Indiana Native Plant *and Wildflower Society* NEWS

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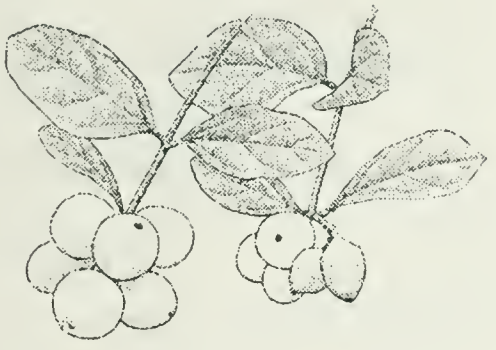
Gardening with Shrubs

Establishing a Biohedge

by Bobbi Diehl

We have always liked shrubs, and over the years acquired them in a sporadic and non-systematic way



Snowberry
(Symphoricarpus albus)

without really thinking of their origins. Some long-time non-native favorites are *Kerria japonica* 'Pleniflora' and *Viburnum carlesii*. We had favorite natives too, and were aware that when they could be found, they tended to be superior performers. But in the spring of 1999, we planted our first biohedge, or mixed native shrub border, along the west side of our partly shaded corner lot. We had read about biohedges in Ken Druse's books and in Carolyn Harstad's *Go Native! Gardening with Native Plants and Wildflowers.* We decided to replace our long row of unkempt forsythias, which rarely had a good blooming year, with something useful to wildlife, interesting to look at in all seasons, and low-maintenance. Dan, our landscaper friend, ripped out the forsythias and I started doing research.

Our goal was to select from Indiana native shrubs said to grow 10 feet tall or less, that bore fruit, and that would tolerate some shade. Unfortunately, we sometimes had to settle for North American natives. Ninebark *(Physocarpus symphoricarpos* 'Nugget'*)*, Carolina

Summersweet
(Clethra alnifolia)

Silverbell *(Halesia carolina aka H. tetraptera)*, Snowberry *(Symphoricarpos albus),* and a Saskatoon or Western Serviceberry *(Amelanchier alnifolia* 'Regent'*)* came from Forest Farm Nursery in Oregon. From Brehob, an Indianapolis nursery that sells to the trade, Dan got Black Chokeberry *(Aronia melanocarpa), Clethra alnifolia* 'Pink Spires'; *Ilex verticillata* 'Winter Red'; *Itea virginica* 'Henry's Garnet'; Arrowwood Viburnum *(Viburnum dentatum)* and American Cranberry Bush *(Viburnum trilobum* 'Bailey's Compact'*),* plus five small Arborvitae *(Thuja* 'Smaragd'*)* to give a bit of cohesiveness to the mixture. Although its berries are edible, the *V. trilobum* is not the same as the familiar thanksgiving

Biohedge continued on page 2

Inside . . .

Biohedge continued from page 1

cranberry, *Vaccinium macrocarpum*. Already growing in the yard were three young blueberry bushes, which I transplanted to the biohedge. Later in the season we added a Carolina Allspice *(Calycanthus floridus)*, which proved to be a great favorite. We spaced the plants to allow for future growth and filled in with native perennials.

The biohedge looked nice and attracted birds from the beginning. All the plants were good sized. The only real failure was the Western Serviceberry, which soon died (something ate it, as I recall). This is certainly not native to our area, but is shorter growing than most

Black Chokeberry
(Aronia melanocarpa)

serviceberries. The Silverbell did not grow rapidly or make much of a show, probably because the soil was not to its liking. The Itea tended to flop. The blueberries did not thrive although they did produce a few berries which the birds immediately devoured.

But the other shrubs were fabulous and just got better each year. Brehob was out of male hollies and I was concerned about 'Winter Red', but Dan assured me that neighborhood males would take care of it, and indeed it is covered with red berries each fall. The Black Chokeberry has not black, but dark navy fruits. The Snowberry is pretty at all times of the year. The Clethra smells wonderful when its pink flowers appear. I have seen (and owned) other Ninebarks, but to me 'Nugget' has the best color and the best foliage of all.

The Newsletter of the Indiana Native Plant and Wildflower Society

Published quarterly by the Indiana Native Plant and Wildflower Society for members.

We welcome opposing viewpoints.

Articles, letters, drawings should be sent to Carolyn Harstad, 5952 Lieber Road, Indianapolis, IN 46228.

www.inpaws.org

The mission of the Indiana Native Plant and Wildflower Society is to promote the appreciation, preservation, conservation, utilization and scientific study of the flora native to Indiana and to educate the public about the values, beauty, diversity and environmental importance of indigenous vegetation.

From the Editor

A Great Journey . . .

It was a cold, snowy day in March 1993 when Ruth Ann Ingraham and I met at her home to explore the possibility of organizing an Indiana native plant society.

Now it is a beautiful cold snowy day again–a day filled with nostalgia, for this is my last issue as your INPAWS newsletter editor. After nearly 20 years, my husband Peter and I are selling our home. In early summer, we will move to Minnesota where 4 of our 5 children, 6 of our 8 grandchildren and my 96-year-old Dad (who still goes to work daily!) all live. I will miss Indiana and our many friends.

It has been my pleasure to work with Associate Editor Art Hopkins and design editor, Anne Wilson. I thank each of you who contributed articles. Keep them coming. Send your articles to our new Editor, Art Hopkins, arthop@earthlink.net.

I smile as I think back and still feel that little rush of pride and pleasure knowing that I played a small part in establishing the Indiana Native Plant and Wildflower Society–now a growing, thriving statewide organization of nearly 700 members. Five chapters, an annual plant sale, incredible programs and field trips, removal of exotic invasive species, informative brochures, a great annual fall conference, money for grants and awards to deserving applicants, and best of all, friends who love the environment as much as I do.

Indiana will always be a part of my heart . . . It has been a great journey.

Thank you.

Carolyn Harstad, Editor

Nothing requires maintenance. The border pretty much stays in scale, so no shaping or pruning is required. Japanese beetles ignore these shrubs, and they are not disease-prone. Once established, they withstand droughts and severe cold spells. This biohedge has been a great improvement over those overgrown forsythias!

We now have another house and garden, in a different part of town. Even before moving in, we installed a biohedge here. This time it runs along the front of the yard and is somewhat shorter. And this time the acid lovers are not present, having been relegated to their own special garden in back. We also omitted the arborvitaes, because there are so many conifers in the yard already.

The original biohedge meanwhile thrives at the old house, improving every year.

INPAWS member Bobbi Diehl retired in June 2002 after 25+ years at Indiana University Press, most recently as Sponsoring Editor of Regional,Gardening, and Railroad Books.

Illustrations by Indiana artist Jean Vietor, who served as treasurer of INPAWS for four years. Jean created these drawings for Carolyn Harstad's second book.
Got Shade? A "Take It Easy" Approach for Today's Gardener *will be released by IU Press Fall, 2003.*

Please renew your INPAWS membership now!

All INPAWS memberships are on a calendar year basis from January 1 through December 31. Please use the membership form included in this newsletter and mail your 2003 dues as soon as possible.

Membership Chair
Dawn Stelts
dawn@stelts.com
317-867-2906

What's Gone

In this issue we introduce two new columns entitled *What's New* and *What's Gone* which will be featured occasionally in future newsletters.

What's New features a plant or plants that are new to the state, and *What's Gone* features a plant or plants that are currently considered extirpated, that is, they were once known to be native in Indiana but no longer thought to occur here.

Both columns are by
Kay Yatskievych,
who is working on *An Annotated Checklist of the Vascular Flora of Indiana*, which will bring together in one list published records and recent new unpublished discoveries of plants in Indiana. She is the author of a *Field Guide to Indiana Wildflowers* and has been employed at the Missouri Botanical Garden since 1990.

If you believe that you have found either of the plants featured in these two columns growing in Indiana outside cultivation, please contact:

Kay Yatskievych
Missouri Botanical Garden
4344 Shaw Blvd.
St. Louis, MO 63166
314-577-9524
Kay.Yatskievych@mobot.org

A recent draft list of Endangered, Threatened, and Rare species for Indiana that was sent out by the Natural Heritage Data Center of the Indiana Department of Natural Resources for review listed 56 species that are considered Extirpated. The good news is that six species that were formerly listed as Extirpated have been upgraded to Endangered status, which means they recently have been refound in Indiana. Two others have been successfully reintroduced. Unfortunately, two species that had been listed as Endangered are now considered Extirpated. Still this is good progress with those plants that we'd thought were gone.

One of the plants that is still considered Extirpated is Climbing-Fumitory (Allegheny-Vine, Mountain-Fringe, *Adlumia fungosa)*. In his 1940 Flora of Indiana, Charles Deam says that there was an 1884 report of the plant from Steuben County, and an 1892 report from Lake County. In 1910, Deam saw it growing in an unpastured woods southeast of Michigan City in LaPorte County. He did not collect it and when he returned to do so the woods had been pastured and the plant was gone. So we have no voucher specimen to document its occurrence in Indiana, but there's little doubt that it once was here. Deam makes the comment that "It was, no doubt, a rare plant in northern Indiana and may yet be rediscovered." But alas, it has not.

Climbing Fumitory
(Adlumia fungosa)

Climbing-Fumitory is native throughout the northeastern United States and is listed on a number of state's Endangered, Threatened, or Rare lists. Interestingly, it is also listed on a Botanical Index to the Journal of Henry David Thoreau . Seeds are available from a number of nurseries, both in the United States and abroad.

The flowers of Climbing-Fumitory, which are in axillary panicles, are a pale pinkish white often described as "pearly pink." The flowers are reminiscent of the common woodland species Squirrel-Corn *(Dicentra canadensis)*, but narrower. As the vernacular name suggests, this is a climbing vine that can reach several meters into the trees that it grows on. The leaves are often described as fern-like.

What's New

by Kay Yatskievych

In July of 2001, Mike Fulton, Judy Stewart, and I discovered Gooseneck Loosestrife *(Lysimachia clethroides)* growing near one of the pulloffs along Dubois Ridge Road in Yellowwood State Forest in Brown County. There was a dense colony about 4 feet wide extending into the woods for nearly 20 feet. This is the first record I have for its escape from cultivation in Indiana.

Gooseneck Loosestrife is a popular garden plant, and when my husband George and I bought a new house with a large perennial garden last summer, I was surprised to find Gooseneck Loosestrife growing in abundance in several places. When I mentioned finding this plant in Brown County and then in my newly purchased garden to Bobbi Diehl, who lives in Bloomington, she said that she has had it in her garden for years and would not be without this "delightful thug." I thought this a most appropriate term for this gorgeous but aggressive plant.

A Google search of the web for "Lysimachia clethroides" yielded 2,660 hits. I didn't look at all of them, but most of the ones I did were from nurseries that sold the plant. It's easily grown from divisions or seeds and several nurseries said it was good for cut flowers. The ones at our house started blooming in July and bloomed nearly the rest of the summer. Several of the nurseries cautioned about its potential to become invasive. My experiences with it also indicate that this is a real possibility.

Gooseneck Loosestrife
(Lysimachia clethroides)

While scanning the websites, I found *Lysimachia clethroides* recommended for butterfly gardens. I also found it on both a list of plants that are not eaten by deer and one of plants that are not eaten by rabbits. However, I found no suggestion that the plant was poisonous, except by inference. One website gave an abstract of an article from the *Journal of Food Science and Technology* (2001, Vol. 33, No. 6) that investigated 77 species of edible and medicinal plants. One was *Lysimachia clethroides*, and it was found to exhibit a comparatively strong growth inhibitive effect on several strains of bacteria.

Gooseneck Loosestrife, which is native to China and Japan, has white flowers and at least the upper leaves are alternate. Other Indiana members of the genus all have yellow flowers and opposite or whorled leaves. Gooseneck Loosestrife is about 2-3 feet tall and the dense inflorescences have a characteristic drooping S-shape all pointing in more less the same direction giving a colony of the plants the look of a gaggle of geese all heading in the same direction.

www.inpaws.org

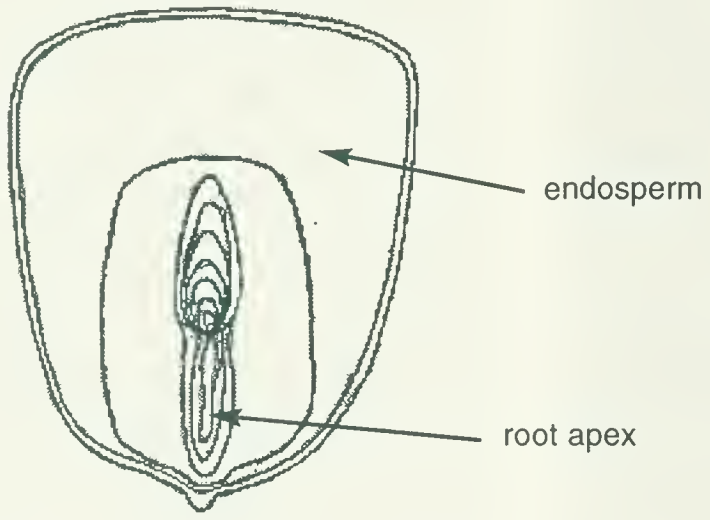
Visit our website for news and information about INPAWS and native plant issues, as well as links to related organizations concerned with preserving native plants and their habitats.

Botany 101 – sixteenth in a series

Plant Hormones II

by Dr. Rebecca Dolan

In the last column I introduced plant hormones and detailed the functions of auxin, the first plant hormone discovered. In this issue I will cover two more hormones, **cytokinins** and **gibberellins.**



Corn Seed
Zea

Cytokinins are involved in cell division or cytokinesis. They are found in a variety of tissues that are actively dividing like seeds, roots and fruits. They travel up from roots to buds to trigger cell division in lateral buds released from the inhibition of auxin. Cytokinins have a practical application in plant tissue culture, where they are used trigger bud growth. A lot of houseplants are propagated using this technology.

Gibberellins are found in all parts of a plant, but in highest concentration in developing seeds. They promote cell division and stem elongation. In the seed, gibberellins help to break dormancy by promoting root growth through the seed coat. External applications of purified gibberellins, such as gibberellic acid, can induce otherwise dormant seeds to germinate, even if they would normally require a period of cold. It is believed they trigger the production of enzymes that convert starchy endosperm, the energy storage material in seeds, into sugars and amino acids that are then readily available to fuel embryo growth.

Have you ever noticed that leaves on young bean plants are entire, while leaves on mature plants have the characteristic three-parted leaves of a legume? Or that only young English ivy branches will root as cuttings? Gibberellins are thought to be responsible for the juvenile characteristics of young leaves. Dwarf varieties of some plants are individuals that have a mutation that prevents gibberellin production. **Bolting,** when a flowering stalk grows from a rosette of leaves (a stem with very short internodes) is triggered by gibberellins. Gibberellins promote pollen germination and fruit development.

Treatment with gibberellins helps make table grapes, like Thompson Seedless, larger.

This information comes from my favorite botany text: *Biology of Plants* by Raven, Evert, Eichorn, and Evert, 6th edition. It is published by W.H. Freeman & Co. (ISBN: 1572590416) and is available through Amazon.com for about $100. It is a great reference and has a beautiful cover!

Becky Dolan is Director of the Friesner Herbarium at Butler University, and a charter member of INPAWS.

Illustrations by Jan Glimn Lacy, INPAWS charter member and botanical illustrator, from her book Botany Illustrated.

Indiana Ferns and Their Haunts

by Mike Homoya

From the very beginnings of my interest in the botanical world there have been few plants that have captivated me as much as ferns. There was a time when I thought of ferns much as I did orchids, that is, a trip to Florida or Hawaii was needed to see them in the wild. What a pleasant surprise it was, then, to learn that ferns not only grow in our latitude, but that several species are actually common. The variety is amazing, from tiny spikemosses (not an actual moss, but a fern ally) to the towering cinnamon fern. We'll begin this four-part series on Indiana ferns describing what makes a fern – a fern. You see, not all plants that appear as ferns are ferns, and conversely, not all ferns look like, well . . . ferns!

The "typical" fern, if there is one, possesses leaves, or fronds, that are dissected (divided into many small, connected segments) and much longer than wide. The commonly cultivated house fern, the Boston Fern, is one such example of the typical. But other ferns are much more dissected, while others have no dissection at all. The common denominators of this multifamily group of ferns that botanists call **pteridophytes** are that they are nonflowering (producing spores instead of seeds), and have vascular tissue, the latter separating them from the true mosses. In addition, most ferns exhibit leaf buds that are coiled, commonly called fiddleheads. A related group of plants, known as fern allies, are similar to ferns but typically have much reduced leaves, either scale- or needlelike or grasslike, and possess specialized spore-containing structures. All have a life cycle known as alternation of generations.

Note: There is much to be said about fern reproduction and the associated spore-producing structures; discussion of such is not the purpose of this series. Readers are encouraged to investigate a good biology text or any number of books on ferns, to get the basics.

The intent of this series is to provide a brief overview of the diversity of fern families that occur in Indiana, just enough, it is hoped, to whet your appetite to learn more about these fascinating plants. In future installments of the series, the three major habitats where ferns can be found (forests, wetlands, and rock outcrops) will be described, including a more in-depth discussion of the particular ferns found there. For now, let's look at some of the fern families found in our state.

Climbing Fern
(Lygodium palmatum)

I am currently aware of 78 species of ferns and fern allies occurring in Indiana, these representing 18 different plant families. The one with the greatest number of species (18) is the Dryopteridaceae, the wood fern family. Within this family are some of our largest and showiest ferns, such as Goldie's fern *(Dryopteris goldiana)* and ostrich fern *(Matteuccia struthiopteris)*. One of our most common woodland ferns, the Christmas fern *(Polystichum acrostichoides)*, is also in this family,

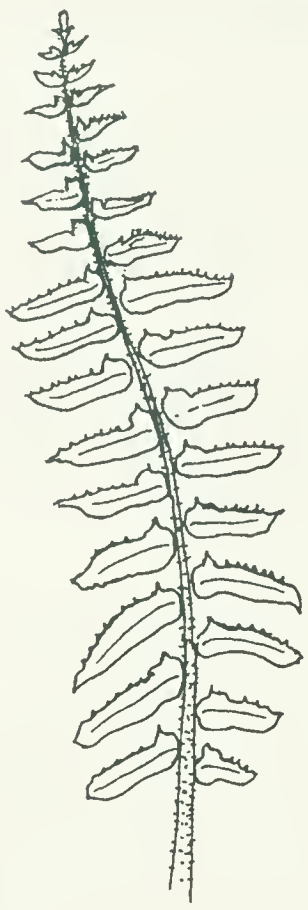
Some fern families in the state have but one species represented. Take, for example, the Lygodiaceae, with its climbing fern *(Lygodium palmatum)*.

This fern is interesting in that it is the only fern in the state that is a climbing vine. Another single species fern family is the Vittariaceae.

Our sole member, the Appalachian shoestring fern *(Vittaria appalachiana)*, occurs with us only as an independent gamaetophyte. This means that the larger sporophyte phase of the plant–that which we typically think of as the "fern"–is not formed. Again, get that biology or fern book at the library.

One group of ferns that adds to the joy of winter botanizing is the grapeferns. These plants, of the genus Botrychium, are also known as bronze ferns, in that the fronds of some species attain a rust or bronze coloration in winter. They share a family (Ophioglossaceae) with the adder's tongue ferns (Ophioglossum), odd looking little ferns with simple, entire leaves shaped like a tongue.

Spleenwort is a common name that mostly refers to plants in the Aspleniaceae, but plants of other families have also been christened with name, e.g., silvery spleenwort *(Deparia acrostichoides*, formerly *Athyrium thelypteroides)*, in the Dryopteridaceae. Plants of the Aspleniaceae, in the genus Asplenium, are quite small, and more often than not grow on rock substrates.



Christmas Fern
(Polystichum acrostichoides)

The giants of the fern world, at least in Indiana, are the Osmunda ferns (Osmundaceae). These tropical looking ferns, under proper growing conditions, can possess fronds long enough to tower over one's head. This is especially true of the cinnamon fern *(O. cinnamomea)*.

A full 20 species of our topic group constitute what are known as fern allies (Lycopodiaceae, Selaginellaceae, Isoetaceae, and Equisetaceae) – the clubmosses, spikemosses, quillworts, and horsetails, respectively.

None of these creates in our minds the image of a fern, but many are nonetheless quite attractive in their own right. Perhaps the most unusual of all are the quillworts, plants which look more like bunches of wild onions than ferns.

We're out of space in this installment for further discussion of our diversity of ferns, but you get the picture. More awaits. In Part II of this series we will look at the specific ferns that occur in one of our more common habitats–forests.

Mike Homoya, INPAWS member, is author of Orchids of Indiana, *published by the Indiana Academy of Science in 1993, and is a botanist with the Indiana Department of Natural Resources-Division of Nature Preserves.*

Illustration of Christmas Fern by Jeanette Ming

Ferns of Indiana

The following is a species list of fern and fern allies documented for occurrence in the state of Indiana. The list is not the result of an exhaustive herbarium search, but from literature and the author's familiarity with the flora, and thus it may not be complete. Not all of these listed are extant, and a few are extremely rare. Most, however, are not uncommon. The taxonomy and nomenclature follows Volume 2 of the *Flora of North America* (1993). I have tried to provide synonymy for those of which other names are still in common usage.

FAMILY
Genus
Species (and hybrids)

LYCOPODIACEAE
Huperzia (= Lycopodium)
H. lucidula
H. porophila
H. x bartleyi
Lycopodium
L. clavatum
L. dendroideum
L. obscurum
L. hickeyi
Diphasiastrum (=Lycopodium)
D. digitatum
D. tristachyum
D. x habereri
Lycopodiella (=Lycopodium)
L. inundata
L. subappressa

SELAGINELLACEAE
Selaginella
S. rupestris
S. apoda
S. eclipes

ISOETACEAE
Isoetes
I. engelmannii
I. melanopoda

EQUISETACEA
Equisetum
E. fluviatile
E. arvense
E. laevigatum
E. hyemale ssp. affine
E. variegatum ssp. variegatum
E. x litorale
E. x ferrissii
E. x mackaii
E. x nelsonii

OPHIOGLOSSACEA

Botrychium
- *B. virginianum*
- *B. biternatum*
- *B. dissectum*
- *B. multifidum*
- *B. oneidense*
- *B. matricariifolium*
- *B. simplex*

Ophioglossum
- *O. engelmannii*
- *O. pusillum*
- *O. vulgatum*

OSMUNDACEAE

Osmunda
- *O. cinnamomea*
- *O. claytoniana*
- *O. regalis var. spectabilis*

LYGODIACEAE

Lygodium
- *L. palmatum*

PTERIDACEAE

Adiantum
- *A. pedatum*

Cheilanthes
- *C. lanosa*

Pellaea
- *P. glabella ssp. glabella*
- *P. atropurpurea*

VITTARIACEAE

Vittaria
- *V. appalachiana (gametophyte only)*

HYMENOPHYLLACEAE

Trichomanes
- *T. boschianum*
- *T. intricatum (gametophyte only)*

DENNSTAEDTIACEAE

Dennstaedtia
- *D. punctilobula*

Pteridium
- *P. aquilinum (var. latiusculum and var. pseudocaudatum)*

THELYPTERIDACEAE

Thelypteris
- *T. noveboracensis*
- *T. palustris var. pubescens*

Phegopteris
- *P. hexagonoptera*

BLECHNACEAE

Woodwardia
- *W. areolata*
- *W. virginica*

ASPLENIACEAE

Asplenium
- *A. pinnatifidum*
- *A. rhizophyllum*
- *A. platyneuron*
- *A. resiliens*
- *A. trichomanes ssp. trichomanes*
- *A. bradleyi*
- *A. montanum*
- *A. ruta-muraria*
- *A. x kentuckiense*
- *A. x ebenoides*

DRYOPTERIDACEAE

Matteuccia
- *M. struthiopteris var. pensylvanica*

Onoclea
- *O. sensibilis*

Diplazium (=Athyrium)
- *D. pycnocarpon*

Deparia (= Athyrium)
- *D. acrostichoides (=A. thelypteroides)*

Athyrium
- *A. felix-femina (var. angustum and var. asplenioides)*

Cystopteris
- *C. bulbifera*
- *C. tennesseensis*
- *C. protrusa*
- *C. tenuis*

Woodsia
- *W. obtusa ssp. obtusa*

Dryopteris
- *D. marginalis*
- *D. goldiana*
- *D. celsa*
- *D. clintoniana*
- *D. cristata*
- *D. intermedia*
- *D. carthusiana*
- *D. x bootii*
- *D. x uliginosa*
- *D. x neo-wherryi*

Polystichum
- *P. acrostichoides*

POLYPODIACEAE

Polypodium
- *P. virginianum*

Pleopeltis (=Polypodium)
- *P. polypodioides var. michauxiana*

MARSILEACEAE

Marsilea
- *M. quadrifolia*

AZOLLACEAE

Azolla
- *A. caroliniana*

Compiled by
Michael Homoya, 2003

Annual Plant Sale

Saturday, May 10, 2003
Kelly Frank, Chairman

Old man winter is finally loosening his grip (really, he is) and I want to remind everyone of the plant sale. I am pleased that this years' sale will again be held at **St. Pius the X School** (a terrific location) at **71st and Keystone Avenue, Indianapolis**, on Saturday, the 10th of May at 10 AM. The set-up time is Friday evening from 4 to 9 PM and doors will open Saturday for volunteers and deliveries at 7 AM.

Thank you to all the plant donors in advance for your generosity and hard work and please dig and pot up as early in the season as weather permits. This will help insure robust, happy plant material.

