



INDIANA NATIVE PLANT *and Wildflower Society*

Volume 6 Number 3 • Autumn 1999

NEWS

You are invited to the INPAWS

Sixth Annual Conference

Indiana Historical Society Headquarters

450 W. Ohio Street

Indianapolis, Indiana

Saturday, November 20, 1999

9 AM to 5 PM

Native Plants in the Garden and the Landscape

Speakers and workshop sessions will discuss native plants, their use in the garden, and their place in the natural habitat.



Dr. Richard W. Lighty keynote speaker

Scientist. Plant explorer. Teacher. Researcher. Dirt gardener. Mentor to a generation of horticultural leaders.

Dr. Lighty is recently retired as horticulturist for the Mount Cuba Center for the Study of Piedmont Flora, a 230-acre private estate of Mrs. Lamot du Pont Copeland in Greenville, Delaware. The focus of the Mount Cuba Center is on

increasing appreciation of native plants, partly by getting the best cultivars out to the public. Two of Dr. Lighty's that have been introduced into commerce are Aster 'Purple Dome' and Red-twig Dogwood 'Silver and Gold.'

For sixteen years he was director of the Longwood Graduate Program in Public Garden Administration at the University of Delaware. Some call his role in developing leadership in public horticulture his greatest contribution. He trained the people who

now run such noted institutions as Longwood Gardens, Morris Arboretum and Scott Arboretum at Swarthmore.

Dr. Lighty has been working on his own 3+ acre garden for almost four decades, changing it as his sense of what he wanted from a garden changed. Thus the appellation, dirt gardener.

Tentative Schedule on page 2

REGISTRATION

Pre-registration by mail: \$40, including box lunch;
Registration on the day: \$40, not including lunch.

You will soon receive your registration form in the mail. Please complete and return with your check, postmarked no later than **Friday, November 12, 1999**.

For more information please call Gil or Emily Daniels at 317-251-7343 or email gdaniels@inetdirect.net

Inside . . .

President's Message . . .	3
Smock Golf Course . . .	4
Germination of Five Echinacea Species . . .	6
Multiflorae	8
Botany 101	10
Indy Improvements . . .	11
Book Review	13
Membership Form . . .	14

TENTATIVE SCHEDULE

8:00 AM - 9:00 AM

Set-up for vendors and exhibitors

9:00 AM - 9:30 AM

Registration

9:30 AM - 9:35 AM

Welcome

9:35 AM - 10:20 AM

Kevin Tungesvick, Spence Nursery, *Exploring the Wildflowers of the Rockies—a comparison of the native flora of the montane and sub-montane forests of the Rocky Mountains with the natives of Indiana.*

10:35 AM - 11:20 AM

Keynote Speaker,
Dr. Richard W. Lighty,
New Natives for the Garden.

11:20 AM - 12:00 noon

Annual Meeting

Noon - 1:00 PM

Lunch

1:00 PM - 1:45 PM

First workshop session

• Dr. Rebecca Dolan, Director, Friesner Herbarium, Butler University, will discuss how scientists study rare plants for preservation purposes, and her work with Royal Catchfly (*Silene regia*).

• Carolyn Harstad, author and past president of INPAWS, *Gardening with Native Plants.*

• Ellen Jacquart, Director of Stewardship, The Nature Conservancy, *History of Land Conservation in Indiana*, and presentation of invasives pamphlet.

2:00 PM - 2:45 PM

Second workshop session

• Christine Brewster, Museums of Prophetstown, *Starting Native Plants from Seed.*

• Tom Swinford, Ecologist, DNR, Division of Nature Preserves, *Indiana Plant Communities and Habitats.*

• *Perspectives on Building Plant Communities.* Panel will offer their experiences recreating prairies, meadows, wetlands, woodlands, and oak savannas. Panel participants: Russ Boulding, Bob Rice, Eleanor Rosellini, Nancy Schmutzler, Jan Tellstrom.

3:00 PM - 4:00 PM

Roger Hedge, DNR, Division of Nature Preserves, Indiana Natural Heritage Data Center, *History of Natural Protection in Indiana.*

A. Description of Indiana landscape of the early 1800's.

B. History of natural area protection beginning in 1967.

C. How new areas to protect are identified and located.

D. Description of natural regions found in Indiana.

E. Perils facing native plant communities and how they are managed.

4:00 PM - 5:00 PM

Social Hour

Indiana Native Plant and Wildflower Society Newsletter

©Copyright 1999

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

Material may be reprinted with the permission of the editor.

