue phlox, punctuated with purple spring larkspur, white and purple violets, gold celandine poppies, yellow large-flowered bellwort, and maroon (sessile) and white (nodding) trilliums.

Without once leaving the trail, we saw phacelia, foamflower, swamp buttercup, star chickweed, spring beauties, wild ginger, wild geranium, Solomon's seal, false Solomon's seal, false rue anemone, Jack-in-the-pulpit, golden ragwort, hepatica, and May apples—all blooming.

Other species in bloom were harbinger-of-spring, smilax, snakeroot, wintercress, cleavers, white baneberry, squirrel corn, green dragon, valerian, waterleaf, twinleaf, and bishop's cap. Cut-leaved toothwort and trout lily were not blooming, but their leaves were unmistakable.

In all, we identified 43 species, 28 of which were blooming. Even the thunderstorm that soaked us to the skin an hour and a half into the hike could not dampen our spirits after such a feast for the eyes.

Reported by Indiana Master Naturalist Patricia Happel Cornwell

Save the Date

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Zebra swallowtail caterpillars eat two things—pawpaw leaves and each other!

Indiana's Essential Pawpaw

Lynne Iweedie

Blossoms of the Indiana pawpaw are pollinated by carrion flies and beetles rather than bees. When flies and flowers do not emerge together it can be a sparse fruiting year. The zebra swallowtail (right) prefers woodlands and undisturbed areas and rarely visits urban areas.

By Nancy Hill

The Zebra swallowtail (*Eurytides marcellus*) is a type of kite swallowtail and is native to Indiana and much of the eastern U.S. It prefers intact habitat, woodlands near some kind of water, and is rarely seen in developed areas.

The zebra swallowtail butterfly starts life as an egg on the underside of a pawpaw leaf, its host plant. The native pawpaw in Indiana (*Asimina triloba)* is an understory forest tree, usually 6 to 15 feet tall, that likes moist soil along creeks, rivers, or ravines. Hoosiers call it the Indiana banana and, in fact, it produces the largest fruit of any tree native to North America. Many like the taste, likening it to banana or mango, but it ripens and begins to ferment as soon as it is picked, making it worthless for commercial sale.

When the swallowtail egg matures, out comes a caterpillar, which begins gorging non-stop on the pawpaw's leaves. Swallowtails are sometimes cannibalistic, and larvae will eat other larvae on the same plant. It spins a cocoon and becomes a pupa (chrysalis) and rests. The adult butterfly emerges a month after being an egg. It feeds on the nectar of sun-loving flowers found in more open areas. The species is noted for especially long sword-like tails with white tips. The spring version (one of two broods each year) is smaller and has shorter tails than the summer form, but has more white and a brighter contrast.

The zebra swallowtail is unique among butterflies in that in addition to nectar it can also collect pollen, like a bee. The extra protein it gets by doing this gives it an especially long life span (for a butterfly)—an entire six months in which to eat, breed, and die.

Nancy Hill is past president of INPAWS and co-editor of the INPAWS Journal.