Last year's sale was great fun and a success due to the efforts of the many enthusiastic volunteers. Your participation is needed, and appreciated, again this year. I'll have a brief organizational meeting in late March and will be in touch with last years' volunteers when the date has been confirmed. In the meantime, you may contact me by phone (765.436.2483) or email (kiwisan@frontiernet.net) with any suggestions for this year's sale or to volunteer.

On April 12th, Saturday, 9:00 to noon and again on Thursday, April 17th, 9:30 to noon, all INPAWS members can participate in a plant rescue at Holliday Park.

The rescued plants will be used for the INPAWS plant sale in May. Meet at the Holliday Park nature center with a garden trowel, plastic grocery bags and gloves if you wear them. This is a good way to earn volunteer hours with other INPAWS members. Call Betsy Wilson at 255-3304 for directions or more information.

INPAWS Central Chapter News and Meetings for 2003

On February 13th, 30 members attended a fascinating and informative talk given by Mike Homoya on rare, threatened and endangered plants found in Indiana. Mike showed slides and described various environments in our state.

May 3, Saturday
Saturday afternoon, 11 AM to 2 PM
Colletta Kosiba's Spring Garden Tour. directions will follow on a post card. Bring a picnic lunch.

June 7, Saturday
9 AM to noon, Broadripple park (rain date June 14th). Improve our environment, help wildflowers thrive, get to know other Central Chapter members better, help Indy Parks and earn volunteer hours by helping to continue the removal of exotic invasives in the old growth forest at Broadripple Park. Pizza (courtesy of Indy Parks) and refreshments (courtesy of Ruth Ann Ingraham) at Ruth Ann's home which is one block south of the park will follow the work. Call Ruth Ann for information. 253-3863

July 13, Sunday
2 to 4 PM
Virginia Harmon's Summer Garden Tour
8814 Rocky Hill Road, Indy
Cal 888-8974 for directions.

October 5, Sunday
2 to 4 PM
Smock Golf Course Tour to see native plants used in the rough and hear how golfers have responded to the plants and wildlife they have attracted.

December 13, Sunday
2 to 5 PM
Christmas party at Carol Mavity's home.

Further details about Central Chapter meetings will appear in future newsletters and be sent to members by email and, perhaps, postcard. Please contact

Betsy Wilson
317-255-3304
geobet@iquest.net

East Central Chapter upcoming meetings

All meetings will be held at 7 PM in the Minnetrista Cultural Center Muncie, Indiana.
For more information contact Marcia Johnson at MarciaJ50@aol.com

Thursday, April 3
Larry Campbell will have a slide presentation of his recent trip to the Shanghai area.

If you are interested in making a presentation to our group next September, October or November, please contact

Marcia Johnson
Marciaj50@aol.com.

Education Committee Report

The Education Committee of INPAWS set up and maintained a very attractive booth at the HASTI (Hoosier Association of Science Teachers) convention in Indy on February 20-21. About 2000 teachers attended, and our booth was busy practically the entire time. We gave out over 200 copies each of our ***Gardening with Native Plants*** and ***Invasive Plants*** booklets, along with sample newsletters and membership applications. Teachers were looking for projects their students could carry out using native plants, and we had over 50 requests for the 4H native plant originally developed by Carolyn Harstad and expanded by Dan and Sophia Anderson.

There was a high degree of interest in loanable slide programs and the availability of INPAWS News articles for download. A data base of interested teachers will be compiled and requested information sent to them. It was interesting to note that many teachers not involved directly in natural history were interested in cultivating native plants for their own gardens!

Thanks to Dawn Stelts, Judith Lieberman and her friend "Mudge" Morris for their help with the booth.

Three programs supplied by Coletta Kosiba's Speakers Bureau were copied and scripts rewritten where necessary to adapt them to a fourth and fifth grade level. *Spring Wildflowers* was reviewed by Judy Lieberman, *Summer Wildflowers* by Marquita Manley, and *Invasive Plants* by Dan Anderson. Programs for wild edibles and for prairie plants are being compiled, for schools and possibly for Speakers Bureau use.

A series of four programs on using native plants in the garden was put of at four locations for OASIS (Older Adults Services and Information Systems). Presenters were Dan and Sophia Anderson and Christina Meeks. Another program is planned on prairie plants for July, to be presented at Holiday Park.

If you had checked off interest in adult or child education on your membership form, we apologize for not having contacted you before this, as the list of names somehow "fell through the cracks" and didn't get to the folks who needed it (us)until very recently. You will be receiving a letter before the end of April bringing you up to date and soliciting your ideas about how to get our message out to our schools and communities at large.

For the Education Committee, Dan and Sophia Anderson, Co-chairs

Letter to the editor

Coining new term . . .

While listening recently to a Black History program on NPR I heard a presenter referring to a "back-fired" attempt to promote diversity as being a *diworsity*.

It occurred to me that there could also be a *biodiworsity* some place looking for a term to describe it.

Bill Mahoney

INPAWS SLIDE PROGRAMS AVAILABLE FOR MEMBERS TO USE

THESE SLIDE PROGRAMS COME IN A CAROUSEL WITH A WRITTEN TEXT TO READ WITH EACH SLIDE. THE PROGRAMS ARE DESIGNED TO EDUCATE AND ARE ENTERTAINING AT THE SAME TIME. OTHER MATERIALS TO SHARE WITH AUDIENCE ARE INCLUDED. YOU ARE REQUIRED TO RETURN THE PROGRAMS IMMEDIATELY AFTER USE AND INSURE THEM.

SPRING WILDFLOWERS
40 WOODLAND WILDFLOWERS

SUMMER WILDFLOWERS
40 FLOWERS OF THE FIELDS

INVASIVE PLANTS
40 OF THOSE BAD ALIENS OUT THERE

THESE THREE PROGRAMS WERE PRESENTED THROUGHOUT THE STATE LAST YEAR.

THREE NEW PROGRAMS THIS YEAR!!

NATIVES FOR YOUR SHADE AREAS
FLOWERS, VINES, GROUND-COVERS, FERNS

NATIVE TREES AND SHRUBS
ALL ABOUT TREES AND SHRUBS, PLUS INTERESTING FACTS ABOUT THEIR USE

WHO ARE THESE ALIENS?
FLOWERS FROM OTHER CONTINENTS THAT HAVE NATURALIZED AND BECOME WILDFLOWERS IN INDIANA. HOW THEY GOT HERE AND THEIR USES.

CONTACT SPEAKERS BUREAU CHAIRMAN
COLLETTA KOSIBA
317-852-5973
k_colletta@hotmail.com

It's Not Easy Being Green

Partridgeberry

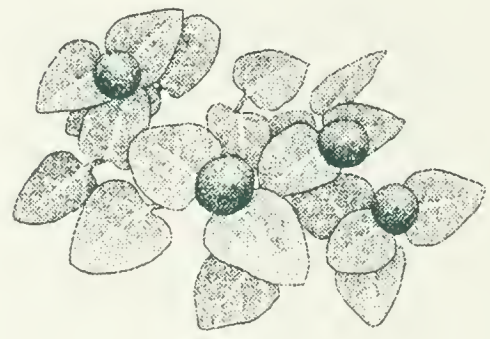
by Gene Bush

It is not easy being an evergreen groundcover in southern Indiana. Foliage can seldom rely on snow cover during winter months.

I live and garden in Zone 6, but Zone 5 weather is certainly no stranger here. The soil freezes solid and winter winds whistle through, sucking moisture from foliage, leaving brown blotches in their wake. Shortly after freezing, the soil thaws, only to freeze once more in continuous cycles, heaving all but the best-established and tenacious of root systems. Our native woodland wonder, *Mitchella repens*, always comes through unscathed, remaining a deep, lustrous, spring-green.

The sheer number of common names for this member of the Madder family attests to the popularity of the partridgeberry. Deerberry and partridgeberry say something of its popularity with local wildlife as a food source. Checkerberry refers to the bright red berries over the green foliage. Twinflower aptly describes the flowering habit. In all, I am aware of over thirty common names for this widely distributed and well-loved creeper.

Mitchella repens can usually be found forming small carpets on embankments and hummocks in the wood. Preferred locations, such as raised areas, the base of mature trees, would be to keep accumulating leaf litter from smothering the tiny foliage. Soil is usually acidic. Personally, I am not completely convinced of their need for acidic soil. *Mitchella repens* grows with good vigor in nursery pots that have a neutral medium. I have plants growing in three widely disbursed gardens, under varied conditions and it thrives in all three locations. One site is in among limestone rocks.



Partridgeberry
(Mitchella repens)

Without a doubt, partridgeberry is among our most interesting native woodland plants. *Mitchella repens* is a diminutive ground-hugging vine that forms a dense evergreen mat produced by rooting stems. Each tiny leaf is opposite along the stem, rounded-ovate in outline. Individual leaves are from one third to two-thirds inch (6 to 18mm) in length. Color is a deep, rich, spring-green with white along the midrib and veins.

Partridgeberry flowers June through July with one-half inch long, white flaring trumpets that are fuzzy inside and fragrant. The flowers are scattered along individual stems always in pairs, joined at the base like Siamese twins where a single ovary is shared. Thus, it takes two flowers to produce a single berry. Each bright red berry has two small 'eyes' or 'bumps' from where the corollas were joined. The bright red of the berries against the spring green of the foliage is quite showy. This is especially true when berries last over into the next flowering season. There will then be white twin blooms accompanied by red berries against the green mat.

Partridgeberry is easily propagated. Snip a short section of stem that has a hair-like root or two and pot up in a moist medium. Two or three pieces to a four-inch pot quickly form a nice beginning for the garden.

In my garden partridgeberry flows between and limestone rocks where they assist in showing each other off to best advantage. In early spring several species of Trout Lilies *(Erythronium)* push through the green mat to display mottled foliage and bloom. A bit later jack in the pulpit *(Arisaema triphyllum)* makes an appearance to form its own red berries, extending the colorful display.

Gene Bush is owner/operator of Munchkin Nursery & Gardens, Inc. in Southern Indiana. The plants and gardening experiences described in this article occur in his hillside garden. Gene can be reached at: www.munchkinnursery.com.

Illustration by Jean Vietor

Plant detectives . . .

Wish Lists 2002, 2003

by Barbara Plampin

On balance, the summer of 2002 was a rewarding time for your corresponding plant detective, despite my failure to find any "wish list" plants such as Twin Flower *(Linnaea borealis)* and Hooker's Orchid *(Habenaria hookeri)*. Even counting one embarrassing misidentification, and the heat, ticks and stable flies, it was rewarding. (By the way, are stable flies a terrorist weapon?

Twin Flower
(Linnaea borealis)

Not only did fellow plant detective Myrna Newgent and I fail to find Hooker's Orchid in promising white pine woods near Michigan City, but we disgraced ourselves by identifying first-year, non-flowering basal rosettes of Dame's Rocket *(Hesperis matronalis)* as state-threatened Pipsissewa *(Chimaphila umbellata cisatlantica)* an evergreen sub-shrub with whorled leaves.

Redemption began after the National Lakeshore sent us with a biotech, Lydia Miramontes, to find and map rare plants. Myrna found again the genuine Pipsissewa, earlier reported but not mapped by Keith Board, in dry, sandy woods. Five-petaled white flowers nod from erect branches about June 27.

Then a developing panne yielded several treasures. Pannes are calcareous intra-dunal wetlands appearing in only three or four places world-wide, and are globally imperiled. You may easily view two pannes at the Lakeshore's West Beach, one with binoculars near the big parking lot, the other by hiking the board walk on the Succession Trail.

Pannes support distinctive flora like Bog Arrow Grass *(Triglochin maritima)*, Rose Gentian *(Sabatia angularis),* and rare Bladderworts (Utricularia species). "Our" panne contained three listed plants unknown in other pannes: Bog Club Moss *(Lycopodium inundatum)*, endangered, Ground Cedar *(L. tristachyum)*, threatened, and Small Forget-me-not *(Myosotis laxa)*, endangered. A fourth listed plant, Hair Bladderwort *(U. subulata)*, threatened, though known from other pannes, here turned out to be cross- rather than self-pollinated, as its mustard-yellow flowers demonstrated–the only place I've seen this form in the Dunes.

Primrose Violet
(Viola primulifolia)

Our next find produced great rejoicing. By finding Ground Cedar we "restored" this species to the Lakeshore, whose other populations had succumbed to fire and over-collecting. Branch patterns of this evergreen look just right in Christmas wreaths, but an over-zealous collector or collectors had nearly extirpated it from the park.

Your 2003 wish list? Mine includes last year's plants, mentioned above in the first paragraph. Tom Post, of the Division of Nature Preserves, suggests hunting the disjunct Canada Blueberry *(Vaccinium myrtilloides)*, endangered, found last year by Noel Pavlovic near Lake County's Hoosier Prairie. Twigs and lower surfaces of the lance-shaped leaves are densely hairy. Bogs are one of the habitats of this plant. It's blooming dates are unknown.

Primrose Violet *(Viola primulifolia)* might also belong on your wish list. It awaits identification by a professional.

Books: Greenberg, *A Natural History of the Chicago Region.* University of Chicago Press, 2002.

Plampin, INPAWS News. Winter 2001, Spring 2002, Winter 2003.

Swink and Wilhelm, *Plants of the Chicago Region, Fourth Edition*. Indiana Academy of Science, 1994.

Yatskievych, *Field Guide to Indiana Wildflowers,* Indiana University Press, 2000.

Barbara Plampin is a member of INPAWS, a trustee of the Shirley Heinze Environmental Fund, and a member of Save the Dunes Council. She has a Ph.D. in English literature from the University of Michigan. Botany has been her avocation all her life.

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INPAWS Coming Events, 2003

Roger Hedge and Tom Swinford, Co-chairmen

Join us for an exciting year of programs. Some of these Field Days focus on little-known, isolated wetland types of Indiana. Three of the sites are exciting new areas that the organization has never visited!

April 5, Saturday
Prairie Creek Barrens
Restoration Day
INPAWS members and friends are invited to attend a restoration day activity for one of the rarest community types in Indiana–the sand barrens of southwestern Indiana. Once covering hundreds of square miles, the type almost no longer exists. Only a few roadside remnants, fencerows, and ditch banks harbor species that provide clues to the area's former character. The lone exception is located at a nature preserve in northern Daviess County. Owned and managed by the DNR Division of Nature Preserves, the preserve, known as Prairie Creek Barrens, is home to a number of unusual plants and animals, including many known from nowhere else in southern Indiana. Although a small portion of the preserve has rich species diversity, most of it was until recently cultivated in row crops.

It is now prime for restoration. Plants propagated from seeds collected near the preserve have been grown into plugs, and are "eager" to begin their new life in the sandy upland fields. All that is needed is your help.
Please contact Mike Homoya at (317) 232-0208, or e-mail mhomoya@dnr.state.in.us for more information, and to RSVP by March 21. Additional details regarding meeting time and location to be announced at a later date.

April 12, Saturday,
Plant Rescue
Saturday, 9 AM to noon and Thursday, April 17, 9:30 to noon. All INPAWS members can participate in a plant rescue at Holliday Park. The rescued plants will be used for the INPAWS plant sale in May. See page 10 for more.

May 3, Saturday, 10 AM
Ginn Woods, Delaware Co. with Kem Badger Ph.D. Ball State University owns this old-growth central tillplain flatwoods. Biology Professor Kem Badger will interpret the flora and wetland functions of this classic example of the formerly dominant natural community type of central Indiana. Step back into 1820!

May 10, Saturday
ANNUAL PLANT SALE
See page 10 for details

June 28, Saturday, 10 AM
Imagination Glen Park, City of Portage with Jim Bess, Lake County. This site contains diverse oak woodlands sloping into a classic northern fen. Let Jim introduce us to the unique plants of this area, and the fascinating insects that are dependent upon them for life. Great chance to learn something of wetland butterflies and their host plants!

July 19
Base Line Barrens Hike. Join Division of Nature Preserves Regional Ecologist Cliff Chapman on a hike through a restoration project at Base Line Barrens Nature Preserve in southern Washington County. The interesting site contains limestone barrens, chert barrens, black and white oak woodland, post oak woodland, pine plantings, and old fields. Restoration efforts have concentrated on enlarging barrens openings by removal of cedar trees and conducting prescription fire, as well as planting conservative native species collected locally. Some species that we may see include blazing star, prairie dock, green milkweed, bush clover, trailing wild bean, tall coreopsis, New Jersey tea, deerberry, and prairie willow among others. In addition, this preserve harbors eight species of milkweeds and the same number of orchids.

August 23
Late Summer Foray to Jasper-Pulaski Fish and Wildlife Area
Jasper-Pulaski Fish and Wildlife Area (J-P) is well known for being a staging area for Sand-hill Cranes. On the other hand, its botanical diversity and fascinating plant communities have been generally underappreciated. This rather unique area developed on coarse wind-shaped glacial outwash found in parts of the Kankakee Basin. This foray should take us into black oak savanna with some prairie openings, muck-sand flats, and pin-oak swamp. The black oak savannas have big and little blue-stem *(Andropogon)*, winged sumac *(Rhus),* sunflowers *(Helianthus),* flowering spurge *(Euphorbia),* low-bush blueberry *(Vaccinium),* and huckleberry *(Gaylusaccia).* In late summer the wetland habitats are often dry but gloriously covered with blue-joint grass *(Calamagrostis),* shore St. John's wort *(Hypericum adpressum),* meadow beauty *(Rhexia),* a variety of knotweeds *(Polygonum),* and unusual sedges such as three-way sedge *(Dulichium),* twig-rush

(Cladium), beaked-rushes *(Rhynchospora),* and nut-rush *(Scleria).* A number of species we hope to encounter are rare Atlantic Coastal Plain disjuncts.
The J-P foray leader is Dr. Paul Rothrock. He has been a Professor of Biology and Environmental Science at Taylor University for more than 20 years. His research includes sedge taxonomy and wetland assessment. Paul's special interest in J-P is the result of his continuing work on a pictorial guide to Indiana's sedges.

September 6, 1-3 PM
Red Tail Nature Preserve, Delaware Co. with Kevin Tungesvick. The Red Tail Conservancy has protected this fascinating site which includes a diverse prairie fen and a newly planted central Indiana prairie. Adjacent mudflats of Prairie Creek Reservoir may offer excellent potential for shorebirds. Kevin Tungesvick, a perennial crowd favorite, will introduce us to this new site!

October 11, Saturday, 10 AM
Urban Wetlands with Don Miller and Bob Barr.Starling Sanctuary at Eagle Creek Park, Marion County. Don Miller and Bob Barr will "tag-team" to interpret this easily accessible site. These two breathe life into the science of the restoration, formation, and dynamics of wetlands.!

November
Fall Conference (date to be announced)

Fifth Annual Southeast Exotic Pest Plant Symposium May 15-17, 2003

The Kentucky Exotic Pest Plant Council will host the 5th annual meeting of the Southeast Exotic Pest Plant Council. The meeting will be held at the **Campbell House Inn** in **Lexington, Kentucky**. In addition to seeing old acquaintances, rub shoulders and compare notes with land managers and weed warriors from states outside of the SE region as we reach beyond our borders to invite our neighbors to attend. Presentations on weeds known to the southeast as well as new ones poised to invade will be featured on May 15th and 16th. Topics include: research on Microstegium and Chinese yam; predicting invasion in forests; converting exotic grasses to native warm season grasses; controlling mile-a-minute weed, Japanese knotweed, and other problem species. Get updates on herbicide products from company representatives. Learn how the St. Louis Declaration is being implemented and received. Copies of the US Forest Service's new guidebook on exotics will be available. Hear some great bluegrass/folk music and bid on silent auction items at the social on the evening of May 15th. A workshop for private landowners on controlling exotic plants will be held in the morning on May 17th. Field trips highlighting the diversity of Kentucky's Inner Bluegrass Region are also planned for May 17th. Learn more about the efforts land managers are making to control the spread of invasive exotics at a local site: Floracliff State Nature Preserve in Fayette County. For a longer trip, view the ancient Kentucky River Palisades at Tom Dorman State Nature Preserve in Garrard County or visit Harrison County at a recently acquired bluegrass savanna woodland, a globally imperiled natural community that will require a tremendous amount of invasive species management.

Registration cost: $85 (includes reception on May 15 [cash bar] and lunch on May 16). ***Registration after April 21 is $95***

To obtain registration form, contact Augusta Mazyck at kmazyck@tnc.org (please put "Registration" in the subject line) or phone (859) 259-9655 ext. 52.

For room reservations at the Campbell House Inn ($79 double)
Telephone Numbers:
(859) 255-4281
(859) 254-4368 Fax
Reservations:
(800) 432-9254 (KY)
(800) 354-9235 (Outside KY)
Email:
staying@campbellhouseinn.com
Website of Campbell House Inn
http://www.campbellhouseinn.com/
Free shuttle from Lexington's Bluegrass Airport to the Campbell House Inn

INPAWS Coming Events, 2003

For more info contact Programs/Field Trips Chairman Roger Hedge (317) 232-8062, rhedge@dnr.state.in.us

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November
Fall Conference
date to be announced

Please see previous page for details about these events.

Happy
Tenth Anniversary
to INPAWS!

About 25 INPAWS members celebrated the society's 10th anniversary at Holliday Park, Indianapolis, on March 8th at a pitch-in lunch/slide show festival. Ruth Ann Ingraham and Carolyn Harstad (who were both in the vanguard of the effort to create a native plant society for Indiana) each made a cake with candles, and everyone sang *Happy Birthday* to INPAWS.

INDIANA NATIVE PLANT
and Wildflower Society

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INDIANA NATIVE PLANT *and Wildflower Society* NEWS

Volume 10 Number 2 • Summer 2003

What's New

Showy Beardtongue *(Penstemon cobaea var. purpureus)*

by Kay Yatskievych

In June of 2001, I was invited by Jim Peterson to visit The Jerry E. Clegg Foundation Botanical

Gardens in Lafayette. This 16-acre garden was once the summer home of the Clegg family and after Jerry's death the family made the grounds into a memorial in his remembrance. The garden is open, free of charge, every day from sunup to sunset. For a map of the garden and images of some of the species there, see http://www.wl.k12.in.us/hh/staff/sjohnson/index.htm, a website developed by Mrs. Sherry L. Johnson's Fourth Grade Students at Happy Hollow Elementary School as part of Project Canaltrek, sponsored by the Indiana Department of Education.

Eleven members of the West Central Chapter of INPAWS accompanied Jim and me as we hiked several of the trails. Jim has been the Manager of this private foundation for 37 years. He is also a Charter Member of INPAWS. In the last few years, he's become increasingly interested in native plants and has put in a small prairie area and other native habitats. One of the most interesting of these is a slope overlooking Wildcat Creek that is a small gravel-hill prairie from which Jim had begun clearing woody invasive exotics. It was there that he found Showy Beardtongue *(Penstemon cobaea var. purpureus)*. Jim's specimen documenting this find is accessioned at the Kriebel Herbarium at Purdue University, Lafayette.

Showy Beardtongue is sometimes called Purple Beardtongue or Foxglove Beardtongue. The flower color varies from white to pink *(var. cobaea)* or purple *(var. purpureus)*, the latter being the more eastern variety. The species is native on prairies, limestone glades, and rocky bluffs from Iowa, Missouri, and Arkansas and west, and is found as an escape from cultivation

What's New continued on page 2

Inside . . .

What's New continued from page 1

found as an escape from cultivation in Illinois, Ohio, and now Indiana.

Showy Beardtongue is available in nurseries, and according to Missouri Botanical Garden's Plant Finder (http://www.mobot.org/gardeninghelp/plantfinder/) grows in zones 5 to 8. It is easily grown in average, dry to medium wet, well-drained soil in full sun and has no serious insect or disease problems.

Large-Flowered Beardtongue *(Penstemon grandiflorus)* has also been recorded from Indiana. It and Showy Beardtongue have the largest flowers in the genus, 3.5–5 cm long and both have purple flowers. However, Large-Flowered Beardtongue is almost completely without hairs and has entire leaves, whereas Showy Beardtongue has the stems, calyx, and flower stalks finely and minutely hairy and often has short teeth on at least some of the leaves.

If you believe that you have found Showy Beardtongue growing in Indiana outside cultivation, please contact:

Kay Yatskievych
Missouri Botanical Garden
4344 Shaw Blvd.
St. Louis, MO 63166
314-577-9524
Kay.Yatskievych@mobot.org

Kay is a charter member of INPAWS, and has worked for the Missouri Botanical Garden since 1990. She is working on An Annotated Checklist of the Vascular Flora of Indiana, *which will bring together, in one list, published records and recent new unpublished discoveries of plants in Indiana. She is the author of a* Field Guide to Indiana Wildflowers.

The Newsletter of the
Indiana Native Plant and Wildflower Society

Published quarterly by the Indiana Native Plant and Wildflower Society for members.

We welcome opposing viewpoints.

www.inpaws.org

The mission of the Indiana Native Plant and Wildflower Society is to promote the appreciation, preservation, conservation, utilization and scientific study of the flora native to Indiana and to educate the public about the values, beauty, diversity and environmental importance of indigenous vegetation.

President's Message

by Linda Oxenrider

Now that the days are growing longer and winter has finally lost its icy grip upon the land, my husband and I have taken our bikes out of storage to ride the rail trails and pathways of town. Invariably, and especially at this time of the year, I observe as we bike many homeowners hard at work in their yard. And, as if I didn't already know it, this confirms what virtually any gardening magazine will tell you–gardening is America's number-one leisure activity. This assertion is supported by polls commissioned by the National Gardening Association. According to recent GPA polls, about three-quarters of America's households participate in some sort of gardening activity be it growing a potted orchid in a sunny window or cultivating vegetables in the backyard garden. This translates to approximately 72 million households each spending upwards of $340 a year to plant or maintain everything from houseplants to hostas.