We welcome opposing viewpoints.

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

e-mail pharstad@topaz.iupui.edu
arthop@hsonline.net
wilson@hsonline.net

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.

Officers 1998-1999

President rai38@aol.com
Ruth Ann Ingraham (317) 253-3863
Vice President
Kevin Tungesvick . . (765) 354-2775
Corresponding Secretary
Roger Hedge (317) 232-4052
Recording Secretary
Carolyn Bryson . . . (317) 873-4205
Treasurer
Jean Vietor (317) 823-1542

Newsletter Committee

Editor
Carolyn Harstad (317) 257-9452
pharstad@topaz.iupui.edu
Associate Editor
Art Hopkins (812) 372-2862
arthop@hsonline.net
Design/Layout/Production
Anne Wilson (812) 342-6838
wilson@hsonline.net

Committees

Advisor
Lee Casebere (317) 843-8379
Annual Meeting
Gil and Emily Daniels (317) 251-7343
Auction
Marilyn Spurgeon (317) 297-1326
Demonstration Gardens
Hilary Cox (317) 272-4938
Grants and Awards
Becky Dolan (317) 940-9413
Historian
Reta Rutledge (317) 784-2927
Membership
Katrina Vollmer (812) 988-0063
Native Plant Education
Jo Ellen Meyers Sharp (317) 251-3261
Newsletter
Carolyn Harstad (317) 257-9452
Programs/Field Trips
Kevin Tungesvick (765) 354-2775
Speakers Bureau
Colletta Kosiba (317) 852-5973
Special Projects
Rob Day (317) 253-9000
Muncie Chapter
Kevin Tungesvick (765) 354-2775
Past Presidents
Jeffrey Maddox
Carolyn Harstad

President's Message

by Ruth Ann Ingraham

When I was in school, I studied chemistry and astronomy. I did not take one class in biology or botany. When I look back six years, when INPAWS was a new organization and when my knowledge of native plants was limited to what I called spring wildflowers, I realize how uneducated I was about plants and plant communities. The meaning of terms such as the following were not clear to me: mesic, savannas, wetlands. Prairies, meadows. Grasses, sedges, rushes. Natives, alien invasives. Tall-grass, mixed-grass, short-grass prairies. Spring ephemerals. Forbs. Cultivars, hybrids. Genus, species, subspecies. Compositae, Orchidaceae, Campanulaceae, Asteraceae, Poaceae.

Now, after these wonderful years as a member of INPAWS, I know the meaning of those words and can even do a fair job of pronouncing a word such as *Asclepiadaceae* (and even think "milkweed.")

I'm so joyfully immersed in all this that not until I made a list of the native plants in a small portion of my front yard for a recent newspaper article did I discover that I have over two dozen natives in that area which measures only 20 feet by 20 feet.

Three days ago I returned from a two-week odyssey to Colorado and back. On the car seat next to me, when I pulled out of my driveway, was a cardboard box with maps and general guides. Also in that box were books about the Prairie. I included my all-time favorite book, *PrairyErth*, the record of author William Least Heat-Moon's study of Chase County, a sparsely populated tract of tall-grass prairie in the

Flint Hills of central Kansas. Others were *Tall Grass Prairie* by Nature Conservancy, *Prairie, The Land and Its People* by Mil Penner and Carol Schmidt, *Grasses* by Lauren Brown and *Plain Pictures-Images of the American Prairie* by Joni L. Kinsey. They were with me when I pulled into a filling station in Pawhuska, Oklahoma, to ask directions to the Prairie Preserve and when a paunchy local farmer dressed in overalls offered to lead me partway. "Just follow my pickup; I'm goin' that way."

The Tallgrass Prairie Preserve. The preserve encompasses 38,000 acres of grassland where bison roam again; the land and animals are now protected and managed by The Nature Conservancy. After 17 miles on mostly gravel road I found a docent couple from Tulsa at the Visitor's Center. They explained why the tall grass was so short—heat and drought. It grows slowly there, they said, and peaks later than in eastern prairies.

I understood the heat part. It was 4:30 PM and 105 degrees Fahrenheit when I started up a path winding through the grasses and forbs. I gulped down water, lathered my exposed skin with sunscreen, put on my straw hat and opened my umbrella, the one printed with huge images of deep green deciduous tree leaves. I walked a quarter mile up the path and wanted to turn onto the 1.5-mile loop trail. But I was alone and shocked by the heat. Reluctantly I returned to my car. The prairie was beautiful but not brilliant with color. Along the way a lone Prairie Rose grabbed my attention and Partridge Pea was abundant. Best of all was Prairie Rose

Gentian, *Sabatia campestris*, a five-petaled pink flower, new to me.

The next day I rolled across Kansas, once entirely prairie and now mostly cultivated or grazed by cattle. Huge feedlots abound along historic U.S. Highway 50.

Returning from Colorado I drove through Nebraska on a road north of and paralleling I-80. Most of my route took me through Sand Hills, a region which contains rich virgin grasslands and covers nearly a fourth of the state. The roadsides along the way were a mass of native plants.

The final stop on my odyssey was the Goose Lake Prairie State Park near Morris, Illinois. Here the prairie by mid-August was tall and thick and lush. Most of the grasses were in flower. *Asclepias* (milkweeds) were numerous; so were monarch butterflies.

So much has been lost; millions of acres plowed under, over-grazed, and/or developed. But the prairie remnants whisper to us about what the mid-section of our country was like a little more than a century ago; they quietly tell stories, even about parts of our own state of Indiana.

I believe that had the Indiana Native Plant and Wildflower Society not been formed, my life would be diminished. I would have missed contact with the enormous reservoir of knowledgeable people who are part of this flourishing group and who have shared their knowledge with me. My eyes and my mind have been opened onto a vast expanse of the natural world. I would have missed one of the most important and gratifying educational opportunities of my life.

Native Plants at Smock Golf Course

by Art Hopkins

Last July 18th, INPAWS members toured the extensive prairies and native-plant wetlands within Smock Golf Course in southern Marion County. These thriving native plant communities were all created with "imported" seeds and plugs. Due to years of intensive land use, there were few native plants surviving on site when restoration work began in 1995. That year, the head golf professional, Jan Tellstrom, bought seeds of 25 forb species and 5 grass species from Peter Schramm Prairie Restorations in Illinois. He has since added more seeds and plants from our own Spence Restoration Nursery in Muncie, Indiana. As a city property until recently, Smock Golf Course has also had encouragement and advice from Don Miller of Indianapolis Parks Department.

Actually, Jan told us, his original idea was not to restore prairies. He just wanted to "win some Brownie points" with his then-boss, a bluebird enthusiast. So he and his staff started putting up bluebird nest boxes around the property. He assumed the bluebirds would at least lift the spirits of duffers whose game was off. "When a golfer's playing really well, that person's having a great time already,"

explains Jan, "but most of the time, most of us aren't playing really great, and that's when things like this can improve the golfing experience."

Bluebird nest boxes and bird feeders led logically to that first, 2.8-acre prairie installation as a source of food, cover, and shelter for many bird species. Soon, Jan and his staff were themselves drawn in by the native plants' human allures: beauty, seasonal variety, reduced maintenance, and especially reduced mowing on difficult and hazardous slopes and wet places.

Today, five of the 95 acres of "rough" alongside the fairways are in prairie, and this will be expanded. Meanwhile, the bird population on site has greatly expanded, maybe even tripled, over the last five years, and Smock Golf Course is now an Audubon Cooperative Sanctuary.

It has been a learning experience. The first mistake along the way was to till the intended prairie areas too

much and too deeply, thus bringing up lots of dormant weed seeds to the soil surface. When the prairie seedlings emerged, with help from lots of irrigation that first year, so did the competition. Annual burning, usually in March, has helped the native plants to gain the upper hand. Prairie plants' deep roots and subterranean crowns co-evolved with periodic fire and thrive on it, unlike the exotic weed species.

Nevertheless, there's still a lot of weeding to do, particularly of thistles and prickly wild lettuce. The latter, though it is a bona fide native plant and thus of interest to the INPAWS, is, shall we say, short on mass appeal. It enhances neither the golfing experience nor the golf course maintenance experience. A

narrow, dull-green spire up to 15 feet tall, its nondescript flowers release fluffy seeds that float all over, sowing prickly wild lettuce onto fairways and greens. Hand-pulling of weeds hasn't kept up, so Jan is experimenting with various Roundup application techniques.