What the polls don't measure and the garden magazines never address is avidness. I suspect that many of the homeowners I observe on my bike rides toiling in their yards pulling weeds and mowing the lawn are not motivated by a great love of gardening. On the contrary, I suspect they are reluctant gardeners who garden not because they want to, but because they must. They garden because home ownership has thrust them into the role of caretaker for a piece of land attached to their house. And, whether it be a tiny apartment patio plot or a large suburban lot, the land has needs. It needs plants, it needs water, and above all it needs time and effort.

And we homeowners, even the reluctant gardeners among us, have needs as well. We need and desire an attractive landscape. We differ only in the ways we choose to satisfy that need. Few reluctant gardeners are willing to invest the time and effort required to plan, plant and tend an expansive garden. Unwilling to discard their reluctant gardener sensibilities, they opt instead to create the all too often seen conforming residential landscape consisting of a tall shade tree under-planted with impatiens for color, a border of daylilies and the requisite lawn kept lush and green with chemicals.

But to be fair, we cannot lay the blame for the expansive lawns and the tightly clipped shrubs that have become the standard of America's planted landscape solely at the feet of reluctant gardeners. Wholesale growers, seed companies, garden centers, gardeners, garden writers, landscape designers and landscape architects constitute a gigantic garden culture in America. That culture shapes what we see in the designed landscape nearly everywhere we go. It operates under several unspoken guidelines: what is new and different is good, the best plant is one that will grow under almost any condition, there is nothing more attractive than a lush, green lawn, and the bigger and more bolder the flower, the better. Driven by these precepts, it is little wonder that the typical residential yard bears little resemblance to native ecology. Today it is often difficult to distinguish one region in America from another based solely on the plants seen growing in designed landscapes.

We native plant enthusiasts face the daunting task of bucking mainstream design and gardening culture. By seeking to determine what plants thrived in our areas before the first bulldozer arrived and what might thrive again, we are part of a larger movement that is shaking up mainstream. We are introducing the natural world to our friends with the hope that if people have more daily contact and experience with native plants, they will come to appreciate and conserve the wildlands where they grow and the nature at work there.

Happy native plant gardening.

Old Friends and Favorite Places

by Lee A. Casebere

In Sand County Almanac, Aldo Leopold writes, "Tell me of what plant-birthday a man takes notice, and I shall tell you a good deal about his vocation, his hobbies, his hay fever, and the general level of his ecological education."

Years of time spent in the field have shown me that not only do plant-birthdays cause one to take notice, but so, too, do plant communities and animals. They form the foundations from which arise old friends and favorite places. Such affections don't necessarily result from a single event, but may be the product of accumulated experiences over time. I sometimes look back at what seem like disconnected events from the past and recognize many connections. This essay traces events that took place over a period of years that have made Canada Warbler *(Wilsonia canadensis)* an old friend and Pigeon River one of my favorite places.

When I was growing up, I developed an early interest in natural history. Grandma Casebere also had an interest in such things, and her bookshelf contained copies of Peterson field guides such as *A Field Guide to the Birds* and *A Field Guide to Wildflowers*. Poring through those pages, I would imagine far-away places where those plants and animals must have been. Birds in particular were of interest to me, and although I knew many of the common local birds, I somehow came to believe that most of the bookpage birds could only be found somewhere else. It didn't occur to me that a surprising number of them could be found in my area at the right time and at the right place. That realization finally hit me when my high school science teacher introduced me to spring migration, and a few more pages in the field guide came alive. It was a splendid enlightenment, and I've been hooked on migration ever since. Although I don't remember the exact circumstances, my life list tells me that I saw my first Canada Warbler on May 22, 1966 during the spring of enlightenment.

While studying biology at the University of Saint Francis in Fort Wayne, I became friends with Mark Weldon, another eager field naturalist. Mark's interests were more in the areas of reptiles, amphibians and mammals, so he schooled me in those subjects, and I schooled him in birds. Later, we both dove into plants together, doing our best to master the local flora. During those college years, we "discovered" Pigeon River Fish & Wildlife Area. It had a splendid diversity of natural and man-made habitats, and thus, supported a wide array of plants and animals. We spent an incredible amount of time there.

During mid-May of 1973, Mark and I spent several days camping at Pigeon River. One morning as we stood on a bridge over the river, we noticed a troupe of a dozen or so men walking in the side ditches along the road heading in our direction. They appeared to be involved with something "official," so we waited to find out what these fellows were doing. The first gentleman approached us and introduced himself as John Whitaker. Mark immediately recognized the name. I didn't. Dr. Whitaker, I learned, was a mammologist from Indiana State University. After a pleasant exchange of conversation, Mark asked him if he knew Dr. Russell Mumford from Purdue (another mammologist I'd never heard of). Dr. Whitaker turned around and pointed back to one of the other men and said, "That's him right there."

We soon learned that they were working on a book about Indiana mammals, and were out that morning with a few students checking small animal traps. Among their quarry, they had cap-

tured a few Star-nosed Moles, a little-known species in Indiana that inhabits mucky swamps. They considered it quite a find. We found out that Dr. Mumford was also an ornithologist, and that he had much knowledge about the birds of Pigeon River. He was well acquainted with many of the more unusual breeding birds there, including Least Flycatcher and Veery (The bridge where we stood talking to him is mentioned in the first sentence of the discussion of the Veery in *The Birds of Indiana*, a book he co-authored with Charles E. Keller). After a nice chat with these two fellows, we went away impressed for having met them in the field at one of our favorite places.

In late June, I stumbled into Dr. Mumford again at Indiana Dunes State Park. He was preparing to head back along Trail 2 to look for Canada Warblers. It had never occurred to me that Canada Warblers would summer in Indiana. He explained that there had been a long history of them being found at the Dunes during the summer. I asked if I could join him. Trail 2 in June is quite an experience. Suffice it to say that mosquitoes are plentiful, which tends to limit your concentration on anything else. Although we didn't see a Canada Warbler, Dr. Mumford thought he heard one. I admit that at the time, I didn't know its song. Within a year, that would change.

The swamp along the Pigeon River east of the town of Mongo is a difficult place to explore. It is big and wild by Indiana standards, with no trails or boardwalks to ease the journey. Much of it is Tamarack swamp, a type that is becoming increasingly rare in Indiana. Tamarack is more suited to northern climes, and is barely hanging on here at the southern edge of its range. Other parts of the big swamp are dominated by Red Maple, while still others by Pin Oak or Swamp White Oak. Much of the understory is a dense thicket of various shrubby dogwoods and willows, chokeberries, Winterberry Holly, Speckled Alder, Swamp Rose, Spicebush, Nannyberry and Highbush Blueberry. Poison Sumac is particularly abundant, and it, of necessity, requires that forward progress proceed with deliberation. Skunk Cabbage is the most abundant herbaceous plant in much of the swamp, and tall Osmunda ferns add grace and charm. Everything about the swamp is clumpy–trees and shrubs grow on raised hummocks, and between the hummocks are wet, mucky troughs. Tree "tip-ups" are common since trees are remarkably shallow-rooted in this mucky environment. Some would say it's a forbidding place, but it's also a place of fascinating sights, sounds, smells and denizens.

On June 13, 1974, Mark and I were at Pigeon River once again. We canoed across the Mongo Millpond to explore a part of the swamp just east of where Turkey Creek flows into the millpond. Getting there by any means is difficult, being quite far to walk to by land, and somewhat treacherous to reach by water. While exploring among Yellow Birch and Skunk Cabbage in the swamp, we heard a bird singing that we didn't recognize. Nearby, a second bird echoed the first. A focused search revealed that the songsters were Canada Warblers. In spite of the Indiana Dunes revelation with Dr. Mumford a year earlier, it was a totally unexpected surprise. I might as well have been back in grandma's reading room believing that bookpage birds mostly lived somewhere else. And, as had happened so many times before with the discovery of yet another rare plant or animal, the mystique of Pigeon River had just raised another notch. I've been enamored with Canada Warblers ever since, and their song is now permanently etched into the deepest recesses of my auditory memory.

In Peterson's *A Field Guide to Warblers*, the song of Canada Warbler is described as "a variable,

sputtery, staccato series of notes," a description that fits it well. Remarkably loud, it's a spunky sound from a little gem of a bird. Avian beauty sometimes comes in surprisingly simple packages, and so it is with Canada Warbler. Charcoal gray above and yellow below is largely what you see, with a black necklace thrown in for style and substance. This sprite has just the right amount of brilliant color, just the right amount of pattern to qualify as unequivocally handsome. In typical Wilsonia fashion, they are active flycatchers, flitting and darting through the understory. Canadas are inquisitive birds that do not hesitate to investigate your entry into their dimly-lit domain. They will fuss about you, wings drooped, tail flicking, and always with the wide-eyed look of curiosity that their big spectacles impart. They possess undeniable beauty and charm.

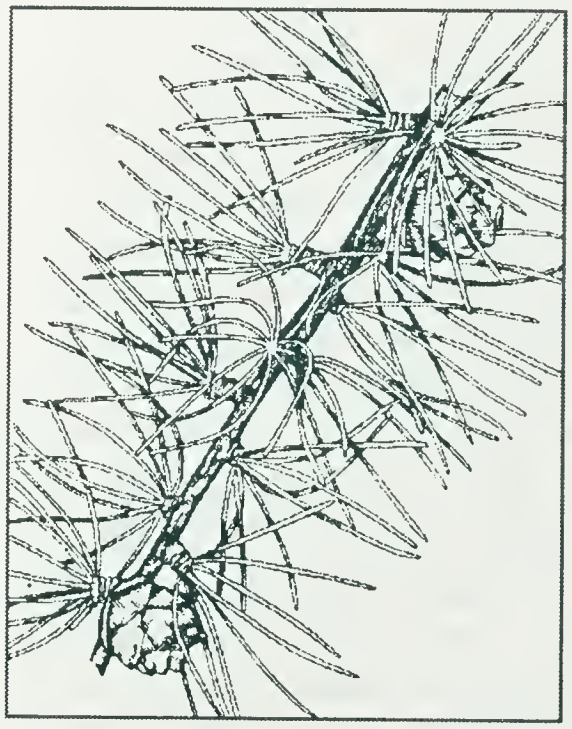
Skunk Cabbage
(Symplocarpus foetidus)

Following that initial discovery in 1974, we found one or more singing male Canada Warblers nearly every year through the remainder of the 1970's. One year, at least four singing males were known to be there. Another year, it was five. In 1976, both males and females were found at two different locations. At both of those sites, we observed behavior which strongly indicated that they were nesting. In 1978, further efforts culminated in the discovery of a nest by Mark, Pete Siminski and me on June 16th. It was the first Canada Warbler nest found in Indiana.

After moving to Indianapolis in 1980, I seldom returned to Pigeon River during June, so my knowledge of their presence waned. Finally in 2000, an exhaustive search of their old haunts ended in disappointment. I couldn't help feeling a sense of loss. Birds that nest on the edges of their ranges can't always be expected to be there. I knew that. And since the 1970's, changes were clearly taking place at Pigeon River. The Tamarack trees were dying out due to plant succession and one too many battles with Larch Casebearer Moths. Although one type of swamp was being replaced by another, I couldn't help but wonder if an important threshold was being crossed that made the swamp unattractive to my old friend.

A year later, I visited the swamp again, this time meeting an acquaintance to explore for interesting plants. After all, there was more to this place than just one pretty warbler. It was a perfect June morning with all the promise that such a morning holds. After careful progress through mucky troughs and around Poison Sumacs, we stood among feathery Tamarack boughs quietly admiring the rosy elegance of Showy Lady's-slippers. Nearby, a necklaced and bespectacled little gem of a bird with a sputtery voice flitted and darted through the underbrush.

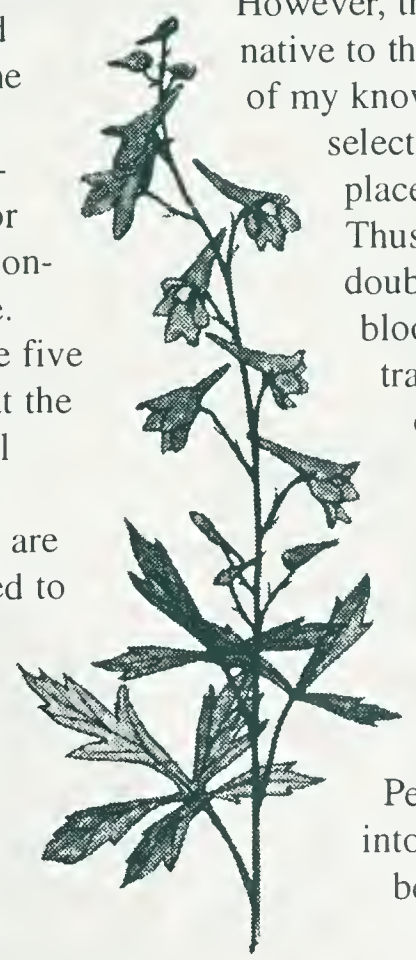
Lee Casebere is assistant director of the Division of Nature Preserves of the Indiana Department of Natural Resources, and a charter member of INPAWS. He is interested in birds, reptiles, amphibians, nature photography (he was the principal photographer for Orchids of Indiana, *by Mike Homoya), and, of course, plants. His special interest is in the rarer plant communities of prairies, savannahs, limestone glades, barrens, fens and bogs, habitats all well represented in Indiana.*



Delphinium exaltatum
Tall Larkspur

by Gene Bush

English delphinium breeders produce hybrids of show-stopping exhibition-quality named plants. These are the hybrids produced from the species *Delphinium elatum,* growing to six feet or more in height. Semi and fully double blooms come in siren-song colors of 'mulberry pink with contrasting bees of brown,'or dark royal blues with a contrasting bee of soft white. Delphinium flowers have five petal-like sepals joined at the base with the upper sepal spurred. The two to four petals in the calyx throat are furry-looking and referred to as a "bee." (that fuzzy looking thing in the middle of a delphinium bloom).



Tall Larkspur
(Delphinium exaltatum)

Each spring American gardeners are a bit like deer staring into an oncoming car's headlights. The 'better' gardening magazines will have feature articles filled with color photos of the hybrids. Garden centers and local nurseries will carry seedling plants with full-color pot labels. Catalogs and web sites fill in any local lack of plants. As with the deer, we simply can not seem to see any other delphinium.

Each year we bring home plants or seeds for our gardens only to be disappointed. These lines of hybrids are bred for weather far different from that found here in the midwest. The *D. elatum* hybrids simply cannot stand up to our summer temperatures. Just as they come into bloom, here locally we go into hot and dry conditions with high humidity, and night-time temperatures that remain at a level where these hybrids cannot rest.

However, there are delphiniums native to the mid-west. To the best of my knowledge no one has put a selective breeding program in place for our local natives. Thus there are no fully double or semi-double blooms, no highly contrasting bees, and named color lines. We are long overdue for someone to introduce named cultivars of our native *Delphinium exaltatum,* or tall larkspur. This species is a native ranging from Pennsylvania and Ohio into Alabama south. It can be found growing in open fields, woods and woodland margins. It performs in sun or shade, differing soils and moisture needs, making for an easy-to-grow perennial in the native garden or more formal beds.

Mine are on the west and south of my woodland garden where they receive the setting sun. One site has heavy clay, the other classic humus-rich, well-drained, garden soil. Both sites produce plants three feet, or more, in height. The lavender-blue blooms are numerous at the top of stiffly upright, but slender and graceful, stems. In all the years I have grown this delphinium species, the thought of needing to stake has never presented itself. Even during full bloom and wet weather, the tall larkspur remains upright. When the summers turn hot and dry, the tall larkspur continues on unfazed in my garden. Foliage stays fresh and bloom period is not reduced. The foliage of *D. elatum* hybrids will often pick up mildew at this point, but not our native *D. exaltatum.* I have yet to see a case of mildew on my plants in either location. After each flush of blooms I cut back the bloom stems, deadheading the plant. Each time a bloom period has finished, if the plant is cut back, another period of bloom will occur. I have cut back my plants twice in a season having blooms in my garden into the middle of December during a mild fall and early winter. The blooms will take light frosts before shutting down for the season. I count on a reliable bloom period from July into winter of each year.

With such a long bloom period it is not hard to think of companions. Phlox is certainly one of the better companions. Tall garden phlox *(P. maculata or P. paniculata)* are favorites, as is *Phlox glaberrima.*

Native Aster species and cultivars, Eupatorium or Mistflower and *Lilium superbum* or Turk's cap lily are just a few others coming to mind.

Gene Bush is owner of Munchkin Nursery & Gardens LLC and gardens on his hillside shade garden in Southern Indiana.
You can write to him at
323 Woodside Dr. NW
Depauw, IN 47115
for a hard copy catalog. $3.
His web site is:
www.munchkinnursery.com

Indiana Ferns and Their Haunts Part II:

Ferns of the Forest

by Michael Homoya

Estimates vary, but it's thought that approximately eighty percent of Indiana was forested prior to statehood. Outside the northwestern part of the state, where the vast grasslands of the Grand Prairie once occurred, our state was forested with a great variety of tree species, especially oak, hickory, ash, and maple. And even on the landscape in central Indiana, where currently a seemingly, mostly treeless plain of agricultural land predominates, an extensive forest once occurred. Thus, it should come as no surprise that there are more fern species found in forest communities than in any other habitat.

Fern fronds collected from Anne Wilson's woods
around the Southern Brown/Bartholomew County Line
from left to right:
Maidenhair *(Adiantum pedatum)*
Broad Beech *(Phegopteris hexagonoptera)*
New York (Thelypteris noveboracensis)
Ostrich *(Matteuccia struthiopteris)*
Fragile *(Cystopteris protrusa)*
Red-Stemmed Lady *(Athyrium filix-femina forma rubellum)*

The predominant forest type occurring over most of the state is commonly referred to as mesic upland forest. This is a shady habitat that is consistently moist but well drained, with lots of "fluffy" humus naturally incorporated into the soil. In other words, save for perhaps the shade, it's the quintessential environment for almost every desirable garden plant you've ever tried to grow! And like those garden plants, our native ferns thrive in that seemingly perfect substrate. While mesic forests predominate in the state, slightly better-drained forests exist as well, referred to as dry-mesic forests, followed on the continuum by dry forests. Most ferns of non-wetland forest habitats occur on mesic sites, followed by dry-mesic, and dry. (Ferns of wet forests will be discussed in the segment on wetland habitats). The following is not an exhaustive list of forest ferns, just some of the more common and interesting ones.

In early spring the first fern in mesic forests to emerge its fiddlehead is the fragile fern *(Cystopteris protrusa)*. It commonly forms large carpets, mixing in well with the myriad of spring ephemeral wildflowers. These early leaves are generally sterile, and smaller than the fertile leaves that follow, the latter approximately 12 inches or so in length.

As the spring season progresses other fronds unfurl from their fiddleheads, including some of the largest, showiest ferns in the state. These include glade fern *(Diplazium pycnocarpon)*, silvery spleenwort *(Deparia acrostichoides)*, lady fern *(Athyrium filix-femina)*, and locally, Goldie's fern *(Dryopteris goldiana)*. These ferns especially enjoy moist, deep ravine habitats, a common setting found in the rugged hills of south-central Indiana, as well as along dissected tributaries to larger streams and rivers throughout much of the state. The delicate maidenhair fern *(Adiantum pedatum)* is another fern fond of deep ravines.

One of my favorite woodland ferns is the interrupted fern *(Osmunda claytoniana)*. This large fern is not common, but can be found locally throughout much of the state in rich, highly organic soils. It tends to prefer soils that are acid, and thus it is uncommon, if not absent, from the central counties. It looks like a cinnamon fern *(O. cinnamomea)*, but can be distinguished from it by the occurrence of fertile segments interspersed between sterile segments of the large fern frond. The cinnamon fern has completely separate fertile and sterile fronds.

Another fern of acid soils is the New York fern *(Thelypteris noveboracensis)*. This colonial fern is most common in the hill country of south-central Indiana, as well as drier portions of the flatwoods characteristic of the south-eastern part of the state. It looks like a miniature version of an ostrich fern *(Matteuccia struthiopteris)*.

Speaking of the latter, I would say hands-down that it is the most commonly cultivated hardy fern in the state. It also happens to be a native fern of Indiana, but not a common one. It thrives in well-drained substrates, but some of the best stands I've seen have been sandy terraces on floodplains of creeks and small rivers. Some of the best areas to check for this fern are along the borders of Sugar Creek in Turkey Run and Shades state parks.

One of the attractive ferns of dry-mesic forests is the broad beech fern *(Phegopteris hexagonoptera)*. It is fairly common, but often tends to get obscured by surrounding plants. Christmas fern *(Polystichum acrostichoides)* does well in a variety of moisture classes, including dry-mesic. It is one of our few evergreen ferns. Also evergreen are some of the grape ferns *(Botrychium spp.)* These rather odd looking ferns are also known as bronze ferns, due to the rusty coloration of those that get exposed to full sunshine in the winter.

Of the forest ferns, perhaps bracken *(Pteridium aquilinum)* is the one most tolerant of dry conditions. It grows on the dry hills of southern Indiana, as well as in the deep sand forests and savannas in the northern part of the state.

Ferns that can take the driest conditions of all are those which occur on rock substrates. The latter habitat types, and the ferns which occupy them, will be the subject of the next segment of this series.

Mike Homoya, INPAWS member, is author of Orchids of Indiana, *published by the Indiana Academy of Science in 1993, and is a botanist with the Indiana Department of Natural Resources-Division of Nature Preserves.*

News from INPAWS West Central Chapter

Our April meeting, which was very well attended by the public, was entitled *Indiana's Roadside Heritage Program*. The speaker was David Lamb, Landscape Specialist for this program which was begun in 1999 under the leadership of Judy O'Bannon and INDOT. We also handed out copies of INDOT's recently released brochure entitled *Indiana's Roadside Heritage* which not only describes the program but also includes a beautiful poster showing 61 wildflowers and native grasses of Indiana. It was very encouraging to hear that INDOT is currently developing nurseries, one in Winamac and one in Frankfort, to provide the native plants for the roadside plantings.

Our chapter continues to co-sponsor the *Wednesdays-in-the-Wild* program with the local Audubon Society and the Tippecanoe and West Lafayette Parks Departments. Our most recent contribution was a guided spring wildflower walk in a local nature preserve.

INPAWS Central Chapter Events

July 13, Sunday
2 to 4 PM
Virginia Harmon's home,
Summer Garden Tour.
8814 Rocky Hill Road,
Indianapolis.
Call 888-8974 for directions.

October 5, Sunday
2 to 4 PM
Smock Golf Course Tour.
See native plants used in the rough and hear how golfers have responded to the plants and wildlife the plants have attracted

December 13, Sunday
2 to 5 PM
Christmas Party at Carol Mavity's home.
Further details about Central Chapter meetings will appear in future newsletters and be sent to members by email and, perhaps, postcard. Please contact
Betsy Wilson
317-255-3304
geobet@iquest.net

Thanks to Prairie Creek Barrens Restoration Day Participants

On behalf of the Indiana DNR Division of Nature Preserves, I would like to thank all who participated in the Prairie Creek Barrens Restoration Day on 5 April 2003. In the event that you weren't there, we successfully planted approximately 2300 plugs of various prairie and barrens species on the preserve's sandy hillside located in Daviess County. The weather was a little chilly, which perhaps motivated everyone, as all of the plugs were planted in just under two hours! Great job everyone. Someday the preserve will provide an impressive display for all to enjoy, and you had a lot to do in making it happen. Please know that we truly appreciate it.

Mike Homoya, Botanist
Indiana DNR
Division of Nature Preserves

Receptionist Needed

Hi folks!
I am looking for a receptionist to help us out at the Nature History Center, and am wondering if any of you, or someone you know, may be interested.
This is a temporary, intermittent position with the DNR–no benefits. Wage is $7.13 per hour. Must be 18 years of age. Will run through Labor Day, perhaps longer. I need someone Wednesdays through Sundays, basically 9AM to 5PM daily, 37.5 hours per week. Good communications skills required, with high tolerance for repetitive questions! Duties include meeting and greeting park visitors, answering phones, taking messages; filing, correspondence; assisting naturalists with light cleaning of exhibits.
All interested individuals will have to complete a state application. The State of Indiana is an equal opportunity employer.
If anyone out there is interested, please contact me!

Jeannine Montgomery
Interpretive Naturalist
Fort Harrison State Park
5753 Glenn Road
Indianapolis, IN 46216
Phone: 317-591-0122 ext. 235
Fax: 317-541-9532
E-mail:
jmontgomery@dnr.state.in.us

Thanks for Orchard in Bloom INPAWS micro-garden!

A huge thank-you to everyone who created and manned the INPAWS micro-garden at this year's Orchard in Bloom.

Wendy Ford and Linda Bullard designed a native plant garden extraordinaire, using a rustic bench, a beautiful **Diablo ninebark, Annabelle hydrangeas, gro-low sumac, inkberry holly, pachysandra, wild ginger, phlox divaricata, foam flower, wild columbine, crested iris,** and much, much more. **Wendy, Linda, Dan and Sophia Anderson and Nancy Hill** installed the garden Wednesday, April 30.

On Friday, Saturday and Sunday, many other volunteers talked with show visitors and handed out information on INPAWS. Our garden was located just outside the largest vendor tent, so hundreds of people stopped to admire it and find out more about native plants and wildflowers. Many thanks to greeters **Betsy Wilson, Marilyn & Charles Spurgeon, Kay Koch, Dan & Sophia Anderson, Elizabeth Mueller, Linda Oxenrider, Linda Haas, Ruth Ann Ingraham, Chance Hair, Erin Downs, and Carolyn & Peter Harstad.**

Thanks also to **Wendy Ford, Kelly Frank and John Hill** for their help in breaking down the garden on Monday.