On the other hand, Jan has many favorite native plants. One is wild quinine,



Cup Plant
(*Silphium perfoliatum*)



Wild Quinine
(*Parthenium integrifolium*)

Parthenium integrifolium, which grows three to four feet tall and blooms for a month or more. Even after its pure white flowers are spent, the mature seeds look white, so the ornamental value goes on. Also, there's cup plant, *Silphium perfoliatum*, so named for the shape of its leaves, which hold water after a rain. The specific epithet, *perfoliatum*, refers to the fact that each pair of opposite leaves appears to be joined into one big leaf, pierced through the middle by the plant's rising stem. The leaf "cups" are a drinking fountain for birds, and its meaty seeds, like sunflower seeds, are a food source.

Within a fairly compact area, visitors to Smock can view a great variety of native plants, growing in healthy communities, truly a beautiful sight.

INPAWS member Don Miller has restored and/or recreated quite a few native prairies as the native-plant expert for the Indianapolis Parks System. Looking at one of Smock Golf Course's prairies, Don said quietly, "Jan's prairie is packed with a dense stand of wildflowers and grasses—the most impressive stand of introduced prairie I've seen."

If you go, don't miss the whimsical and amazingly detailed chainsaw treestump sculptures created by Brian Ruth, a relative of the Babe's.

Art Hopkins is associate editor of this newsletter, a landscape architect, and lives in Columbus.

An Innovative Bluebird Nest Box

Over the years, the Smock staff have tried several designs for bluebird nest boxes. The best they have found, both for bluebird reproductive success and defense against predators, is also

one of the simplest. It can be easily made from

materials available at any building-supply store: 4" PVC pipe, rebar, conduit, and wood. Put a thick layer of wood shavings in the bottom of

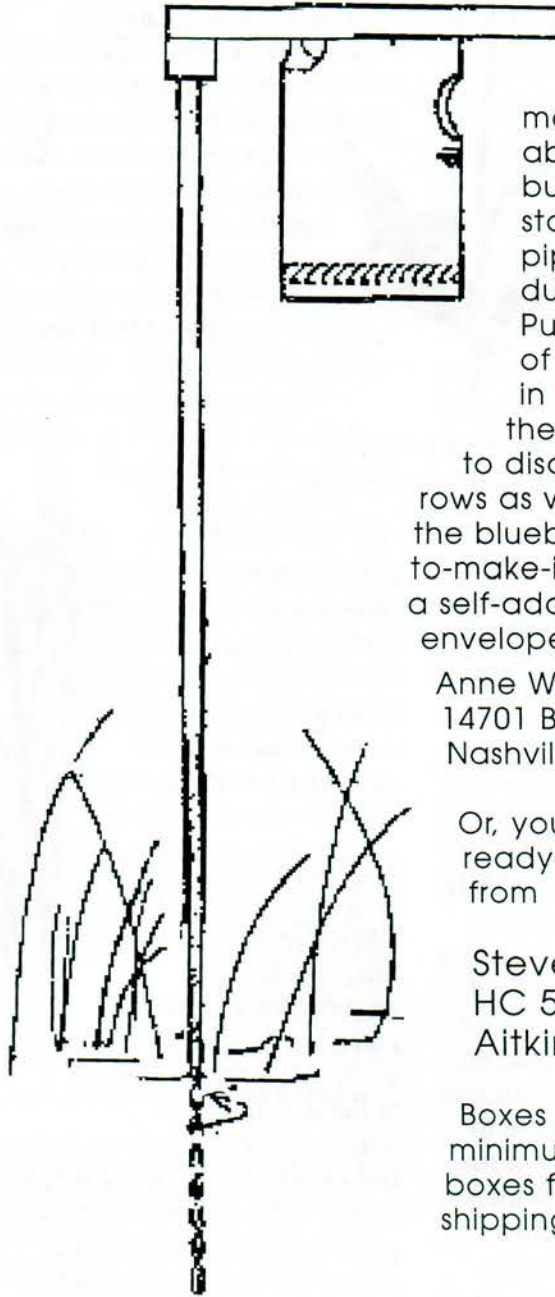
the box; this seems to discourage sparrows as well as to help the bluebirds. For a how-to-make-it drawing, send a self-addressed stamped envelope to

Anne Wilson
14701 Bellsville Road
Nashville, IN 47448

Or, you can buy ready-made boxes from

Steve Gilbertson
HC 5 Box 31
Aitkin, MN 56431

Boxes are \$10 each - minimum order: two boxes for \$20 (including shipping)



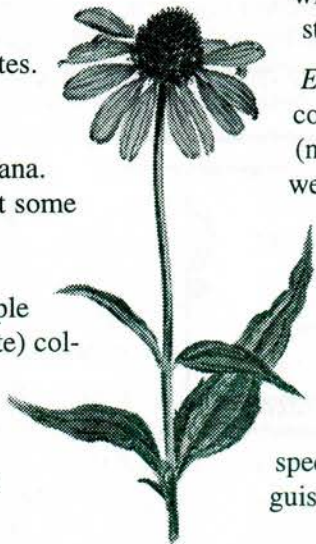
Germination of Five Echinacea Species

by Kelly Wampler and Paul Hammond

Purple cone flowers belong to the North American genus *Echinacea*. There are nine species native to the Midwestern and Eastern United States. It is questionable whether some are truly native to Indiana. Deam suggests that some populations are escapees. All are perennial with purple to rose (rarely white) colored blossoms. Cone flowers bloom in late spring through early fall, depending on species and cultivation practice.

Butterflies and bees are attracted to their large 2 to 4-inch blossoms. *Echinacea purpurea* is considered to be one of the top 10 butterfly nectar plants.

The most well known is *E. purpurea* although its native range is not the most extensive. Native to the Southern and Midwestern United States, *E. purpurea* typically occurs in prairies, savannas, and along forest edges. It has a branched flowering habit with serrated teeth on its leaf margins. *Purpurea* is the most widely grown ornamental. Its ease of germination and fibrous root system make it more adaptable to container culture than many of the other species. *E. purpurea* is used as a fresh-cut flower and the dried cones are used in floral arrangements. Seed is also available in bulk



Purple Cone Flower
(*Echinacea purpurea*)

from prairie restoration and native seed sources. Plants are fairly fast growing, and many of the cultivars will bloom the first year if started early.

Echinacea pallida (pale purple cone flower) and *E. angustifolia* (narrow leaved) are more western species. *Angustifolia* grows in the open prairies of the plains states and southern Manitoba. *Pallida* occurs in the tall-grass prairie region from northern Texas to eastern Illinois.

Sometimes these two species are difficult to distinguish. *Pallida* has white pollen and tends to

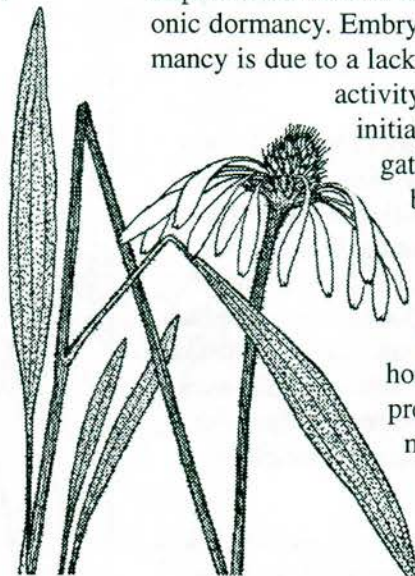
have drooping petals. Narrow

cone flowers tend to have shorter petals held parallel to the ground. Both are strongly tap-rooted making them more difficult to establish and transplant out of containers.

The Plains Indians used these two species for treating snake bites. In fact, *pallida*, *angustifolia*, and *purpurea* are used extensively as medicinal plants in Europe. Touted as immune system enhancers, they are commonly used as herbal supplements. Cultivation for medicinal purposes has begun in Egypt, China, and many other countries.

The narrow endemic species tend to occur in the southern or central United States in glades, remnant prairies, and pine openings. Reflexed cone flower (*E. atrorubens*) is native to the prairies of Oklahoma and Kansas. *Paradoxa* (Bush's cone flower) is found primarily in northern Arkansas and Missouri. Bush's cone flower usually has yellow blossoms although there is a sub-species which has the more familiar rose-colored flowers.

Echinacea seeds tend not to germinate immediately when placed in an environment that would normally allow for germination. Seed dormancy can either be due to an impermeable seed coat or embryonic dormancy. Embryonic dormancy is due to a lack of enzyme activity needed to initiate cell elongation. This can be broken chemically with potassium nitrate, ethylene, hormones, or pre-chilling moist seeds.