The garden would not have been possible without the generous donation of plants by **Wendy Ford and Mark Holeman, Inc.** Both Wendy and the Mark Holeman company let us keep many of these plants for the INPAWS plant sale May 10. Thank you so much!

Editor's note: I was one of the six Garden Club of Indiana judges who judged the entries at Orchard in Bloom. Unfortunately the Orchard in Bloom committee only designated one award for micro-gardens. Both amateur and professional micro-gardens were judged as a single category. I was delighted to hear the glowing comments from my fellow judges about our INPAWS micro-garden and all six judges agreed that it was one of the top three gardens. Hopefully next year the Orchard steering committee will have a first, second and third place award for micro-gardens, just as they do for the landscape garden, table settings, and floral arrangement categories. Congratulations to Wendy Ford and Linda Bullard for designing such a beautiful garden and to Dan and Sophie Anderson and Nan Hill for helping them install it. The INPAWS entry was truly a "native plant garden extraordinaire."

www.inpaws.org

Visit our website for news and information about INPAWS and native plant issues, as well as links to related organizations concerned with preserving native plants and their habitats.

Linda Oxenrider
goxen@iquest.net

INPAWS SLIDE PROGRAMS AVAILABLE FOR MEMBERS TO USE

THESE SLIDE PROGRAMS COME IN A CAROUSEL WITH A WRITTEN TEXT TO READ WITH EACH SLIDE. THE PROGRAMS ARE DESIGNED TO EDUCATE AND ARE ENTERTAINING AT THE SAME TIME. OTHER MATERIALS TO SHARE WITH AUDIENCE ARE INCLUDED. YOU ARE REQUIRED TO RETURN THE PROGRAMS IMMEDIATELY AFTER USE AND INSURE THEM.

SPRING WILDFLOWERS
40 WOODLAND WILDFLOWERS

SUMMER WILDFLOWERS
40 FLOWERS OF THE FIELDS

INVASIVE PLANTS
40 OF THOSE BAD ALIENS OUT THERE

THESE THREE PROGRAMS WERE PRESENTED THROUGHOUT THE STATE LAST YEAR.

THREE NEW PROGRAMS THIS YEAR!!

NATIVES FOR YOUR SHADE AREAS
FLOWERS, VINES, GROUNDCOVERS, FERNS

NATIVE TREES AND SHRUBS
ALL ABOUT TREES AND SHRUBS, PLUS INTERESTING FACTS ABOUT THEIR USE

WHO ARE THESE ALIENS?
FLOWERS FROM OTHER CONTINENTS THAT HAVE NATURALIZED AND BECOME WILDFLOWERS IN INDIANA. HOW THEY GOT HERE AND THEIR USES.

CONTACT SPEAKERS BUREAU CHAIRMAN
COLLETTA KOSIBA
317-852-5973
k_colletta@hotmail.com

When it Comes to Native Trees, the Best Things in Life are Free . . . But Flexibility and Patience are Required

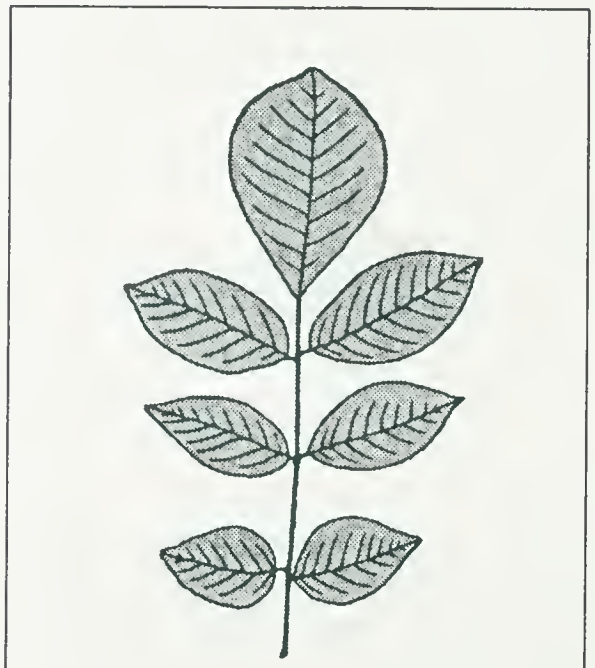
by Bobbi Diehl

When we bought our 1962 house in a neighborhood of vast lawns, the 2/3-acre yard contained a nice assortment of mature, healthy native

Flowering Dogwood
(Cornus florida)

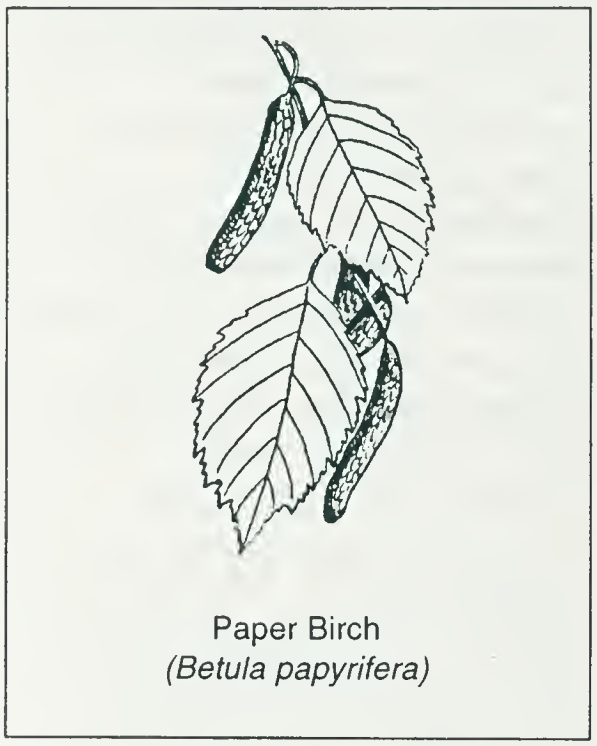
trees: Pin Oak *(Quercus palustris),* Flowering Dogwood *(Cornus florida),* American Beech *(Fagus grandiflora),* Paper Birch *(Betula papyrifera),* Redbud *(Cercis canadensis),* Red and Silver Maples *(Acer rubrum, A. saccharinum),* Green Ash *(Fraxinus pennsylvanica),* a row of tall Arborvitae *(Thuja spp.)* along the back of the property, and other border trees and large shrubs. These simply whetted our appetite for more.

Although nurseries and garden centers are carrying more native plants, small to medium native trees are still neglected. We were able to purchase a River Birch *(Betula nigra),* five Shadblow Serviceberries *(Amelanchier canadensis),* an American Holly *(Ilex opaca),* and a Canadian Hemlock *(Tsuga canadensis).* Then our luck ran out. Our local nurseryman carries only so many natives and will not place special orders. Kmart, Lowe's, and the rest occasionally will get in something unusual, so it pays to check there, but for the most part it is the same old, same old. Of course, there is always mail order. One good source of trees is ForestFarm in Oregon; another is Arbor Village in Missouri. The prices are not outrageous, although you may end up paying fairly steep shipping charges for rather small plants. Or you can bring home larger trees from a native plant nursery some distance away. Before my quest is ended, I may end up exploring all of these options. (It goes without saying that we would never, ever "rustle" a tree from the wild.)



American Yellowwood
(Cladrastis lutea)

Unexpectedly, a good source of native trees has proved to be friends and fellow gardeners, especially those in rural areas and older suburbs. Also neighbors, who, if non-gardeners, may not even know what



Paper Birch
(Betula papyrifera)

they have. Most native trees are prolific about producing offspring. As you ramble through friends' yards while visiting, keep an eye out for potential seedlings to adopt. There is more variety out there than you might think.

My husband usually lets me choose, and there are very few native trees I don't want–the locusts (Black and Honey), Persimmon, Walnut, and most Maples being among them. (For lovers of these particular species, let's just say I have my quirks.) But I had a list of trees I most definitely did want. And here's where flexibility comes in. Friends didn't necessarily have those trees, but often enough they had a native tree that was unusual and worth growing.

As we got over the notion that native trees must be purchased,

more and more opportunities presented themselves. Gifts of a small Bur Oak *(Quercus macrocarpa)* and an Umbrella Magnolia *(Magnolia tripetala)* started us off. We moved

Redbud
(Cercis canadensis)

a Gray Dogwood seedling *(Cornus racemosa)* from our former yard. Two tiny Yellowwoods *(Cladrastis lutea)* came from a neighbor. Friends gave us a small Sweet Gum *(Liquidambar styraciflua)*, a beautiful larger Yellowwood, and several Ohio Buckeyes *(Aesculus glabra)*. Other friends have promised us a baby Pawpaw and a Sumac. It will take several years for most of these to look like much, although the Bur Oak is already developing into a nice little tree.

As with all new plantings, new trees should be watered regularly until they get established. It's best if the smaller ones go into a holding bed near the house for a few years, until they have grown a bit, to discourage deer and rabbits. Wild Plum, *(Prunus americanus)*, was a casualty last year when I was overly optimistic and planted it right where I wanted it. A DNR giveaway at the 2002 Sycamore Land Trust Garden Show in Bloomington, it was a delightful addition to my collection–until someone ate it. (A group of small trees in a holding bed are also more apt to be watered and cared for in a timely fashion.)

Here are a few other suggestions. Brush up on tree identification. Do some research and select trees that will tolerate your light and soil conditions. Handle carefully. If bare root, soak in water for an hour before planting. If potted, plant within the week, or at least heel them in. Dig the planting hole 3 times the diameter of the root ball, but no deeper. Do not amend the soil. Mulch, but not too close to the trunk. I like to stake for the first year or so that the tree is in its permanent location, tying loosely with jute or other natural material. Annually, fertilize lightly with 20-20-20. I personally prefer to wait a couple of years to do any corrective pruning. See Purdue University's *Planting and Transplanting Landscape Trees and Shrubs, HO-100-W*, for more detailed instructions.

So, at least for us, it turns out that the best native trees are free–but sometimes it takes a little effort to find them, flexibility to choose what is right for your conditions, and patience as they mature. There is a saying that young gardeners plant annuals; old ones plant trees. It's certainly true in my case. I love the idea that these trees will be around long after I am gone.

Canadian Hemlock
(Tsuga canadensis)

INPAWS member Bobbi Diehl retired in June 2002 after 25+ years at Indiana University Press, most recently as Sponsoring Editor of Regional, Gardening, and Railroad Books.

Killing Them Not So Softly

Controlling Invasive Species

by Ellen Jacquart

You know you've got them. They're all over, bullying their way into your backyard, woodlot and wetland. Well, what are you going to DO about it?

Controlling invasive plant species like garlic mustard, Asian bush honeysuckle, and Oriental bittersweet is tough. Honestly, it can be very time-consuming and labor intensive. But if you want to provide habitat for a diverse mix of species on your land, and you think it's worth fighting for, read on to find out how to do it.

1 The first thing to do is to be sure of WHAT you have.

Use a good field guide or a knowledgeable botanist friend to double-check that you've identified a real problem, rather than an innocent look-a-like.

2 The second thing to do is to estimate HOW MUCH you have.

The method you use to control 50 plants of garlic mustard will likely be very different from how you control 5 acres.

3 The third thing to do is to figure out WHY you have this invasive problem.

Where are they coming from?

Neighbors:
If there's a 15-foot tall autumn olive shrub in your neighbor's fence row, you'll never get rid of the autumn olive seedlings in your woods until the 'mama plant' is taken out.

Disturbance:
Recognize that you could inadvertently be providing an invitation to invasives–most any kind of disturbance helps invasive plants get a foothold, from soil disturbance of any kind to clearing brush away and increased the available sunlight.

Soil alkalinity versus acidity:
Many invasive species like alkaline pHs, so the addition of limestone gravel to an area (for trails, driveways, or roads) can tip the balance and give invasive species an edge as the soil's pH starts to climb.

Deer:
Finally, there is increasing evidence that we can blame at least some of our invasive plant problems on Bambi. For example, garlic mustard is a species not palatable to deer, which has allowed it to expand as our native flora has been munched away by the overpopulation of deer in parts of the state. Until the deer overpopulation in your area is under control, unpalatable invasives will probably rule.

Prevention is the best method

Now you're ready to choose how to control your infestation. But before I start discussing methods of control, I have to mention the BEST method of all–prevention. We should all work to make sure invasive plants are not introduced into the landscape in the first place, which would save us all the work involved in killing them once they arrive. But until that day arrives…

There are many, many different methods of invasive plant control, which generally fall into these categories:

- **Biocontrol**
- **Manual removal**
- **Mechanical removal**
- **Herbicide methods**

Biocontrol,
or the control of invasive species through a biological agent such as beetles or moths, is a fascinating topic but not one that has much application for private landowners dealing with most of the invasive plant species in Indiana.

Manual methods
of control involve pulling or digging the offending plant out of the ground. Manual control is a common method used for garlic mustard by pulling it before it sets seed each spring. The advantages of this method are that it is simple, straightforward, and doesn't involve special equipment. One disadvantage is that it requires a great deal of labor to cover even a small area, though with willing volunteers many acres of garlic mustard have been cleared in Indiana's natural areas. A more significant disadvantage is that the very act of pulling the plant *disturbs the soil* and makes it more likely that invasive plants, which by their nature thrive on disturbance, will be back next year.

Still, manual pulling can be a very effective control for scattered, small infestations of herbaceous plants like garlic mustard or small individuals (less than two feet tall) of invasive shrubs like Asian bush honeysuckle, privet, or burning bush.

It's important that the majority of the root system be pulled up without breaking to avoid having the plant resprout from the remaining roots. Waiting until the ground softens after a rain increases your chances of pulling the plants without breaking the roots. For annuals or biennials (like garlic mustard) be sure to pull the plants ***before*** they set seed. Remember that in some cases, plants can continue to develop seed even after being pulled from the ground so removal of the plant from the area may be necessary. And always wear gloves when pulling invasives –some plants can cause skin irritation, especially when the plant's stems and leaves are crushed.

Here's the unfortunate part; once is not enough. Invasive species are usually quite good at producing seed, and all that seed is still sitting in the ground waiting to germinate. So you'll need to continue pulling *until that seed bank is depleted*, which can be 5-10 years for some species. And that assumes you will *not let a single individual* come to fruit and release more seed during that 5-10 years.

Mechanical methods

involve using cutting tools–mowers, brushcutters, chainsaws, pruners, or loppers–to cut down invading species. In practice, this method is almost always used in conjunction with an herbicide application when used against perennial plants. In the case of annual or biennial plants, purely mechanical control can be effective.

One example is to cut garlic mustard rosettes close to the ground after they start to flower using a brushcutter or weed whacker. Properly done, this does not disturb the soil (removing one big disadvantage of the manual method) and infested areas can be covered fairly quickly. A disadvantage is that there is some damage to native wildflowers that are up and blooming at this time of year, but since they are perennials they stand a reasonable chance of resprouting the next year.

Sweet clover is another biennial invasive sometimes controlled using a strictly mechanical method. Areas of sweet clover are mowed as it starts to flower in the summer. Again, the nontarget species in the area will take a hit from the mowing, but the expectation is that the perennials will come back next year.

These mechanical methods, like the manual methods, are rarely 100% effective after one year; *multiple years of cutting or mowing will be necessary until the seed bank is exhausted*. Proper timing is essential; cut the plant too early and it will still have time to bloom during the growing season; cut too late and it may be able to set seed on the cut stems.

Herbicide methods

include a wide variety of chemicals and techniques. Using herbicides is a decision not to be made lightly. You need to understand the overall impacts of the herbicide on the environment, the health and safety risks involved in using particular herbicides, and your responsibilities when using herbicides under federal, state, and local regulations. A great deal of information on using herbicides can be found in The Nature Conservancy's on-line *Weed Control Methods Handbook* (Mandy Tu, Callie Hurd, and John M. Randall, version date April 2001) at http://tncweeds.ucdavis.edu/handbook.html

glyphosate and triclopyr

The two types of herbicide most commonly used in natural areas are glyphosate (trade names include Roundup, Rodeo, Accord, and Glypro) and triclopyr (trade names include Garlon and Pathfinder II). These are popular herbicides for natural areas because they are relatively short-lived in the environment and relatively non-toxic. Note the term "relatively"–both of these herbicides can have adverse effects on the environment and on human health, so it is important to use them properly. Again, much more information on these herbicides can be found in the on-line *Weed Control Methods Handbook* mentioned above. Above all else, when using an herbicide follow the label directions–this is not just a good idea, it's the law!

Difference between glyphosate and triclopyr:

One of the key differences between glyphosate and triclopyr herbicides is that **glyphosate is non-selective**, killing all plants it contacts, while **triclopyr is selective**, killing only broadleaved plants and not grasses and sedges.

Glyphosate can be sprayed on leaves (foliar application) or painted on cut stems, but will not penetrate through woody bark. There are two varieties of triclopyr herbicide; a salt or amine formulation (sold as **Garlon 3A**) and an ester formulation (sold as **Garlon 4, Crossbow,** or **Pathfinder II**).

Garlon 3A is used for foliar application, while Garlon 4 and other ester

formulations are used for cut stem treatments and basal bark treatments, where the herbicide is sprayed or painted directly on bark and penetrates into the stem to kill the plant.

Timing is Important

The choice of an appropriate herbicide is important, but without the proper application at the right time of year, it's a waste of your time and money. When choosing the time and application method, use the plant's physiology against it. The most effective time to treat invasive plants is usually late summer and fall, when the plant is moving stored food to its roots and will carry herbicide along with it, resulting in killing the whole plant. Treating invasives during springtime, especially shrubs or trees, is usually much less effective because the plant's resources are moving up the stem instead of down.

Foliar applications

can be made by spraying (using a hand-held spray bottle, a pressurized hand-held spray container, or a pressurized backpack sprayer, depending on the size of the job you are taking on) or wicking (using a sponge or the infamous 'glove of death'–a cotton glove wetted with herbicide which is worn over a thick rubber glove to avoid any skin contact).

Cut stem treatments

can be made with a hand-held squirt bottle, which is used to drip a bit of herbicide on the cut stem.

Basal bark treatments,

which wet the bottom 6 to 12 inches around the circumference of the woody plant) are made using a sprayer (with low pressure, so the herbicide drips onto the bark, rather than sprays all over) or a wick of some kind.

If desired, you can purchase herbicides that are ready-to-use for particular types of applications, already diluted to the appropriate concentration and with surfactants (additives that allow herbicide to cling to and penetrate the plant cuticle for foliar applications) or carriers (additives like oil that help penetrate woody tissue for basal bark or cut stem treatments) already added.

Given all this, here are a few specific herbicide treatments for particular types of invasive plant species (at right). In each case, the appropriate concentration of herbicide to use is specified on the label depending on the application method.

Careful application

is necessary to avoid killing non-target plant species. The best time to apply herbicides is generally on warm, sunny days with little wind and no rain forecasted for several hours after application. While herbicide treatments can be very effective, retreatment is usually necessary to control any resprouts or any new plants springing up from the seed bank.

In general, any invasive control project requires persistence and vigilance but when you are successful the rewards are great. Now, get out there and kill some invasives!

Ellen Jacquart is Director of Stewardship for the Indiana Chapter of The Nature Conservancy, coordinating management of TNC preserves in Indiana, with a particular focus on invasive plant control. As chair of the INPAWS Invasives Committee she led the effort to develop the Invasive Plants of Indiana *brochure.*

Garlic mustard
(Alliaria Petiolata)
(and many other herbaceous invasive species):

Application method: foliar spray

Herbicide: glyphosate or triclopyr amine with a surfactant added

Timing: fall, after the first frost and when most other vegetation is dormant

Asian bush honeysuckle
(Lonicera sp.)
(and many other woody invasive species):

Application method: basal bark treatment

Herbicide: triclopyr ester in an oil carrier

Timing: year-round, but more effective in the fall

Plant Detectives . . .

Follow Your Nose!

by Barbara Plampin

"Vanilla!"
"The air smells of vanilla!"
"Ladies' Tresses!"

Everyone dashed across a hundred feet of sedge meadow, a former Porter County golf course returning to wetland, toward the source of the vanilla-laden air. Sure enough, in the grasses just above the water's edge stood the stiff, white, delicate, spiraled flower spikes of the orchid. At the time, we agreed the plants were Nodding Ladies' Tresses *(Spiranthes cernua)*, the most common Dunes (and Indiana) *Spiranthes* (nine species in Indiana, seven in the Dunes.) Now I am not so sure.

Nodding Ladies' Tresses *(Spiranthes cernua)*

Why my doubts? While checking information about Nodding's vanilla-scented look-alike, the endangered Great Plains Ladies' Tresses *(S. magnacamporum)*, I stumbled on some important distinctions. Nodding is intermittently and less strongly scented. Great Plains is **always** vanilla-scented, and according to Mike Homoya, botanists have located it by scent alone–our experience.

The look-alikes turn out not to be identical twins. All the keys stress the different positions of the lateral sepals: Nodding's grow more-or-less projecting forward over the lip; Great Plains' arch upward like little horns. But sepals don't read the keys. Closer reading revealed a color difference. Nodding is pure white ("crystalline"). Great Plains is white with a yellow-blotched lip, AND the blotch is visible on the lip's undersurface. EUREKA!

Despite similar blooming dates (late August to early October), and sometimes a liking for limey, wet, sunny, open sites, these species may differ enough to make identification possible.

Great Plains may like dry prairies, but the more common Nodding grows in or above willows up-slope of drying ponds and in abandoned fields with Blue Lobelia, or makes a patriotic display in sphagnum moss near Cardinal Flower and Fringed Gentian. Enjoy this last display on Porter County's Calumet Trail.

But, come September, I'll be down on my knees on that ex-golf course, peering up.

Addendum:

Spiranthes lovers might like to try in the Dunes for Early (shining) *(S. lucida)*, rare: yellow-blotched lip and unique spring blooming time; Yellow (yellowish) *(S. ovalis)* not rare but a Dunes disjunct, found by a friend under her beech tree, stays blooming in early snow and Hooded *(S. romanzoffiana)*, endangered, fiddle-shaped lip. I've never seen this one.

Great Plains Ladies' Tresses *(Spiranthes magnacamporum)*

Books:
Case, *Orchids of the Western Great Lakes Region.* Revised ed. Cranbrook Institute of Science, 1987. The *Spiranthes* key contains an excellent sketch, sometimes with useful arrows of each species.

Homoya, *Orchids of Indiana.* Indiana Academy of Science, 1993.

Luer, *The Native Orchids of the United States and Canada.* New York Botanical Garden, 1975.

Swink and Wilhelm, *Plants of the Chicago Region.* Fourth edition,Indiana Academy of Science, 1994.

Yatskievych, *Field Guide to Indiana Wildflowers.* Indiana University Press, 2000.

Barbara Plampin is a member of INPAWS, a trustee of the Shirley Heinze Environmental Fund, and a member of Save the Dunes Council. She has a Ph.D. in English literature from the University of Michigan. Botany has been her avocation all her life.

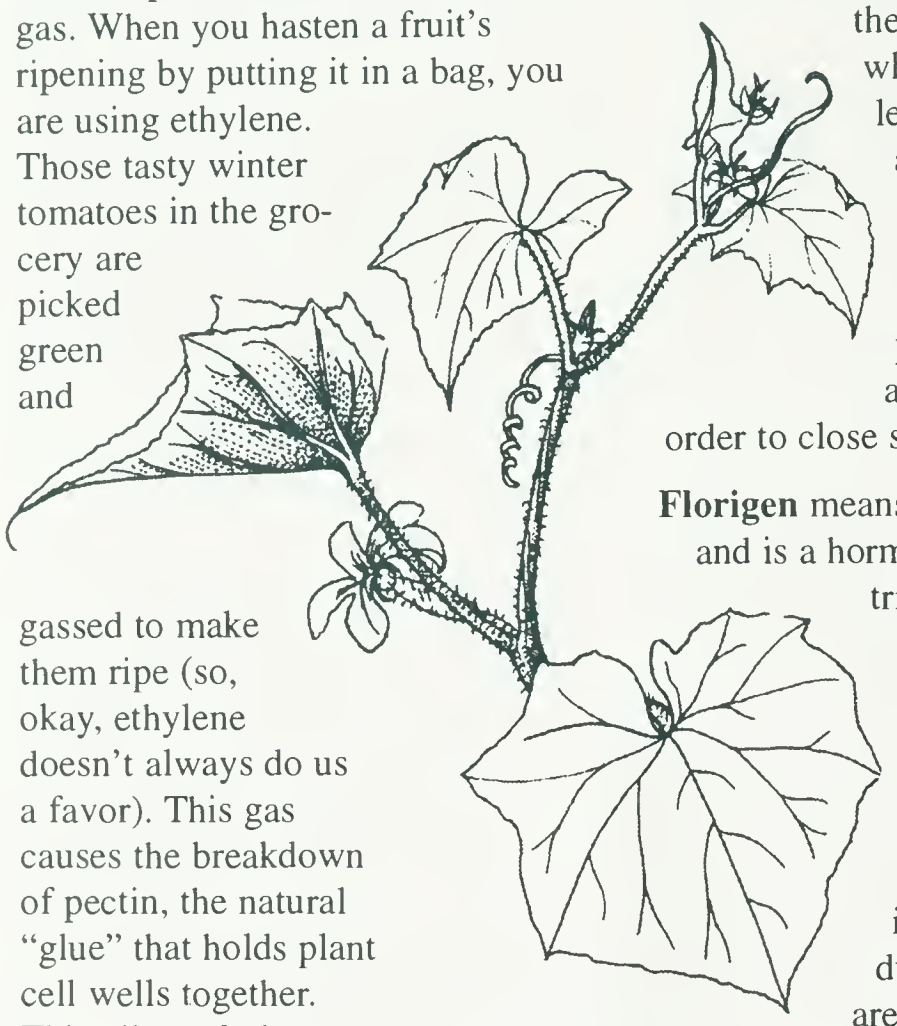
Illustrations from Mike Homoya's Orchids of Indiana.