Pale Purple Cone Flower
(*Echinacea pallida*)

Experiments designed to maximize germination and reduce total time for germination

have been done with *purpurea* and *angustifolia*, and to a lesser degree *pallida*. Both scarification (breaking the seed coat dormancy)

and stratification (breaking the embryo dormancy) have been investigated.

Conclusions vary depending on the source. In most reports, there appears to be little

benefit in mechanically nicking the seed coat. In general, stratification improves total germination and uniformity of germination. Some species may require up to three months of chilling.

Purpurea has conflicting reports. There have been studies suggesting a period of stratification, but other studies found stratification did not improve germination.

We have undertaken a preliminary experiment testing different lengths of cold moist stratification (chilling) on *E. purpurea*, *E. paradoxa*, *E. angustifolia*, *E. atrorubens*, and *E. pallida*. Seeds were sown without fungicide on sterile silica sand in petri dishes and subjected to 0, 2, 4, or 6 weeks of chilling at roughly 4 degrees C.



Narrow-Leaved Cone Flower
(*Echinacea angustifolia*)

After the chilling period seeds were moved to 20 degrees C dark conditions. Seeds were considered germinated if a healthy radicle emerged. Petri dishes were examined for three weeks while under warm conditions.

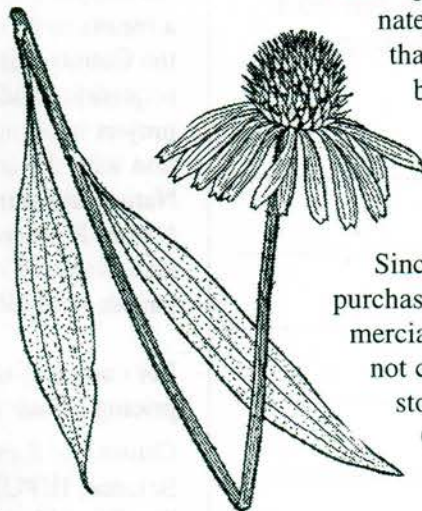
Our findings support the view that *purpurea* does not need a chilling treatment, although it is not detrimental.

Over 80% of the *purpurea* seed germinated for each treatment of pre-chilling. Surprisingly, *E. angustifolia* germinated constantly at around 30% regardless of treatment. The other three species all germinated poorly (less than 15%). Seed viability was estimated as high because of lack of rotting and fungus infection.

Since the seed was purchased from a commercial source, we are not certain of initial storage conditions.

Our findings suggest increasing embryonic dormancy in the following order: *purpurea* to *angustifolia*, then

atrorubens/paradoxa, and *pallida*. Stratification of greater than six weeks appears necessary for germination in the last three species.



Bush's Cone Flower
(*Echinacea paradoxa*)

Bibliography

Armitage, A. 1993. "Specialty Cut Flowers." Varsity Press/Timber Press.

Burton, L.C., Littlejohn, R.P., Parmenter, G.A. 1996. "Chilling Requirement of Commercial *Echinacea* Seed." New Zealand Journal of Crop and Horticulture Science 24:109-114.

Feghahati, S.M., Reese, R. 1994. "Ethylene-, Light-, and Pre-chill-enhanced Germination of *Echinacea angustifolia* seeds." Journal of the American Society for Horticulture Science.

Foster, S. 1991. "*Echinacea*-Nature's Immune Enhancer." Healing Arts Press.

Stokes D, Stokes L, and E. Williams. 1991. "The Butterfly Book: An Easy Guide to Butterfly Gardening, Identification, and Behavior." Little, Brown and Company.

Acknowledgements:

The authors would like to thank Elaine Schamber and Professor Nees for proof reading and technical support, respectively.

Kelly Wampler is an undergraduate student at Purdue University.

Paul Hammond is a graduate student also at Purdue.

M U L T I F L O R A E

The INPAWS Nominating Committee is pleased to present the following slate of candidates for 2000-2001. Voting will be at the annual meeting, November 20, 1999.

President Carolyn Bryson
Vice President Ken Collins
Corresponding Secretary Roger Hedge
Recording Secretary Jean Roberts
Treasurer Clare Oskay

Nominating Committee:
Margo Jaqua, Chairman
Bill Brink, Carolyn Harstad, Don Miller

Are you moving? Will you be away for a while?

We don't want you to miss a single issue of the newsletter. So if you have a change of address, or will be away only temporarily, please fill in the form below.