Botany 101 – seventeenth in a series

More on Plant Hormones III

by Dr. Rebecca Dolan

Continuing the series of columns on plant hormones, there are three more to discuss. **Ethylene** is an unusual plant hormone in that it is a gas. When you hasten a fruit's ripening by putting it in a bag, you are using ethylene. Those tasty winter tomatoes in the grocery are picked green and gassed to make them ripe (so, okay, ethylene doesn't always do us a favor). This gas causes the breakdown of pectin, the natural "glue" that holds plant cell wells together. This allows fruits to soften. Starches are converted to sugars. Pigment changes give a visual clue that a fruit is ripe.



Cucumber Vine

Likewise, ethylene promotes **abscission,** or drop from the branch, in leaves and fruits. It is used commercially to make mechanical harvest of some fruit easier. Ethylene interacts with gibberellins to influence whether flowers in **monoecious** plants will be male or female. Remember wondering when you would get a female flower on a cucumber or squash plant? The first flowers are always male. No fruits can be set until female flowers appear.

Abscisic acid is a plant hormone that inhibits growth of dormant buds and the germination of seeds. It also induces closing of stomata, the openings in leaves where gases enter and leave. Water vapor also leaves through these holes, and plants under water stress increase their production of abscisic acid in order to close stomata.

Florigen means "flower maker" and is a hormone thought to trigger flower development. Some plants respond to certain day lengths, or photoperiods, by flowering. Florigen is thought to be produced in leaves that are sensing day length. It then travels through the phloem to stimulate buds. The compound involved has not yet been identified.

As you can see, plant growth and development is mediated by the interaction of hormones. All six hormones I have discussed, **auxin, cytokinins, gibberellins, abscisic acid, ethylene,** and **florigen** interact to produce the features of plants.

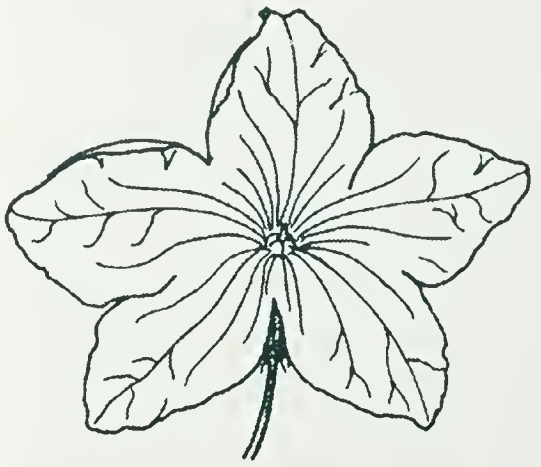
This information comes from my favorite botany text: *Biology of Plants* by Raven, Evert, Eichorn, and Evert, 6th edition. It is published by W.H. Freeman & Co.

Female Cucumber Flower

(ISBN: 1572590416) and is available through Amazon.com for about $100. It is a great reference and has a beautiful cover!

Becky Dolan is Director of the Friesner Herbarium at Butler University, and a charter member of INPAWS.

Illustrator Jan Glimn Lacy is an INPAWS charter member and botanical illustrator. Illustrations are from her book Botany Illustrated.



Male Cucumber Flower

Weed or Wild Flower?

by Charles Heiser

When people learn that I work with weeds I am often asked, "What is a weed?" Definitions abound. I rather like "a plant out of place" or "a plant whose virtues have yet to be discovered." Dictionaries usually emphasize that weeds are worthless plants and of rank growth. My definition, which I came up with many years ago, states that weeds are plants that grow in areas in some way disturbed by people, such as roadsides, railroad yards, vacant lots, gardens and lawns. For the most part weeds are not aggressive away from disturbed areas and do not compete with native plants. The exceptions are now known as invasive plants, a subject, I believe, that the members of INPAWS have heard a great deal about in recent years.

Spring Beauty
(Claytonia virginica)

Some people are surprised when they learn that I include the spring beauty *(Claytonia virginica)* as a weed in my book, *Weeds in my Garden: Observations on Some Misunderstood Plants* (Timber Press, 2003), for they know it as one of our early and very attractive wild flowers. It is a native and is found in natural woody and clear areas but it also grows along roadsides and in yards, both of which are the result of human disturbance. The answer, of course, is that spring beauty is both a wild flower and a weed.

My acquaintance with the plant began in 1942 when I was a student at Washington University and the spring beauty served as my term paper topic in an undergraduate botany course. Two things I remember learning are: first, how deep the "bulbs" (properly corms) are buried in the ground; (I dug them to transplant to the greenhouse, not for eating, although they are listed as edible in some books); and second, that the seeds are explosively dispersed. I was measuring the flowers and I left some plants in a glass of water under a lamp on my desk. Later I heard strange ping sounds in my room which I finally traced to the spring beauties. As the capsules dried under the heat of the lamp they more or less exploded to shoot out the seeds. The landing of the seeds on the desk, I think, caused the ping sounds I heard. Later at Indiana University the spring beauty served as the subject for the doctoral dissertations of two of my students.

After we bought a house in Bloomington in 1956 the spring beauty was an early intentional introduction to my wild flower garden. I don't have a record of how long it took for them to spread to the lawn areas but once they were established there I refused to mow the lawn until after they had ceased blooming for I enjoyed their appearance and wanted them to spread.

I think they did well for I didn't use herbicides on the lawn and refused to worry about the occasional dandelion and plantain. I know that spring beauty will not compete with zoysia and I suspect that it will not survive for long in a "well-kept" lawn.

Charles B. Heiser was born in Cynthiana, Indiana, in 1920. A Distinguished Professor Emeritus of Botany, I.U., he has written, in addition to Weeds in my Garden, *five other books, including* The Gourd Book, The Sunflower *and* Plants and People.

INPAWS Events Calendar continued from back cover

beaked-rushes (Rhynchospora), and nut-rush (Scleria). A number of species we hope to encounter are rare Atlantic Coastal Plain disjuncts.

The J-P foray leader is Dr. Paul Rothrock. He has been a Professor of Biology and Environmental Science at Taylor University for more than 20 years. His research includes sedge taxonomy and wetland assessment. Paul's special interest in J-P is the result of his continuing work on a pictorial guide to Indiana's sedges.

September 6, 1-3 PM
Red Tail Nature Preserve, Delaware Co. with Kevin Tungesvick.

October 11, Saturday, 10 AM
Urban Wetlands with Don Miller and Bob Barr.Starling Sanctuary at Eagle Creek Park, Marion County.

November
Fall Conference
date to be announced

INPAWS Coming Events, 2003

Roger Hedge and Tom Swinford, Co-chairmen

For more info contact Programs/Field Trips Chairman Roger Hedge (317) 232-8062, rhedge@dnr.state.in.us

June 28, Saturday, 10 AM
Imagination Glen Park, City of Portage with Jim Bess, Lake County.

July 19, Saturday
Join Division of Nature Preserves Regional Ecologist Cliff Chapman on a hike through a restoration project at Base Line Barrens Nature Preserve in southern Washington County. The interesting site contains limestone barrens, chert barrens, black and white oak woodland, post oak woodland, pine plantings, and old fields. Restoration efforts have concentrated on enlarging barrens openings by removal of cedar trees and conducting prescription fire, as well as planting conservative native species collected locally. Some species that we may see include blazing star, prairie dock, green milkweed, bush clover, trailing wild bean, tall coreopsis, New Jersey tea, deerberry, and prairie willow among others. In addition, this preserve harbors eight species of milkweeds and the same number of orchids.

August 23
Foray to Jasper-Pulaski Fish and Wildlife Area with Dr. Paul Rothrock.
Jasper-Pulaski Fish and Wildlife Area (J-P) is well known for being a staging area for Sand-hill Cranes. On the other hand, its botanical diversity and fascinating plant communities have been generally underappreciated. This rather unique area developed on coarse wind-shaped glacial outwash found in parts of the Kankakee Basin. A foray, planned for August 23, should take us into black oak savanna with some prairie openings, muck-sand flats, and pin-oak swamp. The black oak savannas have big and little blue-stem (Andropogon), winged sumac (Rhus), sunflowers (Helianthus), flowering spurge (Euphorbia), lowbush blueberry (Vaccinium), and huckleberry (Gaylusaccia). In late summer the wetland habitats are often dry but gloriously covered with blue-joint grass (Calamagrostis), shore St. John's wort *(Hypericum adpressum)*, meadow beauty (Rhexia), a variety of knotweeds (Polygonum), and unusual sedges such as three-way sedge (Dulichium), twig-rush (Cladium),

calendar continued on page 19

INDIANA NATIVE PLANT *and Wildflower Society*

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INDIANA NATIVE PLANT *and Wildflower Society* NEWS

Volume 10 Number 3 • Autumn 2003

Charles C. Deam and New County Records

by Charles B. Heiser

The name of Charles C. Deam is well known to many members of INPAWS for his many books on the plants of Indiana – *Trees of Indiana, Shrubs of Indiana, Grasses of Indiana,* and his monumental *Flora of Indiana* published in 1940. My meeting with him at his home in Bluffton in 1949 is recounted in my recent book, *Weeds in My Garden* (under pokeweed), but I didn't tell why I made the trip. When I joined the faculty at Indiana University in 1947 I was put in charge of the herbarium. Although the university had already purchased Deam's herbarium, he still had most of his specimens with him at Bluffton, including those of the sunflowers *(Helianthus)*. As I was working on sunflowers at the time I needed the specimens at Bloomington for study.

Old-Field Balsam
Gnaphalium obtusifolium

Recently I recalled that I had had an exchange of letters with Deam a few years before that meeting. Before telling about that I must give more background. As a boy one of the highlights of my summers was the visits I made to my grandparents' farm and other relatives in southern Indiana. After I became a student at Washington University in St. Louis where I became a botany major, I continued to visit my grandparents. In 1943 or 1944 I collected a plant that was a new county record. (In his *Flora of Indiana* Deam gives distribution maps for all of the species and one can immediately see in which counties a particular plant has been collected. If one collects a plant in a county for which there is no record of it, it is considered a new county record.) As a result of this I wrote a letter to Deam. He soon replied, thanking me and saying that he would see that my record was officially reported. He also encouraged me in my botanical studies, as I recall. It was a very kind letter – he didn't tell me that collecting a common weed, which my plant was, in another county, was not particularly important.

As the events I am writing about occurred more than 50 years ago I have some questions concerning them. Where did I get a copy of *Flora of Indiana* to identify the plant? Perhaps at the Missouri Botanical Garden in St. Louis where I first learned of Deam's work and how important it was. The botanists there were particularly impressed that the work had been done by an "amateur" botanist – amateur being defined as one who

New County Records continued on page 2

Inside . . .

New County Records continued from page 1

had no advanced college degrees in botany. Another possibility was that I borrowed it from a library in southern Indiana. I once heard that a public library in every county in the state had a copy of Deam's Flora. I know I didn't have a copy in those days. I didn't purchase one until 1947 and it cost me $3.50 – I mention that to contrast it with the price of the most recent reprint – $124.95.

A second question I have concerns the accuracy of the rest of my account. I decided to try to verify it by going to the *Indiana Plant Distribution Records* published in the *Proceedings of the Indiana Academy of Science*. For the year 1944 I find that Charles B. Heiser is listed among the collectors and that he collected not one, but two new county records. These were collected in Gibson County (I thought I had made the collections in Posey County where my grandparents' farm was located. I did have an uncle who had a farm in Gibson County.) The plants were bull thistle *(Cirsium vulgare)* and old-field balsam *(Gnaphalium obtusifolium)* both of which could be described as common weeds. The voucher herbarium specimens were deposited in the Missouri Botanical Garden.

Perhaps there also may be letters in the Archives of Indiana University. I'll have to check on that sometime when I don't have a deadline to meet.

Charles B. Heiser is Distinguished Professor Emeritus, I.U., Bloomington. In addition to Weeds in My Garden, *he has written books on sunflowers, gourds and economic botany. See a review of* Weeds in My Garden *by Carolyn Harstad on page 8.*

The Newsletter of the
Indiana Native Plant and Wildflower Society

Published quarterly by the Indiana Native Plant and Wildflower Society for members.

www.inpaws.org

The mission of the Indiana Native Plant and Wildflower Society is to promote the appreciation, preservation, conservation, utilization and scientific study of the flora native to Indiana and to educate the public about the values, beauty, diversity and environmental importance of indigenous vegetation.

Slate of Proposed Officers of the Indiana Native Plant and Wildflower Society to be elected at the Annual Conference, November 1, 2003

President	Dr. Rebecca Dolan
Vice President	Ellen Jacquart
Recording Secretary	David Savage
Corresponding Secretary	Janice Gustaferro
Treasurer	Dawn Stelts

President - Dr. Rebecca Dolan

Five years after earning her Bachelor of Science degree in Botany from the University of Michigan, Becky Dolan completed her Ph.D. in Botany from the University of Georgia. Since 1991 she has been Director of the Friesner Herbarium at Butler University. Also, as manager of Butler's six-acre prairie, she is known to multitudes of children and adults through tours and presentations. Among numerous endeavors, she has conducted biology research on the genetics and demography of populations of rare plants, such as *Silene regia,* and provided data to assist in management and preservation of plant resources; been Visiting Assistant Professor of Biology at Wabash College; conducted biological assessments of utility and housing developments in southern California and Arizona; served as National Science Foundation Panelist on Population Biology; and has written countless publications. Past President of the Indiana Academy of Science, she was named a Fellow in 1999. A Charter Member of INPAWS, Becky was Chair of the Grants and Awards Committee for several years. Becky and her husband, Tom, are parents of one daughter.

Vice President - Ellen Jacquart

Ellen, born and raised in southeast Wisconsin, received Bachelor of Science degrees in Botany and in Conservation at University of Wisconsin-Milwaukee and a Master of Science degree in Botany from University of Wisconsin-Madison. She worked on acid rain educational projects at the Institute of Ecosystem Studies in Millbrook, New York, then moved to Indiana to work for the Department of Natural Resources - Division of Nature Preserves. She later worked at Holcomb Research Institute as a research assistant on a variety of environmental research projects and as a botanist for the Wayne and Hoosier National Forests. For the last five years she has been the director of stewardship for the Indiana Chapter of The Nature Conservancy (TNC), coordinating the management of sixty nature preserves around the state. She also leads an effort in TNC to develop regional strategies to deal with invasive species in the Midwest. An INPAWS Charter Member, Ellen has served as the Invasive Species Chair for the last five years. She lives near Ellettsville in Monroe County with her husband, Hank Huffman, and a flock of chickens.

Recording Secretary - David Savage

David grew up in the U.K. and first came to Indiana in 1957.He took a Ph.D. in Chemical Engineering at Purdue and then worked in NewJersey for ExxonMobil Research and Engineering Company, retiring in 2000. David and his wife, Jane, recently moved to Zionsville. He holds a large number of patents and has published many scientific and technical articles and a book on environmental topics. He has a long-time interest in gardening and has helped his wife develop native plant gardens in New Jersey and Indiana. David and Jane have been members of INPAWS since the late 1990s.

Corresponding Secretary - Janice Gustaferro

Janice has been a member of INPAWS for 6 years. She was Chairman of the Plant Sale and Auction in 2000/2001. Janice is a graduate of Northwestern University where she received her Bachelors Degree in Industrial Engineering. She worked for Eastman Kodak in Rochester, N. Y.

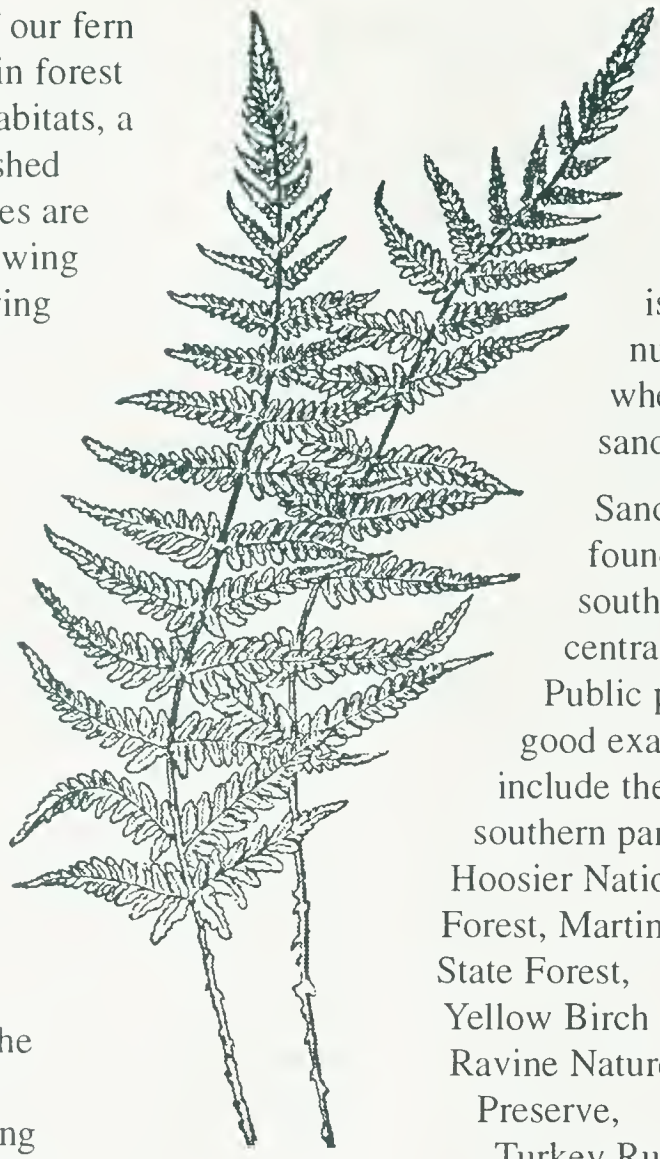
Slate of officers continued on page 5

Indiana Ferns and Their Haunts: Part III

Ferns of Rock Habitats

by Michael Homoya

While most of our fern species occur in forest and wetland habitats, a very distinguished group of species are devoted to growing on rock. Growing on rock is so obligatory for some that you could almost eliminate them from consideration when attempting the identification of an unknown fern from a non-rock habitat. Why the need for rock? Perhaps growing in the crevices of rock provides a competitive edge over species that can't grow there. Or rock substrates might contain the perfect nutrient mix preferred by certain species, or offer the precise drainage required by the roots. Whatever the case, a rock substrate is a great environment for some ferns.



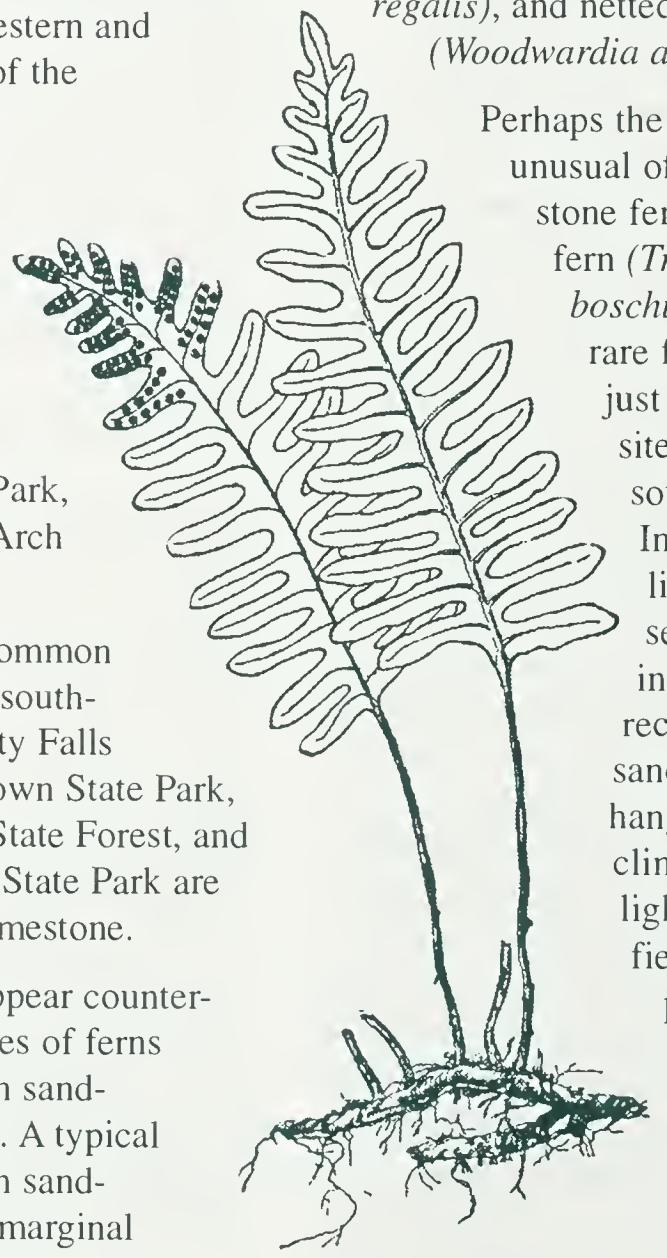
Marginal Shield Fern
Dryopteris marginalis

There are two general categories of rock in Indiana: limestone and sandstone. There are variations of these, as well other types (e.g., siltstone), but for our purposes we'll concentrate on the two major ones. It is often important to make the distinction, because each provides a different chemistry, and thus, different fern species. Sandstone typically offers an acidic, nutrient-poor substrate, whereas limestone is basic, and often nutrient-rich (at least when compared to sandstone).

Sandstone outcrops are found mostly in the south-central and west-central parts of the state. Public properties with good examples of sandstone include the western and southern parts of the Hoosier National Forest, Martin State Forest, Yellow Birch Ravine Nature Preserve, Turkey Run State Park, Shades State Park, and Portland Arch Nature Preserve.

Limestone is most common in south-central and south-eastern Indiana. Clifty Falls State Park, Charlestown State Park, Harrison-Crawford State Forest, and McCormick's Creek State Park are good locations for limestone.

Although it might appear counter-intuitive, more species of ferns are likely to occur on sandstone than limestone. A typical collection of ferns on sandstone might include marginal shield fern *(Dryopteris marginalis)*, fancy wood fern *(D. intermedia)*, common polypody *(Polypodium virginianum)*, and one or more members of the genus Asplenium, with pinnatifid spleenwort *(Asplenium pinnatifidum)* being the most commonly encountered. Some rarities that might be encountered are rock clubmoss *(Huperzia porophila)*, mountain spleenwort *(Asplenium montanum)*, and hay-scented fern *(Dennstaedtia punctilobula)*. Ferns that are generally thought of as wetland ferns are occasionally found on cliffs, including cinnamon fern *(Osmunda cinnamomoea)*, royal fern *(O. regalis)*, and netted chain fern *(Woodwardia areolata)*.



Common Polypody
Polypodium virginianum

Perhaps the most unusual of the sandstone ferns is filmy fern *(Trichomanes boschianum)*. This rare fern occurs at just a handful of sites in far southern Indiana. It lives a secluded life in the dark recesses of sandstone overhangs, where climate and light are modified to provide protection for this delicate fern, whose fronds are only one cell-layer thick.

On the driest end of the moisture continuum, resurrection fern *(Pleopeltis polypodioides)* can survive considerable periods of drought on rock outcrops. The fronds curl, conserving moisture until the next reviving rain. A fern ally that operates similarly is the ledge spikemoss *(Selaginella rupestris)*. This plant grows in full sun on exposed surfaces of sandstone (as well as on loose sand) to take the full brunt of late summer heat and drought. Like the resurrection fern, it also curls its leaves to conserve moisture.

Royal Fern
Osmunda regalis

Ferns on limestone cliffs may include some of the above, e.g., resurrection fern and marginal shield fern, but generally there are those (usually) specific to or preferring limestone. Again, there aren't as many as would be found on sandstone. Prime examples on limestone include wall rue spleenwort *(Aspleniun ruta-muraria)*, cliffbrake *(Pellaea glabella and P. atropurpurea)*, and bulblet fern *(Cystopteris bulbifera)*. Walking fern *(Asplenium rhizophyllum)*, although also occurring on sandstone, is more often found on moist limestone outcrops. It is an interesting fern, in that a new plant develops where the tip of the undissected frond comes in contact with the substrate. Perhaps one of the most unusual looking Indiana ferns is the limestone adder's tongue fern *(Ophioglossum engelmannii)*. It possesses a simple blade that emerges from the dry, rocky barrens found locally in southern Indiana. It is ephemeral, disappearing as the summer's heat and drought increase.

That finishes the tour of Bedrock and Indiana's Flintstone family of ferns. In the next and final installment of the series, we will look at ferns of Indiana wetlands.

Mike Homoya, INPAWS member, is author of Orchids of Indiana, *published by the Indiana Academy of Science in 1993, and is a botanist with the Indiana Department of Natural Resources–Division of Nature Preserves.*

Slate of officers continued from page 3

for five years before going back to school at Ohio State to get her Masters Degree in Landscape Architecture. She has worked about 11 years in this field for various architecture and landscape architecture firms. Currently, she is doing some free lance work and working part time for IUPUI where she is also getting her Masters Degree in Library Science.

Treasurer - Dawn Stelts

Dawn grew up in Peru, Indiana, earned a Bachelor of Arts degree in Biology from Bryn Mawr in Pennsylvania, worked on the Human Genome Project studying Chromosome 22 in Philadelphia, and researched asthma for Schering Plough Pharmaceuticals in New Jersey. She, her husband and two young children moved from Wisconsin to Westfield in 2000. She attended her first INPAWS meeting at Eagle Creek Park where the Central Chapter was voted into existence. Currently she serves as Membership Chair of INPAWS, Treasurer of the Central Chapter and manages her own business, Native Habitat Developers LLC

Please see the back page for information on the annual conference.

What do sex, violence and intrigue have to do with native plant conferences?

Can you envision a mystery book featuring native plants? Ann Ripley's latest fiction release, *The Christmas Garden Affair*, brings together the owners of Wild Flower Farm, a PBS garden show host, an eminent floral designer, horticulturists, garden writers, environmentalists, a renowned botanist, and even the chief of the USDA's Department of Natural Resources Conservation Service for a prestigious native plant conference sponsored by the incoming First Lady (who aspires to be another Lady Bird Johnson).

Beyond the usual violence, sex, and intrigue of today's modern mystery novel, there are references to specific plants, familiar debates of native vs. exotic, seed propagation and acceptable dispersal, genetic tampering, and other plant issues with which we are all familiar. A fast, easy read, the delightful tongue-in-cheek humor will make any native plant enthusiast chuckle. Guaranteed!

Carolyn Harstad

First Annual Conservation Day at the Indianapolis Zoo

Saturday, September 20, was the first annual Conservation Day at the Indianapolis Zoo. This is the second inaugural event that **Dan Anderson** has booked for the **Education Committee** of INPAWS in 2003. In August we were at the inaugural Wild Indiana Day at the Indiana State Museum. Both of these events drew Indiana's top environmental groups and we can all thank Dan and Sophia Anderson for ensuring that INPAWS was part of the message!

The zoo event couldn't have gone better.The day was beautiful. Kids loved my oak leaf and fern tattoos and traffic was at a steady pace all day. The zoo landscaping was a terrific backdrop for our booth. I was at a corner with Virginia Creeper, Eastern White Pine and a Pagoda Dogwood to my side. At my back were little bluestem, purple coneflower seed heads, and butterflies dancing on asters. Across from my table was a stand of prairie dropseed and further down the lane switchgrass made a showy border! I was too busy to scout out the zoo; I wonder if there is an even showier native plant bed for our booth setting.

The zoo staff indicated their plans to invest more time and money in this event next year. I certainly recommend we at INPAWS keep Conservation Day on our calendar.

Dawn Stelts
INPAWS Membership Chair
317-867-2906
dawn@stelts.com

INPAWS Central Chapter Events

Christmas Party

Please note change of time and place:

Friday, December 12, 2003, 5:30 - 8 PM

Betsy and George Wilson's home

6345 Brixton Lane, Indianapolis

Further details about Central Chapter meetings will appear in future newsletters and be sent to members by email and, perhaps, postcard. Please contact
Betsy Wilson
317-255-3304
geobet@iquest.net

Due to "technical difficulties"

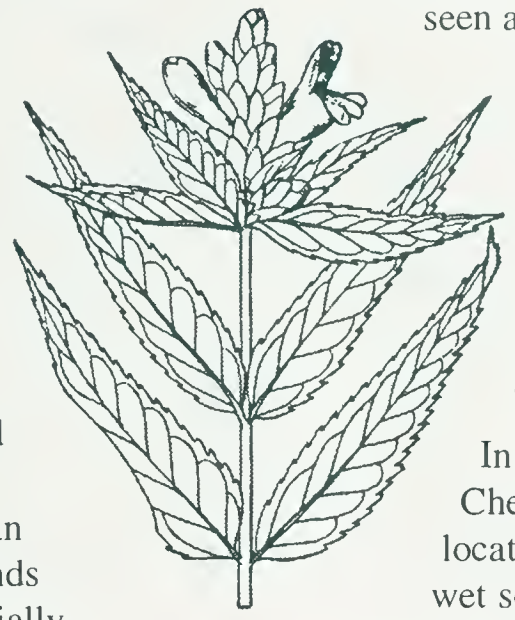
www.inpaws.org

has been unavailable. We hope to have our website running again soon so that you can receive news and information about INPAWS and native plant issues, as well as links to related organizations concerned with preserving native plants and their habitats.

Chelone: the Turtleheads

by Gene Bush

Chelone is one of the few plants where the scientific name and the common name agree with each other. The word "Chelone" is from the Greek word for tortoise and refers to the resemblance of the top of the flower to the shell of a tortoise. The common name of turtlehead refers to the entire flower resembling the head of a turtle with its mouth open. You can amaze all your friends and relatives, especially the young and more gullible ones, by squeezing and releasing the sides of a blossom to make it "talk."



White Turtlehead
Chelone glabra

If you have a backyard habitat, or simply enjoy butterflies in your garden, white turtlehead provides foliage for egg-laying and larval food for the Baltimore Checkerspot.

Turtleheads provide color in the garden during late summer and early fall. Dependent upon the species you choose for your garden, you can have turtleheads blooming from July through October. There are some six species native to eastern North America and quite a few cultivars and forms to choose from. Of the six species, at least three are not difficult to locate in catalogs and garden centers. So, while the plant is just a bit out of the ordinary, it is obtainable. I do wonder at times why this hardy perennial native is not seen more often in gardens.

Depending upon the species, Chelone is hardy from zone 3 through 8 – at the very least 5 through 8. In all the years I have grown turtlehead I have never seen a disease or insect problem on foliage or flower. The stems are mostly stiffly upright and carry blossoms at the top of the foliage. Leaves are in pairs with serrated edges.

In native habitats Chelone can usually be located growing in moist to wet soils. However, the additional moisture is not an absolute must in gardens. Turtlehead will perform just fine in decent garden soil with a bit of compost added, then topped off with an organic mulch such as chopped leaves or hardwood fines.

The farther south one gardens the more protection from full sun is needed, and/or more consistent extra moisture. If they are allowed to stay dry too long the leaf margins will curl and brown. Turtleheads need all the light they can get, without being in the late afternoon sun, for strong stems and good flowering.

Chelone glabra, or the White Turtlehead, is the most widespread of our native species. Count on at least three feet in height in the garden, and up to four feet when grown in a damp to wet soil. Blooms begin in August and end sometime in October.

Pink Turtlehead
Chelone lyonii

Chelone lyonii, the Pink Turtlehead, is native to Tennessee and North Carolina, so a good selection to withstand heat in more southern gardens. However, it is perfectly hardy into at least zone 5. There is a cultivar named "Hot Lips" with red in the stems, glossy foliage and rose-pink flowers. Bloom period is from July through September.

Chelone oblique, or Rosy Turtlehead, has more narrow, longer, leaves and reaches only two feet, or so, in height. Stems often have some arch to them.

Some of my favored companion plants in the garden are Cardinal Flower and the Great Blue Lobelia, and Obedient plant. Some native Asters and Joe Pye weed would make great tall statements.

Gene Bush is owner/operator of Munchkin Nursery & Gardens, llc in Southern Indiana. The plants and gardening experiences described in this article are from his hillside woodland garden. Gene can be reached at:

www.munchkinnursery.com
Hard copy catalogs are $3.
Mail to 323 Woodside Dr. NW,
Depauw, IN 47115-9039.

Booknotes

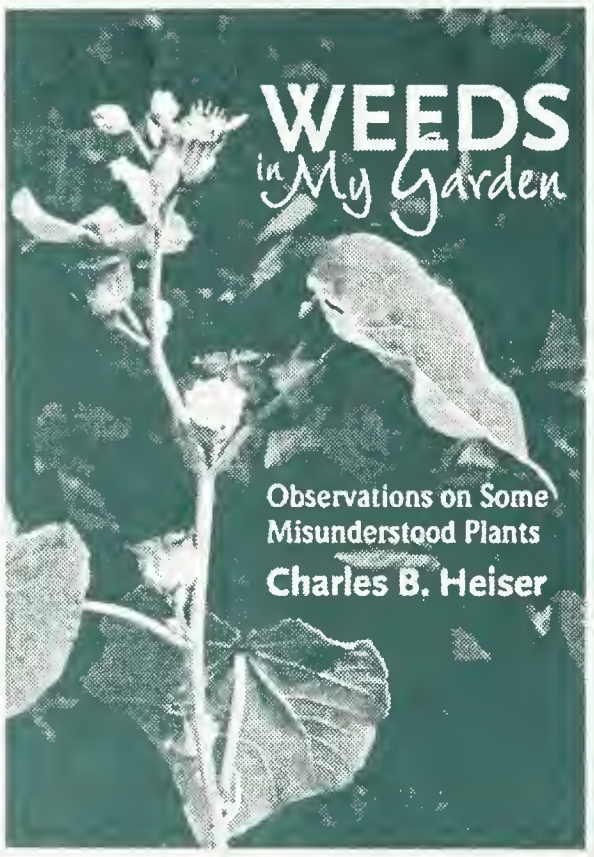
by Carolyn Harstad

Weeds in My Garden
Observations on Some Misunderstood Plants

by Charles B. Heiser

Timber Press, April 2003

ISBN: 0881925624



Horticulturists, botanists, gardeners and even individuals who just like plants should find this material interesting and informative. It is obvious on page after page that Heiser's long-term fascination with weeds has led him to scientific observations and precise collection of data. He is a true teacher, aptly demonstrated by the clear concise organization of this manuscript.

In addition to being scientifically accurate and well organized, I found the text readable and charming.

Charles Heiser's wry sense of humor made me chuckle time and again as I read the manuscript. Bits of poetry, limericks, personal asides, and uniquely phrased quotes from 1633, written by the well-known English herbalist John Gerard, add spice and liveliness to what might otherwise be a dry tome. Heiser's gentle touch creates a delightful perspective on those maligned plants we refer to as weeds.

Heiser discusses characteristics of over 100 flowering weeds. A brief, simple description of the family of each entry gives the reader that necessary "peg to hang his hat on" to begin the organizational process.

Next, Heiser discusses the scientific name of each entry. Each plant's genus and specific epithet is known as its binomial. I often refer to the binomial as the plant's "Social Security number" for this narrows down the multitudes to one specific individual. However, unlike our dull Social Security numbers (which only reveal where the recipient initially registered) binomials provide a vast wealth of information about a given plant. Heiser packs a lot of fascinating and historical information into each of these identifying paragraphs, which he entitles simply, "The Name."

In "The Time and Place" he lists bloom time as well as plant origin.

"The Description" is a botanical description of each plant, and even in the absence of accompanying line drawings or photographs, these descriptions can serve to accurately identify a given plant (although Heiser apologizes to his fellow botanists and recommends using a field guide for this purpose).

As a gardener, I found the sections entitled "The Virtues" the most useful and enjoyable. His notes are thorough, interesting, and readable. He includes information about how weeds were utilized by Europeans, Native Americans, and early settlers, and includes medicinal and culinary uses. He even shares insights about his own personal uses. For example he relates that pigweed *(Chenopodium berlandieri)* is "one of the few weeds that I would be willing to eat on a regular basis as a vegetable." He tells of using privet around the back yard of his first home and wonders if it is so named because it affords privacy. He describes using spurge *(Euphorbia spp)* to remove his own warts, and tells of a friend who smokes mullein leaves for bronchitis. Heiser obviously loves to experiment and even planted kudzu in his IU garden, thinking Bloomington's winter was too cold for it to survive. Alas, it did survive and performed true to form. Heiser reports that he spent several hours ridding his garden of this noxious weed.

INPAWS Slide Programs Available for Use of Members

THESE SLIDE PROGRAMS COME IN A CAROUSEL WITH A WRITTEN TEXT TO READ WITH EACH SLIDE. THE PROGRAMS ARE DESIGNED TO EDUCATE AND ARE ENTERTAINING AT THE SAME TIME. OTHER MATERIALS TO SHARE WITH AUDIENCE ARE INCLUDED. YOU ARE REQUIRED TO RETURN THE PROGRAMS IMMEDIATELY AFTER USE AND INSURE THEM.

SPRING WILDFLOWERS
40 WOODLAND WILDFLOWERS

SUMMER WILDFLOWERS
40 FLOWERS OF THE FIELDS

INVASIVE PLANTS
40 OF THOSE BAD ALIENS OUT THERE

THESE THREE PROGRAMS WERE PRESENTED THROUGHOUT THE STATE LAST YEAR.

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NATIVES FOR YOUR SHADE AREAS
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NATIVE TREES AND SHRUBS
ALL ABOUT TREES AND SHRUBS, PLUS INTERESTING FACTS ABOUT THEIR USE

WHO ARE THESE ALIENS?
FLOWERS FROM OTHER CONTINENTS THAT HAVE NATURALIZED AND BECOME WILDFLOWERS IN INDIANA. HOW THEY GOT HERE AND THEIR USES.

CONTACT SPEAKERS BUREAU CHAIRMAN
COLLETTA KOSIBA
317-852-5973
k_colletta@hotmail.com

Weeds in My Garden – review continued

Many of the weeds Heiser discusses are plants often referred to elsewhere as wildflowers. Others are just simply weeds with qualities that only a true weed-lover would find endearing. Some of the plants Heiser treats are native, while others come from afar. Some are well behaved; others are invasive and troublesome. He covers each with equal precision and care.

This book presents a unique twist to those plants that most of us simply dismiss as "weeds." This author treats them as worthwhile, important citizens of nature, as he shares interesting facts and bits of history with the reader. Charles Heiser's observations constitute a valuable addition to the ever-increasing world of plant lovers, professionals, and common gardeners.

Carolyn Harstad was the editor of INPAWS NEWS *from Autumn 1998, Volume V Number 3, until the last issue. She now lives in Wisconsin with Peter, her husband. She is the author of* Go Native! Gardening With Native Plants and Wildflowers In the Lower Midwest, *IU Press, September 1999, and* Got Shade? A Take It Easy Approach for Today's Gardener, *coming this autumn from IU Press as well.*

Plant Detectives . . .

Rattlers Don't Rattle – They Whirr-rr!

by Barbara Plampin

Plant detectives aren't always in hot pursuit of glamorous orchids. When, in 1997, I talked my friend Myrna Newgent into helping me repay a favor to the Indiana Heritage Trust, our quest was Rough Bedstraw *(Galium asprellum)*, a vine which "clings tenaciously to clothing."

The Alberta (Canada) Research Council wanted "a few hundred seeds, perhaps 5 or 6 grams" from NW Indiana for a possible biocontrol, along with a gall mite, of the European False Cleavers *(G. spurium)*, a severe threat to the province's safflower crop. IHT would supply permits for collecting in DNR preserves.

Though Bog Bedstraw *(G. labradoricum)* is state-listed and Cleavers *(G. aparine)* furnished no-lump mattresses for pioneers, bedstraws had always meant burs and bewilderment to me. But I owed that favor.

Swink and Wilhelm placed Rough among the smooth-to-smoothish-fruited Bedstraws and said, "Leaves and stems very harsh, strongly retrorsely scabrous," i.e., with stiff, downward-pointing hooked hairs. The plant grew in "alkaline wet thickets, sprawling over other vegetation." Seeds would ripen during late summer heat when wetlands temperatures soar 10 degrees higher than the weatherman's high.

Official lists suggested searching a fen known for quicksand, poison sumac, and, unknown to us, that reptile proposed for federal listing, the Eastern Massasauga rattler *(Sistrurus catenatus catenatus)*, bite supposedly not fatal.

Fortunately, buckthorn-clearing had carved out two quicksand-free sites, the first a charming little "room"

Rough Bedstraw
Galium asprellum

with six-inch-wide rills bordered with Grass-of-Parnassus *(Parnassia glauca)* and the little green zippers of Marsh Club Moss *(Selaginella apoda)*, but no Rough Bedstraw.

Whirr-rr! Whirr-rr! Whirr-rr!

Through the undergrowth, we spied the chunky, gray-sided, black-spotted side of a Massasauga. We stiffened. He (or she) whirred (not rattled) again, and still whirring, slithered off into more distant cover, head and tail remaining invisible. We departed rather quickly.

At site two, noteworthy not only for Fringed Gentian *(Gentiana crinita)* but also for Poison Sumac *(Rhus vernix)*, we found our sticky quarry clambering, mercifully, over "other vegetation," and yes, the vine was as sticky as described. We happily popped the tiny black seeds into glycene envelopes to mail to Alberta.

Favor repaid, we did make expenses, but the recognition list omitted Myrna's name. We never learned whether the seeds helped rescue the safflower crop. Perhaps the verdict is still out.

Addendum: On a subsequent spring visit to site 2, we hikers safely viewed at length "the all of it" – the chunky head, body, and rattles of a somnolent, sunbathing Massasauga. We'd come to look for White Lady Slippers.

Books:

Britton and Brown. *An Illustrated Flora of the Northern United States and Canada*. Dover, 1970 (1913).

Conant and Collins. *Reptiles and Amphibians: Eastern/Central North America*. Third Edition. Peterson Field Guides. 1991.

Swink and Wilhelm. *Plants of the Chicago Region*. Fourth Edition. Indiana Academy of Science. 1994.

Yatskievych. *Field Guide to Indiana Wildflowers*. Indiana University Press, 2000.

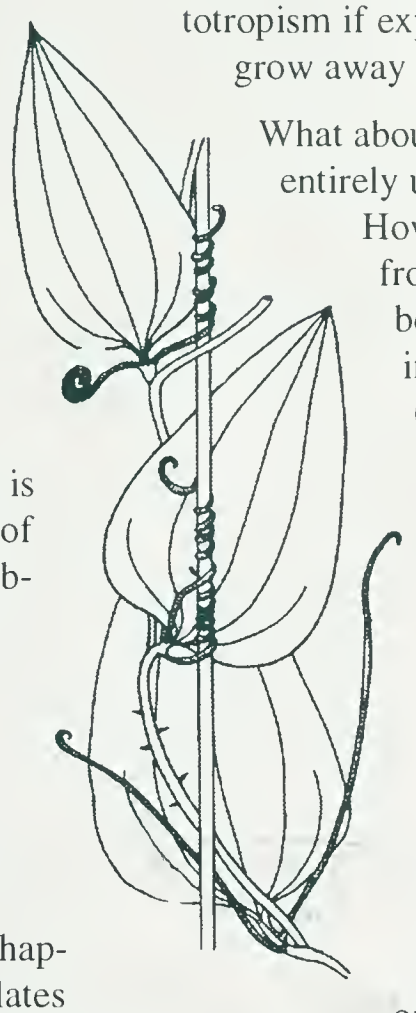
Barbara Plampin is a member of INPAWS, a trustee of the Shirley Heinze Environmental Fund, and a member of Save the Dunes Council. She has a Ph.D. in English literature from the University of Michigan. Botany has been her avocation all her life.

Botany 101 – eighteenth in a series

Phototropism, Geotropism and Nasties – Plant Movement

by Dr. Rebecca Dolan

When you ask folks the difference between plants and animals, most will mention that animals can move around but plants can't. Well, plants can't do a 50-yard dash, but they do manage to respond to their environment by moving parts that can be moved through cell growth and elongation. This movement is termed tropism. Movement in response to light is phototropism. Movement in response to gravity is geotropism. We'll get to nasties later.



We all know, especially from observing our houseplants, that plants tend to grow towards sunlight. This is accomplished with the help of the plant hormone auxin (subject of a fascinating column earlier this year). When a plant's growing shoot is exposed to light coming from a particular direction, the shoot will show positive phototropism and bend or grow toward the light. This happens because auxin accumulates in the cells on the shaded side of the plant. Auxin then works its magic to trigger cell elongation. By having larger cells on the side away from the light, a flexible shoot will bend toward the light. This helps plants optimize the production of energy via photosynthesis.

Shoots also need to know which way is up, especially when a seedling is growing up through the soil. Auxin and gibberellin are involved. If the concentration of these hormones differs between the upper and lower sides of a horizontal stem, the imbalance causes the stem to elongate on the side needed to grow up. A vertical stem has a balance of hormones on both sides and keeps growing up.

Roots grow into the ground. How do they know which way is down? They may exhibit negative phototropism if exposed to light, and grow away from it.

What about when a root is entirely underground already. How does it know down from sideways? Some believe starch grains in the root cap (remember the root structure column?) play a role. The root cap is the place where root cells are dividing and growing. Starch grains are pulled down by gravity to the lowest points of cells. As the cells get bigger on the opposite side, the root bends down toward gravity. The exact hormone mechanism is not known and several other theories for negative geotropism in roots have been proposed.

How plants would respond in outer space, without the influence of gravity to help them know how to grow has been investigated during NASA experiments.

If future space explorers need to grow their own food, these questions will have practical applications.

Some plants have other parts that move and actually have a sense of touch! The coiling of vines and tendrils has interested biologists for a long time. Darwin did some famous studies of the phenomenon. Tendrils wrap around supports by elongating cells on the side away from the support, the side not "feeling" the support. Differential growth rates on the inside and outside of the tendril cause it to curl. As you have no doubt guessed, auxin is thought to be involved.

It's interesting to note that coiling can be species-specific, whether clockwise or counterclockwise. If you have coiling vines or plants with tendrils in your garden, please look to see if they consistently coil one way or the other and let me know at rdolan@butler.edu or 317-940-9413.

Okay, so the term has fallen out of use since my introductory botany class in college, but these movements used to be called nasties. A **nastic** movement is "movement of a plant part caused by disproportionate growth or increase in turgor pressure in one surface," according to my Webster's New Collegiate Dictionary.

Becky Dolan is Director of the Friesner Herbarium at Butler University, and a charter member of INPAWS.

Illustrator Jan Glinn Lacy is an INPAWS charter member and botanical illustrator. The illustration of Smilax is from her book Botany Illustrated.

INPAWS ELEVENTH ANNUAL CONFERENCE
Saturday, November 1, 2003, 9AM - 5PM
Indianapolis Art Center
Keynote Speaker: Carole Ottesen, author of
The Native Plant Primer: *Trees, Shrubs, and Wildflowers for Native Gardens*

INPAWS' 11th Annual Conference will take place at the
Indianapolis Art Center
820 East 67th Street
Indianapolis

The cost is $40.00 per person, which includes a box lunch.

Landscaping With Native Plants will be Keynote Speaker Carole Ottesen's topic.

Other speakers include:

Dave Benson,
Restoration of the Jens Jenson Garden at Marion College

Chris Medic,
New American Backyards and The Natural Lawn

Bill Glass,
Propagating Woody Plants

Lynn Jenkins,
Organic Gardening

Carolyn Harstad,
Woodland Natives

A detailed registration form, schedule of the day's events, and directions to the IAC will be mailed to members.

Please watch your mail, and return your registration form as soon as possible.

See page 3 for the slate of proposed INPAWS officers, including their biographies.

INDIANA NATIVE PLANT
and Wildflower Society

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Indiana Native Plant *and Wildflower Society* NEWS

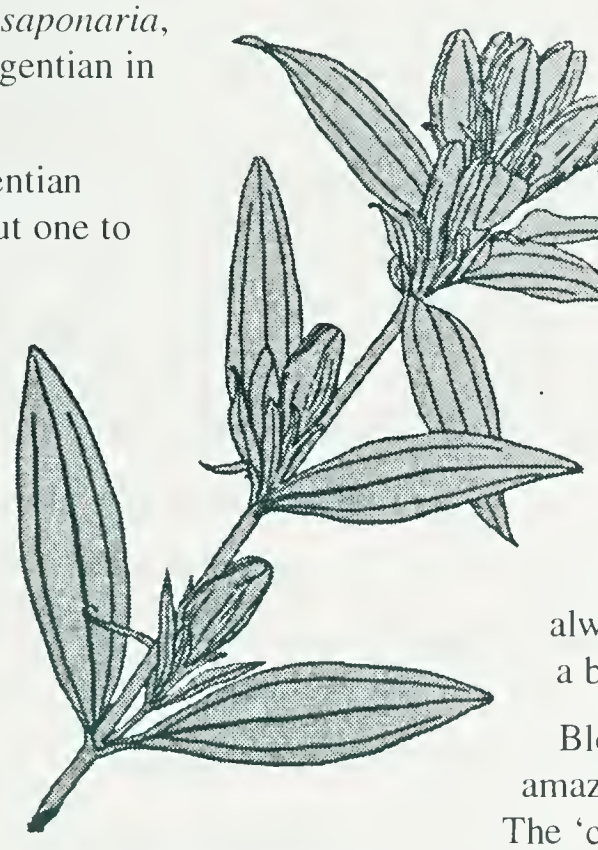
Volume 10 Number 4 • Winter 2003

Gentiana saponaria: the soapwort gentian

by Gene Bush

Walking the woodland edge in autumn could yield an experience never to be forgotten. With luck, you may have an opportunity to see *Gentiana saponaria*, or the soapwort gentian in full bloom.

The soapwort gentian grows from about one to two feet in height. I have heard three feet in a garden, but not in mine. Stems begin the season upright, but as they get longer, the stems arch over to lie on the ground. As the buds form stems arch back up to keep the blooms off of the forest floor, forming an 'S.' The 'S's radiate out to form a central root stock. Up to eight flowers are carried in clusters at or near the end of each stem.



Soapwort Gentian
(Gentiana saponaria)

Blooms are more toward the purple side of blue in color. As the blooms age, the veins darken to a violet-purple, giving the clusters a two-toned effect in color. Blooms are about one inch in length. Each bloom is shaped like an old-fashioned GE Christmas tree bulb in my mind's eye. Some call the blooms club-shaped. The blooms do not open so there is always an air of expectancy about the plants. Perhaps the appearance is of always a bud, but never a bloom.

Blooms have an amazing internal structure. The 'closed' end of the flower is not sealed, but overlapped. There are pleats, or folds, toward the top of the flower as in an accordion. Darwinism definitely at work here, for only the most fit need attempt to enter. It takes a rather large and strong bee to force the folds apart and make an entrance for the nectar at the bottom of the bloom. After feeding, the bee must then force its way back out. Occasionally they will spend overnight in the blooms.

I have picked up trays of plants in bloom in the nursery in early morning hearing the flowers give a buzz-buzz as bloom stems sway to my steps.