NAME _____

ADDRESS CHANGE _____

CITY CHANGE _____

STATE AND ZIP CHANGE _____

AWAY STARTING DATE _____

RETURN STARTING DATE _____

Mail this form to:
Katrina Vollmer
3134 Greenbriar Lane
Nashville, IN 47448
or email information to: katrinajo@iquest.net.

A Look Into the Past

Have you ever wondered what Marion County might have looked like before there were interstates and skyscrapers? Well, thanks to IUPUI's Center for Earth and Environmental Science (CEES) we can now take a peek into the past. The CEES has produced a report for Indy Parks entitled *Changes in Marion County's Natural Environment Between the Time of European Settlement, ca.1820, and the Present, 1997*. This report compares witness tree data from the General Land Office Survey of Marion County (1820-1822) and 1911 Soils Data with what can be identified from 1997 infrared satellite imagery and other current information. One of the primary goals of this project is "to provide the Indianapolis Parks Department with a means to identify natural areas in the County with the potential for acquisition and restoration." This project was completed in cooperation with the Indiana Department of Natural Resources, Division of Nature Preserves. The information is also available in digital format, compatible with GIS software.

For copies of this report and current pricing please contact:

Center For Earth and Environmental Science, IUPUI
723 West Michigan Street
Indianapolis, Indiana
317-274-7154

If you have any questions, please contact Don Miller or Wendy Smith, Indy Parks Land Stewardship, 317-327-7416.

*Indiana's First Lady
Judy O'Bannon*

hosted a reception and book signing for Carolyn Harstad's *Go Native!* at the Governor's Residence on Friday, September 24.

She and Carolyn led the guests in planting a variety of woodland native plants donated by Spence Nursery, as well as several Indian Pinks donated by Mark Holeman, in the woodland area at the back of the residence. Judy O'Bannon told of her work with the DOT to encourage the planting of native plants along Indiana roadways.

Carolyn addressed the group, encouraging Judy and the guests to talk to their legislators to try to get the peony replaced with a native plant. She said "Indiana is blessed with a diversity of beautiful native plants. A couple of years ago, the Indiana Academy of Science asked a panel of experts to select about a dozen of these natives as a possible replacements for our current state flower, the peony (which comes from China). Posters and information were distributed to all of the fourth grade classes in Indiana. The children learned about these beautiful natives, each child voted, and collectively the fourth graders of Indiana chose the Fire Pink (*Silene virginica*) to be our new state flower. This small perennial has beautiful bright red flowers with notched petals. It often grows at the edges of woodlands and even on rocky hillsides and is found in all parts of Indiana. We all know that the peony is lovely plant but why should we want our Indiana state flower to come from China? It is time for Indiana to *Go Native!*"

Go Native!

I have decided that it is time to reevaluate my gardening design and execute a major change. Why? This summer, I was gone for over a month. The drought wreaked havoc on my poor (exotic) hostas which lay pathetically on the ground when I arrived home at the end of August. In contrast, the native plants stood straight and tall, blooming gaily. Even the maidenhair ferns were unaffected by the drought. That did it. I decided it was time to follow my own advice and "Go Native!"

My spring garden has always been lush with Wild Geranium, Celandine Poppy, Jacob's Ladder, Trillium, Bloodroot, Mayapples, Twinleaf and Hepatica, as well as most of the spring ephemerals native to Indiana. Once spring fades into summer, my woodland gardens are filled with hostas and companion plants. But now it is time to replace this multitude of hostas with a multitude of native plants. So next year my dainty spring wildflowers will be followed by beautifully boisterous natives like Purple Coneflower, Black-eyed Susans, Great Blue Lobelia, Cardinal Flower, Pink Turtlehead, Bottle Gentian, Indian Pinks, lots of native ferns, and even some species of Goldenrod. These natives have been thriving in a small space in my shady woodland garden and have grown tall and strong. Now it is time to give them more room—in fact to give them center stage. Move over, hostas! It is time to *Go Native!*

Carolyn Harstad



NATURE WALKS AT
BUTLER UNIVERSITY

Join Dr. Rebecca Dolan for nature walks on the **second Tuesday** of each month at noon:

November 9

A Walk in the Butler Woods

December 14

Evergreens on Campus

Meet behind Gallahue Hall on the Butler University campus near the greenhouse. Walks will last about 45 minutes. There is no charge and all are welcome.