Generally, the plants are found along the outside edge of a wood, or if inside, located in openings. They can also be found in woody thickets. Usually the areas will be in

Saponaria continued on page 2

Inside . . .

Saponaria continued from page 1

or near seepage areas, or lowlands that flood on occasion. Success in the garden with soapwort gentian is dependent upon mimicking Mother Nature. Give your plants high open shade, preferably an eastern exposure. Too little light and bloom production is reduced. Too much sun causes the foliage to yellow and the blooms to wash out in color. Extra moisture is not an absolute if transplanted into a decent soil containing compost, mulching with chopped leaves or hardwood fines to retain moisture levels. Know your soil pH, for the soapwort gentian wants to be free of lime.

Most gardening literature ignores the range of this native plant when assigning a hardiness rating of zones 6 to 9. I know for certain it is hardy to zone 5 and probably well into zone 4.

In my garden I see the soapwort gentian come into bloom the latter part of August and it will still be flowering in mid-December. It is not unusual to see the blooms with snow on them. Imagine if you will, those intense blue gentian blooms with the fall colors of foliage drifting down to frame the plants in shades of red, yellow, and russet. Add companions such as the Great Blue Lobelia *(Lobelia siphilitica)* or Cardinal Flower *(L. cardinalis)*, the Turtleheads, white *(Chelone glabra)* or pink *(C. lyonii),* Grass of Parnassus *(Parnassia glauca)* and ferns.

Gene Bush is owner of Munchkin Nursery & Gardens LLC *and gardens on his hillside shade garden in Southern Indiana.*
You can write to him at
323 Woodside Dr. NW
Depauw, IN 47115-9039
for a hard copy catalog ($3).
His web site is:
www.munchkinnursery.com

The Newsletter of the
Indiana Native Plant and Wildflower Society

Published quarterly by the Indiana Native Plant and Wildflower Society for members.

We welcome opposing viewpoints.

www.inpaws.org

The mission of the Indiana Native Plant and Wildflower Society is to promote the appreciation, preservation, conservation, utilization and scientific study of the flora native to Indiana and to educate the public about the values, beauty, diversity and environmental importance of indigenous vegetation.

INPAWS Tenth Annual Conference, November 1, 2003

Native Know-How — Taking Nature's Lead

by Nancy Hill

Carole Ottesen, author of *The Native Plant Primer: Trees, Shrubs, and Wildflowers for Native Gardens*, was the keynote speaker for this year's INPAWS annual conference held at the Indianapolis Art Center Saturday, November 1.

All six INPAWS Presidents together in one historic photo !

Newly Elected President Becky Dolan, front, center, flanked by, from left, Linda Oxenrider, 2002-2003 and Carolyn Q. Bryson, 2000-2001; and in the back row, Jeffrey Maddox, 1994-1995; Carolyn Harstad, 1996-1997; and Ruth Ann Ingraham, 1998-1999

photo by Lee Casebere

Carole, also editor of *The American Gardener* magazine, shared wonderful slides of her cross-country trek in search of the best (and sometimes the hilarious) use of native and non-native plants in the landscape.

In concurrent sessions, **Carolyn Harstad** spoke on "Natives for Your Shady Garden" and was on hand to sign her new book, *Got Shade? A Take It Easy Approach for Today's Gardener*. **David Benson** shared experiences in the restoration of the Jens Jenson Garden at Marian College and **William Glass,** owner of The Woodland Farm Nursery in Spencer, Indiana, gave a hands-on demonstration of several techniques for propagating woody plants.

Kris Medic, author of *The New American Back Yard*, discussed the use of natives for not only backyards, but for corporate and institutional properties as well. **Lynn Jenkins**, president of the Indiana Organic Gardeners Association, explored native plantings and other methods of pesticide reduction.

A variety of books, including those of the above authors, was available during the day for purchase.

Our new INPAWS officers were elected unanimously during the business meeting. They are: Rebecca Dolan - President, Ellen Jacquart - Vice-President, David Savage – Recording Secretary, Dawn Stelts – Treasurer and Janice Gustaferro – Corresponding Secretary.

Current President **Linda Oxenrider** thanked the 2002-2003 officers for their service to INPAWS.

Carolyn Harstad, who recently moved to her native Minnesota, was presented with a beautiful wood and glass plaque expressing appreciation for her years of service to INPAWS.

Carole Otteson wrapped up the day with a delightful slide presentation of "Native Plants I Have Known and Loved," an affectionate look at her favorite native plants.

INDIANA NATIVE PLANT *and Wildflower Society*

Carolyn Harstad

Honorary Life Member

November 1, 2003

For her tireless devotion to the mission of the society as an author, lecturer and educator, promoting the appreciation, conservation, beauty and environmental importance of native plants.

Co-Founder, 1993

President, 1996-1997

Newsletter Editor, 1998-2003

Indiana Ferns and Their Haunts: Part IV

Ferns of Wetlands

by Mike Homoya

Got swamp water? It may not be your beverage of choice, but to some species of ferns, water found in swamps, bogs, and fens is a recipe for fine living. Ahhh, nothing like a cool, saturated muck! Indeed, swamps and other wetlands are important habitats for many species of Indiana ferns.

Wetlands come in all shapes and sizes, from shaded, woodland pools to sunny marshes. Some wetlands accumulate water from direct precipitation or overflow, but others are fed by an upwelling of subterranean water, such as occurs in fens. The water in a fen may not be evident, but typically "seeps," flowing in a slow, diffuse manner throughout the organic or marly substrate. Looks can be deceiving. The surface of a fen may appear dry and firm, but very likely it's quite soupy just under the surface. Watch your step!

Fens may be either forested or open, the latter typically referred to as a graminoid fen. A graminoid fen is one that is dominated by plants that have the structure of grass, i.e., long, narrow leaves. It may indeed be that a fen's dominant plants are grasses, but more often than not it is of sedge species, usually of the genus Carex.

Marsh Fern
(Thelypteris palustris)

Perhaps the most common fern in graminoid fens is the marsh fern *(Thelypteris palustris)*. This medium-sized fern thrives in the open, but can be found in shaded habitats as well. Found mostly in the northern half of the state, it occurs sporadically in southern Indiana in a few seep springs and shallow, ephemeral pools in flatwoods and floodplain forests. Of course, marsh fern also occurs in marsh environments.

A diminutive species found in most graminoid fens is the meadow spikemoss *(Selaginella eclipes)*, which is not a moss but a fern ally. Its lime-green stems and leaves form mats on the hummocks formed by other plants of the fen. It resembles a moss, but remember, ferns and fern allies, including our Selaginella, have vascular tissue. You can't see the latter with the naked eye, but trust me, spikemoss has it.

It is mostly in fens that the giants of Indiana's ferns occur–cinnamon fern *(Osmunda cinnamomea)* and royal fern *(O. regalis)*. These two are most at home in forested fens, although they can also occur in graminoid fens. In the latter habitat, however, their size is not nearly as impressive as those in the forest. I have seen cinnamon ferns in Indiana forested fens tower over my six-foot frame! Our royal fern doesn't get quite so tall, although it does in other parts of the world. One of the few familiar species I saw on a recent trip to Spain was the royal fern, and its enormous size startled me. It was more reminiscent of a tropical tree fern than our plant!

Two species of wood fern, namely crested fern *(Dryopteris cristata)* and spinulose wood fern *(D. carthusiana)*, prefer fen environments. The crested fern is more at home in open to partially shaded areas, whereas the spinulose wood fern prefers shade. Both of these species can occur outside fen habitats, especially the spinulose wood fern. Spinulose wood fern can even be found growing on sandstone cliffs, although its near twin, glandular wood fern *(D. intermedia)*, is the more likely one in such habitats.

No discussion of wetland ferns would be complete without the mention of horsetails, genus Equisetum. These odd plants are so prehistoric looking that they appear as if they've been lifted from fossils. Five species have been recorded for Indiana. Two of the most common are field horsetail *(E. arvense)* and scouring rush *(E. hyemale)*. The former is quite branched, like a small tree, whereas scouring rush has a single, unbranched stem. Both species are common, and the scouring rush can be downright weedy. Some populations of the latter form solid stands so dense that few other plants can survive.

Crested Shield Fern
(Dryopteris cristata)

A favorite wetland fern group of mine is the quillworts, genus Isoetes. Quillworts look like tufts of onion leaves popping up out of the ground. We have two species, the black-footed quillwort *(I. melanopoda)* and Engelmann's quillwort *(I. engelmannii)*. They both like shallow, ephemeral pools, either in woodland or full sun. Early in the spring the plants may be submersed, but usually have their leaves above the water's surface as the pools dry down. One of the more interesting habitats for the Engelmann's quillwort is small stream pools, such as can be found in Clark State Forest.

The ultimate in "wetness" preferences of our native ferns is exhibited by the mosquito fern *(Azolla caroliniana)*. This plant is really better described as an aquatic. Although it will root in the mud along shorelines, thus qualifying it as a wetland fern, its typical habit is floating on the surface waters of a pond or deep swamp. This unusual fern is about the size of a dime, but it can reproduce prolifically to the point that it forms a nearly complete mat over the water's surface.

A final note to those who fancy chasing after these interesting plants: keep in mind that your comfort level may be challenged. Wetland habitats offer plenty of biting insects, poisonous plants, and difficult hiking terrain. Concerning the latter, I have seen on several occasions a boot sucked into the quagmire, or even worse, a person unable to struggle free from the muck's tight grip. But as we all know, the challenges make it all the more worthwhile, right? Enjoy!

Cinnamon Fern
(Osmunda cinnamomea)

Mike Homoya, INPAWS member, is author of Orchids of Indiana, *published by the Indiana Academy of Science in 1993, and is a botanist with the Indiana Department of Natural Resources–Division of Nature Preserves.*

Plant Detectives . . .

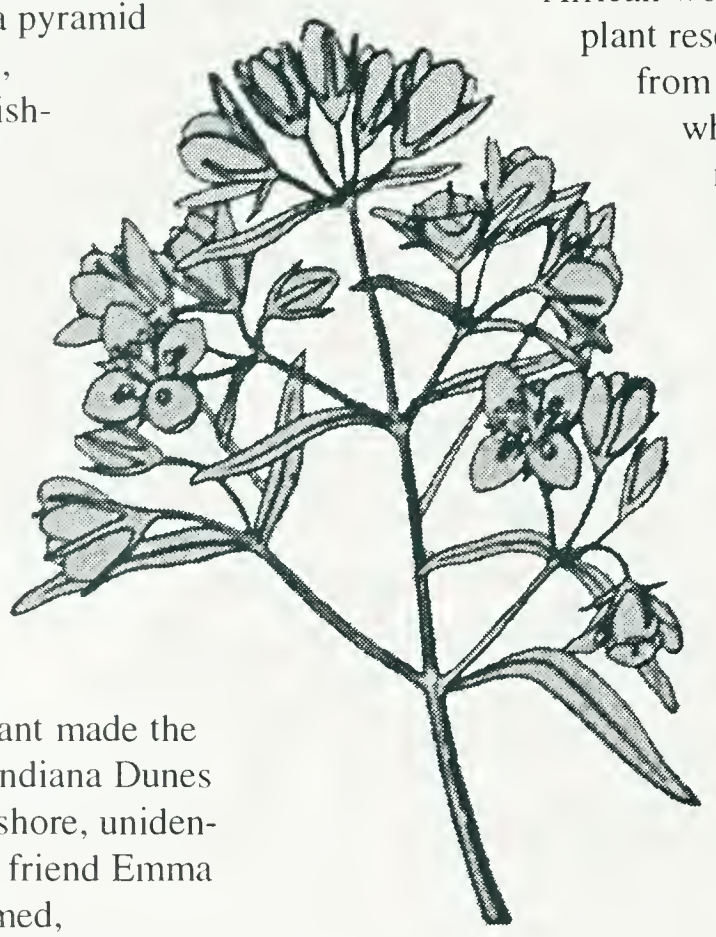
Ritual Vessels?

by Barbara Plampin

One late spring, the clay slopes at my aunt's house in Michigan sent up a surprise: a six-foot candelabrum comprising a coarse, rigid stalk and fleshy, paddle-shaped, shiny, green leaves in whorls of four, emitting an eighteen-inch "flame," a pyramid of four-petaled, whitey-yellowish-green flowers. The base of each brown-purple-dotted petal sported a green bump. What on earth?

Preserved in a large pail, the mystery plant made the rounds at the Indiana Dunes National Lakeshore, unidentified until my friend Emma Pitcher exclaimed, "American Columbo!" Furthermore, she knew a site along the Little Calumet River. We were off! the site lay at mid-slope on another clay bank on the far side of a junk-filled ravine. Here we met a startling sight: sixteen majestic candelabra and their pale flames under the high shade of ash and black oak as if awaiting a solemn ritual. Forty or so basal rosettes, some with sixteen-inch leaves, dotted the forest floor.

Columbo (*Swertia*, a.k.a. *Frasera, caroliniensis)* a Dunes rarity but found in many Indiana counties, is our largest Gentian family member.



American Columbo (*Swertia*, a.k.a. *Frasera, caroliniensis)*

Fringe? The green bumps on the petals, which turned out to be nectar glands, are each surrounded by a minute fringe.

Mrs. Grieve says Columbo is the American translation of an African word and that our plant resembles one from Mozambique whose triennial root furnished medicine. Wakefield's Blackberry Balsam Compound for Common Diarrhea, 12 percent alcohol, includes Columbo root.

Thinking this other-worldly sight worth another visit, I returned at the end of June. NO PLANTS! The candelabra and their flames had melted clean away, dissolving into the forest floor.

The best time for viewing is early to mid June. Some years produce both candelabra and rosettes, others rosettes only, still others no plants at all. These variations may lie in the plant's biennial or triennial nature. Sources don't agree about the plant's longevity.

Pepoon's 1927 *Flora of the Chicago Region* pictures a very solemn young man of upright posture grasping the stalk of a stiff seven-footer. He's wearing a suit, white shirt, necktie, and a sporty fedora. Fortunately, botanists' costumes have changed, and Columbo's green CANDELABRA? flames on—if intermittently.

Books:

Britton and Brown. *An illustrated Flora of the Northern United States and Canada.* Dover, 1970 (1913).

Gleason. *The New Britton and Brown Illustrated Flora of the Northeastern United States and Adjacent Canada.* The New York Botanical Garden, 1952.

Grieve, Mrs. M. *A Modern Herbal.* Dover, 1971 (1931). No longer truly modern, this book makes excellent bedtime reading.

Pepoon. *Flora of the Chicago Region.* Chicago Academy of Sciences, 1927.

Swink and Wilhelm. *Plants of the Chicago Region.* Fourth edition. Indiana Academy of Science, 1994.

Yatskievych. *Field Guide to Indiana Wildflowers.* Indiana University Press, 2000.

Barbara Plampin is a member of INPAWS, a trustee of the Shirley Heinze Environmental Fund, and a member of Save the Dunes Council. She has a Ph.D. in English literature from the University of Michigan. Botany has been her avocation all her life.

Perennial Sunflowers for Your Garden

by Charles B. Heiser

In his *Landscaping with Plants Native to Indiana*, a pamphlet issued by the Indiana Department of Natural Resources, Division of Nature Preserves, my fellow botanist and author Michael Homoya lists 34 very fine flowering perennials. Although he included the False Sunflower *(Heliopsis helianthoides)*, there is no mention of my favorites, the true sunflowers *(Helianthus spp.)*. If the False Sunflower belongs on the list—and I agree that it does—so do some of the true sunflowers. In fact, the False Sunflower looks so much like the real sunflowers that it is often confused with them. The name tells us as much. *Heliopsis* means "like the sun" and *helianthoides* means "like Helianthus." In fact, Charles Deam in his *Flora of Indiana* gives it the common name of Sunflower Heliopsis. I recall that in the days when I taught a course in summer flowering plants, every year several students would identify their collection of False Sunflower as *Helianthus decapetalus.*

False Sunflower
(Heliopsis helianthoides)

There are 13 perennial species and several hybrids of sunflowers in the Indiana flora according to Kay Yatskievych in her *Field Guide to Indiana Wildflowers.* Of these, in addition to *H. decapetalus* (Thin-Leaved Sunflower) which grows well in partial shade in contrast to most sunflowers, I recommend *H. occidentalis* (Western Sunflower) which has most of its leaves at the base of the plant and a long flowering stalk, *H. mollis* (Ashy Sunflower) whose common name comes from the soft ashy colored hairs that cover the plant, *H. maximilianii,* (Maximilian's Sunflower) which has a very interesting leaf and flower arrangement, and *H. x laetiflorus* (Showy Sunflower). Possibly H. maximilianii was introduced to Indiana from the West and *H. x laetiflorus* may have arrived as a cultivated plant. I found the latter growing in gardens in several places when I came to Indiana University over 50 years ago.

There is another perennial sunflower hybrid known only as a cultivated plant, *H. x multiflorus* (no good common name), which apparently originated in Europe from species taken there from North America. I seldom see it grown today but the plant in my home garden attracts a lot of attention, many people not believing it is a sunflower. I have not seen it offered in catalogues for years.

Still another favorite is *H. salicifolius* (Willow-Leaved Sunflower), native from Missouri and Kansas to northern Texas and notable for its very narrow leaves. Both it and *H. maximilianii* often reach over six feet, too tall perhaps for some people's taste.

One perennial I do not recommend is *H. tuberosus* (Jerusalem Artichoke), a weedy plant and probably the most common sunflower in our state, for it can take over your garden unless you eat all of the tubers.

Brief descriptions of these sunflowers and how to grow them may be found in my book, *The Sunflower.*

Oh yes, I almost forgot. How does one tell a False Sunflower from a true one? The False Sunflower has ray-flowers that produce achenes ("seeds"), the rays become papery and persistent, and the achenes have no pappus, whereas sunflowers have sterile ray-flowers (no achenes produced), the rays do not become papery and fall fairly rapidly, and the achenes have a pappus, two (seldom more) small scales on top of the achenes. As the pappus is deciduous, however, you may not always find it present when you go to identify your plant.

Thin-Leaved Sunflower
(Helianathus decapetalus)

Charles B. Heiser is Distinguished Professor Emeritus, I.U., Bloomington. In addition to Weeds in My Garden, *he has written books on sunflowers, gourds and economic botany.*

C O M I N G E V E N T S

Invasive Plant Hunt !
Saturday, 10 AM
March 20, 2004

Ellen Jacquart and Steve Cotter will lead volunteers on a hunt for invasive plant species at Griffy Lake Nature Preserve in Bloomington. Hike this beautiful nature preserve and learn how to scout out, identify and map invasive plant species. We'll also talk about control methods for the species we find.

Meet at the
Griffy Lake Boathouse
3300 N. Headley Rd.
Bloomington

at 10 am on Saturday, March 20. Bring compasses and binoculars if you have them.

For more information contact Steve Cotter, 812/349-3736.

Second Annual
Prairie Creek Barrens
Restoration Day
Saturday, March 27, 2004

INPAWS members and friends are again invited to attend restoration activities for one of southwest Indiana's rarest vegetation types–sand barrens. The type is almost gone, but a remnant exists at Prairie Creek Barrens Nature Preserve in northern Daviess County. Portions of this DNR property are in need of restoration. Mark your calendar for March 27, 2004 to help plant over 3000 plugs of various prairie grasses and forbs. Please contact Mike Homoya by e-mail mhomoya@dnr.state.in.us (or call 317.232.0208) for additional details including meeting time and location.

Lunch will be provided! Please confirm by March 1.

54th Annual Wildflower Pilgrimage
Smoky Mountain National Park
April 19-25, 2004

For the past few years, my husband and I have attended the Wildflower Pilgrimage sponsored by the University of Tennessee, Smoky Mountain National Park, Arrowmont School of Arts and Crafts and Southern Appalachian Botanical Society. This year will be the 54th Annual Wildflower Pilgrimage and will run from Monday, April 19th to Sunday, April 25th. The event consists of a variety of wildflower, fauna, and natural history walks, motorcades, photographic tours, art classes and indoor seminars led by knowledgeable people such as botany professors from the University of Tennessee and surrounding states and park naturalists. Walks are well described and carefully rated for difficulty in their program notes. There are 150 activities to choose from. The activities are mostly held outdoors in Smoky Mountain National Park around the Gatlinburg area. This is a wonderful way to become familiar with our spring wildflowers as they bloom there in great profusion and the region hosts such a huge diversity of plants. Flowers, trees, mosses, ferns and Native American and medicinal uses of plants are covered by different hikes.

There is a registration fee of about $25 and one must be registered to attend a hike. Walks fill up quickly and are limited in the number of participants. Trailheads are reached by trolley and organized car pool and only ticket holders may attend. One can register by phone (865) 436-7318 from 8:00 to 4:30 PM EST on weekdays. Registration starts after the middle of March. One can also register online at: www.springwildflowerpilgrimage.org. VISA and Master Card are accepted. However one registers, one must check in at Mills Auditorium in Gatlinburg to pick up registration packets.

For those who would be interested in going and having transportation to Tennessee and within the park, registration and lodging taken care

of, Indy Parks sponsors a trip lead by park naturalists. They will hold a meeting on Saturday, February 21, from 2:00 to 4:00 PM. For those who have never attended a Pilgrimage, the naturalists can describe the hikes and tell what flowers one can expect to see on each walk This tour leaves Eagle Creek Park in Indianapolis on Tuesday, April 19th and returns on Sunday, April 25th. The cost is $450/person double occupancy. A $50 deposit is required on February 21st. A photographic tour is offered at the same time and cost for the first six people to apply. Many INPAWS members have attended this program in the past and many are planning to go this year. Hope to see some of you there.

Betsy Wilson
President of the Central Region of INPAWS.

Natural Bridge Wildflower Weekend, April 28 – May 2, 2004

Join us for the annual Natural Bridge Wildflower Weekend, April 28 – May 2, 2004. Wildflower Weekend is an opportunity for native plant enthusiasts to enjoy one of the most ecologically diverse areas in Kentucky in bloom.

We'll have dozens of field trips throughout the park and the Red River Gorge National Geologic Area for all levels of participation, from beginners to advanced wildflower enthusiasts and from short easy walks to long hikes. Trips focus on a variety of topics, from trees to rare plants, and are led by university professors, professional biologists, and experienced hobbyists. This year our evening programs are scheduled to include Dr. Wilson Francis, coauthor of the new "Wildflowers and Ferns of Kentucky," the Indiana Department of Natural Resources' Mike Homoya on native orchids of the region, and ferns of the Smokies with Dr. Pat Cox of the University of Tennessee.

Registration is $5 per adult upon arrival; no preregistration is required.

For accommodation information please call 1-800-325-1710 or 1-606-663-2214.

—Zeb Weese, Park Naturalist, Natural Bridge State Resort Park

INPAWS Annual Plant Sale Saturday, May 8, 2004

St. Pius X School 71st and Keystone Indianapolis

Julie Beihold, Co-chairman
Karen Hartlep, Co-chairman

We want to remind everyone of the plant sale and auction which will be held at St. Pius X School at 71st and Keystone Ave., Indianapolis on Saturday, May 8, 2004.

We are looking for volunteers and plant donations.

The setup will be Friday evening (time TBA) and the doors will open at 7 AM on Saturday for deliveries and volunteers.

If you are able to donate plant material, please be sure to dig your plants and pot them as soon as the weather permits. Thanks in advance for your help.

We will have a brief organizational meeting in March. Volunteers will be contacted once a date for this meeting has been set.

To volunteer or share ideas for the sale, please contact
Julie Beihold (317.852.8640)
email (iepdb@iquest.net)

or

Karen Hartlep (317.253.6164).

Botany 101-19: Common Plant Families in Indiana

Composite Family

by Dr. Rebecca Dolan

In the hierarchy of botanical nomenclature, similar species are grouped together into genera; related genera are grouped into families. Members of common families can often be identified based on a few distinctive morphological characteristics. There are about 150 plant families represented in the native Indiana flora. I'll review the10 most common in the coming columns, starting with one with a lot of late-fall blooming species. The 10 families we'll cover include almost half of the estimated 2,600 species in the state.

Composite family = Sunflower or Daisy family = Asteraceae

- Perhaps the largest family world wide, with 20,000 to 25,000 species.
- 346 North American genera, 72 in Indiana,
- 2,687 North American species, 255 in Indiana.

Composite Flower:

floret:
individual flower of member of composite family,
–usually numerous and tiny,
–arranged in compact inflorescence (flowering stem) that resembles a single flower.

ray florets:
flowers around the outside of the inflorescence, often have large straplike petals.

disk florets:
flowers on the inside of the inflorescence, usually very small petals.

Some species lack disk or ray flowers; sometimes the relative number of each is characteristic for a species.

Economically important members of the family:

lettuce, endive, chicory, Jersualem artichoke, dahlia, chrysanthemum, marigold, sunflower, daisy and thistle.

Plant Products:

tarragon, pyrethrum, yarrow, sunflower.

Joe Pye Weed
(Eupatorium purpureum)

Common fall-blooming composites in Indiana:

(aka damn-yellow-composites, as many of them are difficult to tell apart at first glance)

- goldenrods
  (Solidago spp.)
- asters
  (Aster spp.)
- sunflowers
  (Helianthus spp.)
- coneflowers and black-eyed Susans
  (Rudbeckia spp.)
- beggar's-ticks
  (Bidens spp.)
- ragweed
  (Ambrosia spp.)
- white snake root and Joe-Pye weed
  (Eupatorium spp.)

Recent great book on composites:

The Sunflower Family in the Upper Midwest by Antonio and Masi, published by the Indiana Academy of Science, 2001.
ISBN 1-883362-11-3.
$48 from www.indianaacademyofscience.org

Becky Dolan, newly elected president of INPAWS, is Director of the Friesner Herbarium at Butler University.

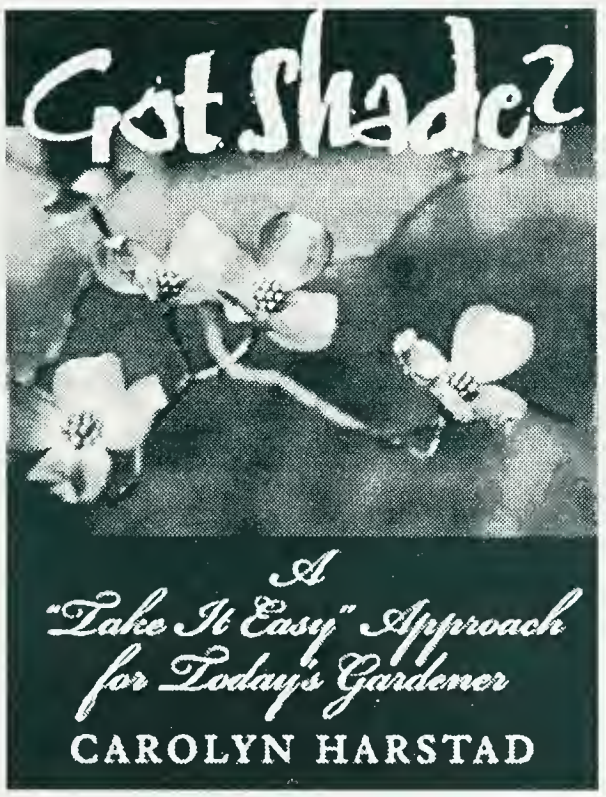
Booknotes

Got Shade?
A "Take It Easy" Approach for Today's Gardener

by Carolyn Harstad

Photographs by Carolyn Harstad
Drawings by Jean Vietor

Indiana University Press
November 2003
ISBN 0-253-21625-7



Whether it's urban, suburban, or rural, nearly every property has some shade, if only on the north side of the house. Many are "blessed" with giant trees. Under such conditions, you may think it is impossible to have an interesting garden without a lot of work. Not so if you are willing to learn about the plethora of easygoing horticultural gems that don't require full sun.

Carolyn Harstad organizes this book around the principle that an interesting shade garden is well balanced and has a variety of plantings. Early chapters focus on designing the low-maintenance garden. Further chapters discuss small trees, shrubs, dwarf conifers, vines, ground covers, ferns, grasses, perennials, woodland wildflowers, spring bulbs, and annuals (yes, there ARE annuals that enjoy shade!). She discusses hundreds of shade-tolerant plants hardy in Zones 4-8, suggests how they may be used and combined, and recommends methods to cut garden maintenance. With its informative text, accurate drawings, and colorful photographs, this book is a "must have" for gardeners across much of North America.

Carolyn Harstad is author of *Go Native! Gardening with Native Plants and Wildflowers in the Lower Midwest* and is co-founder of both INPAWS (Indiana Native Plant and Wildflower Society) and the Indianapolis Hosta Society. She now lives in Minneapolis.

Jean Vietor graduated from Indiana University in Fine Art. She has exhibited mostly nature paintings for 33 years. Her mediums include watercolor, transparent acrylic, acrylic on canvas, computer art, and polymer clay art.

Book Information:
392 pages, 91 color photos, 102 b&w illus., bibl., index, 7 x 9
Paper; $24.95;
ISBN 0-253-21625-7
Published by
Indiana University Pres
November 10, 2003

To order, call 1-800-842-6796 or log on to http//iupress.indiana.edu

Email Carolyn at:
pharstad@iupui.edu
(Please make sure to use the above address, as Carolyn's email was incorrect in the 2003 INPAWS membership directory.)

Some comments:

"There is clearly a need for more and better information on shade gardens. Many of my customers (at the Lafayette farmer's market) ask specifically about plants for shade, and will benefit from this book. With its breadth of scope and wealth of detail, this book will make a great addition to your gardening library.'

—Harrison Flint, author of *Landscape Plants for Eastern North America* and *The Country Journal Book of Hardy Trees and Shrubs*.

"Got Shade? *is a must for gardeners that 'got shade.' This extensive and thoughtful work details everything involved in woodland gardening from the types of shade to garden design, included in an encyclopedia of recommendations of shade-loving plants. I strongly recommend this book for any gardener in the cold/temperate U.S who is learning to cope with a shaded garden."*

—Tony Avent, Plant Delights Nursery at Juniper Level Botanic Garden, Raleigh, N.C.

"This is an exciting book for gardeners tired of ubiquitous hostas and ferns in shade gardens ... Thoroughly researched ..."

—Library Journal

"A masterpiece, full of charm and humor."

—Dr. Rebecca W. Dolan, Director, Freisner Herbarium, Butler University

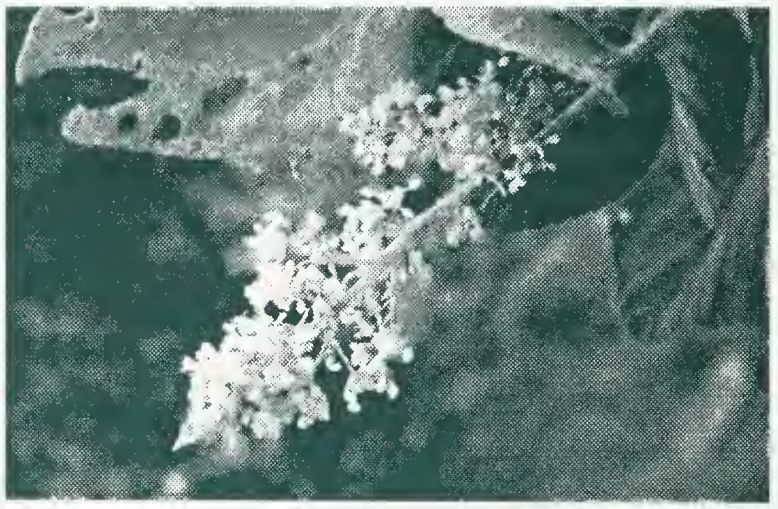
A Condensed Look at California's Possibilities:
Strybing's Arthur L. Menzies Botanical Garden

by Bobbi Diehl

My title is a quote from the Epilogue of Ken Druse's *The Natural Habitat Garden*, which pays tribute to the Arthur L. Menzies Memorial Garden of Native Plants. An amazing number of native species are grown in the Menzies, a relatively small part (four acres) of San Francisco's Strybing Arboretum in Golden Gate Park. The whole state could look like this beautiful garden–at least, the portions that are not paved over. Instead, Californians overwhelmingly choose plant material from Australia, Spain, Chile, and South Africa. Note the irony.

My husband and I spent seven weeks in northern California this summer, three of them in San Francisco. For former Californians coming back after 30 years in the Midwest, the vegetation is amazing. Oleanders bloom mightily, thriving even along the packed freeways. Camellias and crepe myrtles are everywhere with their pink and white bloom. Rosemary plants can reach the size of Volkswagens in this mild climate, and are covered in pretty blue flowers. Lily of the Nile and Eucalyptus are everywhere. I even saw ancient Clivias blooming in the garden of the old Swedenborgian Church in Pacific Heights. Are any of these colorful plants natives? Of course not! You would be hard put to identify any native plants in the average Californian's yard.

Stepping into the Menzies Memorial Garden is like going back to pre-settlement days. There are no exotics here, just a rich tapestry of California natives. I was instantly captivated. It is actually a brilliant renovation (done in the 1980s by landscape architect Ron Lutsko) of a collection dedicated in 1973 to the memory of a former assistant director of the Strybing. Exotic and yet familiar, it is a microcosm of the Golden State, with seven habitats that mimic woodland meadow, coastal scrub, a freshwater marsh, an arroyo, a bog, etc. A dry streambed winds its way through the garden, unifying it. July, when we were there, is not the most spectacular time to visit, and yet there was plenty of color and plenty to see. In one area we spotted a family of California Quail. I would venture to guess that there are not many of those in the middle of San Francisco!



Wild Lilac, Feltleaf Ceanothus
(Ceanothus arboreus)

The plants here range from trees and shrubs to ferns and grasses, including the madrone *(Arbutus menziesii)* and Santa Cruz Island buckwheat *(Eriogonum arborescens)*. Many are used as recurring themes throughout the area, in different combinations that are intended to give ideas for home gardens. Because of their various mechanisms for coping with the challenging ecosystems in which they live, many appear quite exotic to visitors from Indiana. And yet, one is often startled to spot an obvious relative of a familiar Indiana plant. It may be a cousin many times removed, but the family resemblance is there. Among them:

• *Ceanothus arboreus*, Wild Lilac; Feltleaf Ceanothus. Rhamnaceae. Shrub or small tree with blue blossoms in spring. Many cultivars are available. If any native plant is grown in a California garden, it is apt to be this. *Ceanothus americanus*, New Jersey Tea, is an eastern relative.

• *Cercis occidentalis,* Western Redbud. Fabaceae. A close cousin of our Redbud, this is another plant of the Sierra foothills.

• *Lavatera assurgentiflora,* Tree Mallow. One of the Malvaceae, with a clear resemblance to many native and introduced species in Indiana. It is a shrub, to 15 feet tall, and the flowers are purplish with darker veins.

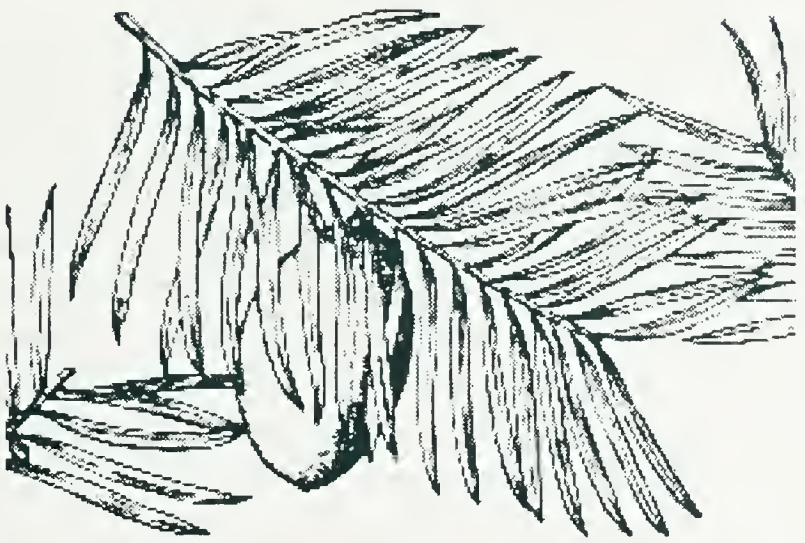
• *Pinus torreyana,*
Torrey Pine. Pinaceae. Native to the San Diego Coast and Santa Rosa Island. The rarest North American pine, it has a very picturesque habit.

• *Torreya californica,*
California Nutmeg or California Yew. Taxaceae. Another plant from the Sierras and westward, it resembles a Yew on steroids.

"There is much that makes Menzies so successful besides its California palette," writes Druse. "Beyond a collection, it is perhaps the most beautifully planned and maintained public garden in the country dedicated to habitat-style planting." On your next trip to the Bay Area, whatever the season of the year, be sure to schedule a few hours here. You will be very glad you did.In closing, I must mention some of my favorite California natives. All these and many more can be seen at the Menzies.

• *Carpenteria californica,*
Bush Anemone, comes from the Sierra Nevada foothills. Lovely, fragrant white flowers on a sturdy bush with shining evergreen leaves.

• *Grindelia stricta,*
Gumweed. Gumweeds have bright yellow daisy-type flowers and spoon-shaped dark green leaves. They make a good ground cover under poor conditions, but what fascinated us is the sticky white substance covering the disks. It looks exactly like spit! What purpose it serves is a mystery–to me, anyway.



California Nutmeg
(Torreya californica)

• *Fremontodendron californicum,*
Common Flannelbush. A small evergreen tree with lovely yellow flowers and leathery green leaves with a feltlike undersurface. This tree epitomizes California to me and I wish it were as common as Eucalyptus is!

• *Lyonothamnus floribundus ssp. asplenifolius,*
Fernleaf Catalina Ironwood. An amazing looking tree with leaves that truly look like fern fronds. Native to the Channel Islands off the coast of Southern California, it has peeling redwood-like bark and small white blossoms in large, flat clusters.

• *Zauschneria (or Epilobium) cana,*
California Fuchsia. This perennial has gray foliage and beautiful scarlet red flowers in autumn, beloved by hummingbirds. Another of the theme plants at the Menzies, it is not for formal gardens, but what could be more perfect in a grouping of California natives?

Bobbi Diehl retired in June 2002 after more than 25 years at Indiana University Press. She is just taking over as INPAWS News editor. *See page 18 for contact information.*

News from INPAWS Regional Chapters

Central

Last year, the Central Region meetings were attended by between 20 to 30 members. As of our annual meeting in October, we had 149 households in the chapter and about $1,000 in the Bank!

For 2004, Virginia Harmon has planned an exciting set of programs. Please put these dates on your calender.

February 10, 7-9 PM
Warren Library,
9701 East 21st Street,
Indianapolis
Rolland Kontak –
Woodland Wildflowers
From a huge selection of subjects, Rolland will present a multi-media program featuring Indiana native plants of woods and shade. Come and see old favorites, the seldom seen and even rare examples of Indiana plant treasures.

March 24, 7-9 PM
Southport Library,
2630 East Stop 11 Road,
Indianapolis
Greg Oskay – *Ponds*
Greg will discuss how to build a pond, which plants to use or avoid and what type of wildlife a pond will attract.

April 18, 2-4 PM
Cool Creek Park Nature Center,
US 31 north at 151st Street,
Indianapolis
Don Ruch – *Mushrooms*

June 6, 1-3 PM
location to be announced
Kevin Tungesvick – *Sedge Walk*

August 22, 2-4 PM
Clegg Memorial Gardens
East of Lafayette, Indiana
Jim Peterson – *Wildflower Walk*
Come and join Jim on a 1 and 1/3 mile wildflower walk along Wildcat Creek. There will be many varieties of native plants and wildlife to observe.

October 17, 2-4 PM
Fort Benjamin Harrison State Park,
Indianapolis
Jeannine Montgomery –
Soil Microorganisms talk and nature walk
Jeannine will discuss the fungal network and how it affects soil and fertility and she will present ways to preserve or enhance your soil.

December 12, 3-6 PM
Christmas Party at Virginia Harmon's home

We will look forward to seeing many of you at these meetings. Remember to let us know if your email changes so we may keep you informed of other region activities. If you have ideas from meetings, please let me know of them.

Betsy Wilson
President of the Central Region
geobet@iquest.net

East Central

East Central is currently taking renewal membership money. The last meeting of 2003 featured our very own Dr. Byron Torke who spoke on Aroids. Byron as usual was very complete and talked about Aroids from all around the world. At the conclusion of the meeting, we gave away Jack-in-the-Pulpit and Green Dragon seeds.

Our next meeting will be Wednesday, February 11 at 7 PM at Minnetrista Cultural Center in Muncie. Our guest speaker will be Paul Rothrock who will speak on *A Botanical Exploration of Jasper Pulaski Fish and Wildlife Area—Hidden Treasure.* On March 10, Dr. Don Ruch will be putting a new spin on his specialty—mushrooms.

For more information or directions to Minnetrista Cultural Center email Marcia Johnson at MarciaJ50@aol.com

North West

If anyone from the Northwest corner of Indiana (Jasper, Lake, LaPorte, Newton, Porter, Saint Joseph, Starke counties) is interested in reorganizing the North West chapter, contact Becky Dolan rdolan@butler.edu

South Central

Members of the South Central Chapter met this fall to revitalize local activities for the Chapter. To avoid unnecessary bureaucracy, the Topica list-serve will be used to communicate by email, and individual members were invited to plan an outing or program for each month and publicize it through the list. Several Brown County members took up the challenge and invited Dan Shaver of The Nature Conservancy to explain the Brown County Hills Project. The program, held November 9 at the new Brown County Library, was attended by almost 30 people, including several potential new members. Wonderful refreshments were provided and participants were also able to view plans for removing invasive exotics from the ravine adjacent to the library. Future programs include tours of Cedar Bluffs Nature Preserve, the privately owned Tarzian Nature Preserve, and Griffy Lake near Bloomington.

For more information, contact
Cathy Meyer
cmeyer@co.monroe.in.us

West Central

For information contact
Chris Brewster
jim.chris.brewster@worldnet.att.net

Spread the Word!

INPAWS has made it easy for you to be the speaker on native plants at your organizations!!! Each of our programs has slides in a carousel accompanied by a written script to read as you show the slides. Easy!! All you do is contact Chairman Colletta Kosiba by phone 317-852-5973 or e-mail k_colletta@hotmail.com, reserve the program and she will send it to you.

All of the INPAWS programs are written to encourage people to use native plants in their gardens and yards. The programs are entertaining as well as educational.

SPRING WILDFLOWERS
40 of those lovely spring ephemerals we find in the woodlands.

SUMMER WILDFLOWERS
40 sun-loving plants of the fields.

INVASIVE PLANTS
Some of the worst invasive plants that are harming our environment.

NATIVE PLANTS FOR YOUR SHADE AREAS
Not only flowers but vines, groundcovers and ferns to show the diversity natives can provide in the shade garden.

NATIVE TREES AND SHRUBS
Some of the many native trees and shrubs, including interesting facts about their uses.

WHO ARE THESE ALIENS?
Flowers from other continents that have naturalized and are now Indiana wildflowers and their weedy cousins. How they got here and their uses.

These programs have been given to garden clubs, master gardeners, master naturalists, community service organizations, conservation groups, and Audubon societies throughout the state.

Share the good news about native plants in your area. Call Colletta today and make arrangements to use the slides at one of your organizations or do a program for your local library! Remember everyone benefits, especially the wildlife, they will thank you for having more native food available!

Colletta Kosiba,
Speakers' Bureau chairman
317-852-5973
e-mail
k_colletta@hotmail.com

The Indiana Native Plant and Wildflower Society, Inc.

A Brief Early History

Prepared to present at the Annual Conference, November 1, 2003 *by Ruth Ann Ingraham*

In the winter of 1992 Kay Yatskievych, botanist-photographer and author of *Field Guide to Indiana Wildflowers*, showed slides and spoke about her book, then in process, to the Horticultural Society of the Indianapolis Museum of Art. She lamented that Indiana was the only state east of the Mississippi River without a native plant society. Afterwards, I announced to a small group that I would call a meeting to form a native plant society. Even though I didn't have a clear understanding of native plants, I believed that Indiana should not be without such a society and should join with other states.

The previous fall, Carolyn Harstad had been invited to speak to the Horticultural Society about wildflower propagation. In preparation, she asked Bill Brink for advice and borrowed some pertinent books from his extensive library. He encouraged Carolyn to get the Horticultural Society to organize a native plant society for Indiana, since there was none. Following her presentation, several members expressed interest and gave her their names, addresses and telephone numbers. She continued gathering names when speaking to plant and garden organizations. In late spring of 1992, Carolyn attended a wildflower workshop sponsored by the Garden Club of Indiana and chaired by Amy Little Mason, Terre Haute. One of the speakers was Dr. Michael Dana, a Purdue University professor of horticulture who had recently returned from a sabbatical leave at the Lady Bird Johnson Wildflower Center in Austin, Texas. Both Amy and Mike had been thinking about organizing a native plant group and had their own lists of interested persons. Mike offered to maintain the growing list on his computer.

A year had passed since Kay's above-mentioned talk. It was mid-winter, 1993, at another Horticultural Society meeting. Sue Nord asked if I had called the meeting yet to form a native plant society. I confessed that I had not, but promised to do so. Upon learning through the grapevine that fellow Trailing Arbutus Garden Club member Carolyn Harstad was interested in native plants, I called and told her the plan. Then, having read in the Audubon newsletter about a Bill Brink, who grew a prairie garden along the alley behind his Indianapolis home, I looked up the name in the phone book, found one on Central Avenue, and left a message on the answering machine. "If you're the Bill Brink featured in the Audubon newsletter, we're starting a native plant society. Let me know if you're interested. Hope you can come the 25th." Seven people, including Sue Nord, Chuck Gleaves, and Chris Turner from IMA, planned to attend the Thursday, February 25, 1993, meeting, but eight inches of snow fell that day and Bill Brink, with a borrowed four-wheel drive vehicle, was the only one who made it to the Ingraham Broad Ripple home. Even intrepid Carolyn Harstad, later author of *Go Native*, was snowbound. Nevertheless, the nucleus of an Indiana native plant society formed.

When Carolyn was able to get out of her driveway a day or two later, she and I met. We compared notes and shared lists including one kept by Kay Yatskievych. I composed a letter to fifteen key individuals inviting them to attend an April 14 meeting. The letter stated in part, "It is apparent that the time is right for those of us in Indiana who care about native plants and wildflowers to come together and form a society…Whatever your interest may be—preserving and protecting natural places, developing your own native cultivar garden, photographing wildflowers, or serving as a professional or academic within our communities—you are wanted. Bill, Carolyn, Joe and I want this to be, to coin a current word, inclusive. Together we can do much to maintain the natural, wild beauty of Indiana." Carolyn wrote to native plant societies around the country for information about mission statements, constitutions and bylaws, newsletters, activities, etc. Bill Brink's landscaping company, *It's Great Outdoors*, contributed $100 as seed money.

On March 29 Joe and I, Chris Turner, Peter and Carolyn Harstad shared a meal at the Harstad home and reviewed the proposed constitution and by-laws. Don Westerhaus, attorney, reviewed the document and made a few changes.

Peter Harstad, then Executive Director of the Indiana Historical Society, agreed to chair the April 14, 1993, meeting held at the Marion County Cooperative Extension office. Volunteering to serve temporarily in various capacities were Jeffrey Maddox, Jean Vietor, Bill Brink, Carolyn Harstad, and myself. Other supporters attending were Lee Casebere, Becky Dolan, Joe Ingraham, Becky Lomax, Sue Nord, Chris Turner, Bill McKnight, and Kay Yatskievych. The group listed possible goals and activities of a native plant society.

- Use native trees and shrubs.
- Understand how non-native plants can spread and become quite prevalent, particularly in natural areas.
- Promote native plantings in public spaces such as the IMA, the Water Company canal, and the White River State Park.
- Educate self and others.
- Organize plant rescue programs.
- Help people identify native plants.
- Conduct field trips.
- Promote maintenance of green space.
- Bring together a diverse group.
- Produce a newsletter.
- Create a strong political base for increased awareness.
- Work with DOT and the Indiana highway department for "no-spray" areas.
- Eliminate the stripping of seed sources by well-meaning people.
- Learn to utilize native plants in our gardens.

At Holliday Park on June 6, 1993, the Constitution and By-Laws were ratified and *Indiana Native Plant and Wildflower Society* was adopted as the official name. $10 entitled you to be a Charter Member, good through 1994. On August 14, at a meeting held en plein air at Marian College, we elected officers: President, Jeffrey Maddox; Vice President, Bill Brink; Corresponding Secretary, Ruth Ann Ingraham; Recording Secretary, Anne Wilson; Treasurer, Jean Vietor. The society supported a vibrant first year. Members explored the wetland plants and ponds at Marian College, toured Purdue's research plots of native forbs and grasses, and sponsored an auction and, with auctioneer Rolland Kontak, raised $1,080. We hosted a wine and cheese reception to honor Mike Homoya and Lee Casebere, author and photographer, respectively, of newly released *Orchids of Indiana*, hiked in the remnant arboreal forest of Pine Hills Nature Preserve, and capped the year with a holiday celebration in the Harstad's home. By year's end, INPAWS had 149 members.

The following spring, the first volume of the acclaimed newsletter rolled off the press with the lead article, appropriately titled for this fledgling organization, *First Signs of Spring* by Kay Yatskievych.

Seeds were gathered in the early 1990s, sown in 1993, and flourished into the dynamic organization that continues today, November 1, 2003, when we celebrate the tenth year following the Indiana Native Plant and Wildflower Society's founding.

Ruth Ann Ingraham
Co-Founder and Historian

Virginia Bluebells
(Mertensia virginica)
by Jean Vietor

Illustration from
Carolyn Harstad's new book
Got Shade?

Congratulations
to the newly elected
INPAWS officers for 2004-2005:

President – Dr. Rebecca Dolan
rdolan@butler.edu

Vice President – Ellen Jacquart
ejacquart@tnc.org

Recording Secretary – David Savage
jdsavage@sbcglobal.net

Corresponding Secretary –
Janice Gustaferro
jan_in@egix.net

Treasurer – Dawn Stelts
dawn@stelts.com

See account of annual conference on page 3.

Also, we are happy to welcome
Lynn Dennis as the new program chair.
Contact her at 317-951-8818 (work);
317-298-8910 (home); or 317/490-3010 (cell)
or e-mail her at ldennis@tnc.org.

And we bid a final farewell to Carolyn Harstad,
who has been in the process of resigning as editor of INPAWS News since about two issues ago, but has generously stayed on until now, when we extend a

Welcome to Bobbi Diehl, new editor of INPAWS News.

Bobbi retired in 2002 after more than 25 years at Indiana University Press, most recently as Sponsoring Editor of Regional, Gardening, and Railroad books.
She collaborated with Carolyn Harstad on this issue, and now eagerly awaits your submissions of articles and other items of interest to INPAWS members for future issues. Please contact her:

Newsletter Editor Bobbi Diehl
3714 E. Brownridge Road
Bloomington, IN 47401
812-334-3543
diehlr@indiana.edu

Please watch for the spring 2004 issue of INPAWS News for more information about new committee chairmen, coming events, field trips, new website, and more !

INDIANA NATIVE PLANT
and Wildflower Society

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