If you would like to receive a monthly reminder of the walk, or wish to be dropped from the reminder list, please call Dr. Dolan at 317-940-9413, or email rdolan@butler.edu.

www.inpaws.org

Visit our website for news and information about INPAWS and native plant issues, as well as links to a wealth of like-minded organizations.

We would like to update our site with **your** news, information, comments, ideas, opinions, suggestions. In short, anything of interest to all concerned with preserving native plants and their habitats.

**Please email Anne Wilson
wilson@hsonline.net**

Anatomy of a Seed

by Dr. Rebecca Dolan

Consider the seed a life-support “pod” for a tiny plant. The “pod” is designed to carry the infant from cozy mother plant out to colonize a cold cruel world full of herbivores and extremes of environment. These “pods” have been designed by nature to ensure survival for a few weeks or months up to hundreds of years, depending on the species.



Dicot
Phaseolus
Bean

Let’s look at a longitudinal section of a generalized seed to see how it helps the embryo survive and establish. The tiny young plant can be seen as a “y”-shaped embryo in the center of the seed. The arms of the “y” are the young stem with the first leaves, called cotyledons or seed leaves. The bottom of the “y” will develop into the root.



Conifer
Pinus
Pine

Surrounding the embryo is endosperm tissue that provides nutrients to the embryo while it is dormant and, more importantly, while it is germinating but before it can photosynthesize on its own. Endosperm is often composed largely of starch, a form in which energy is stored in plants. As needed, this starch is broken down into sugar that is transported to the embryo.



Monocot
Zea
Corn

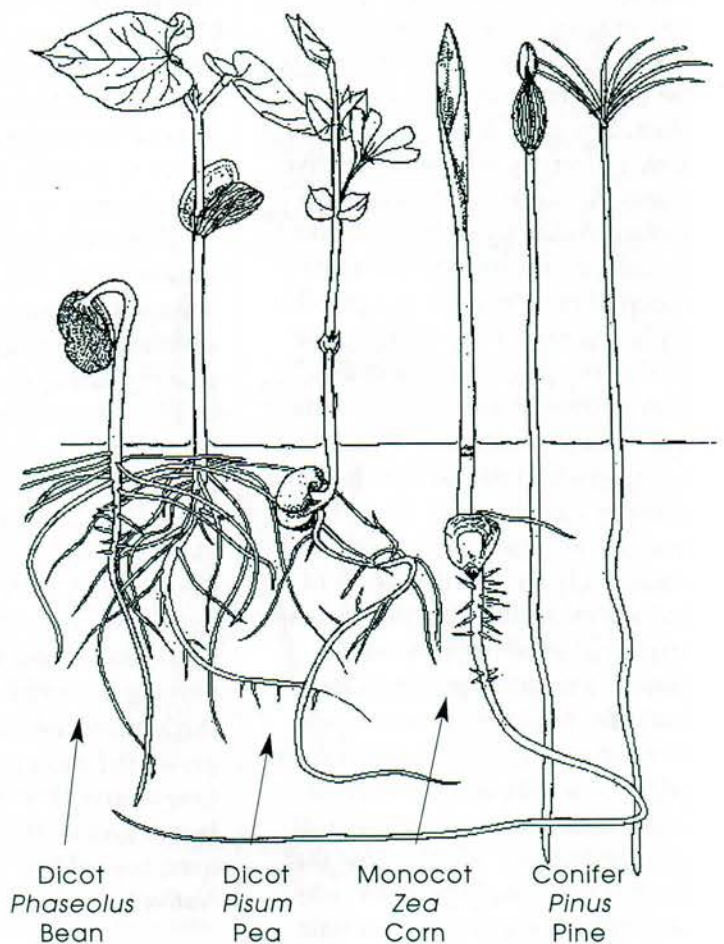
On the outside of the seed is an important protective layer called the seed coat. It is derived from tissue that was part of the seed mother’s ovary. Some species’ seed coats are thick and waterproof to protect the seed until it has landed in an appropriate habitat in which to germinate. When we scarify seeds, we mechanically wear away the seed coat to promote germination on the schedule we want.

Many seeds also have specialized additional parts that aid in dispersal, such as hairs, wings or tasty berries that encourage animals to carry seeds away from their mothers via a ride through the animal’s digestive tract (germination in some species is enhanced by this process). Also, seeds are often clustered into many-seeded fruits. There are even some species, whose fruits

ripen in time for the fall migration of birds, which “advertise” their seeds by means of brightly colored foliage.

Becky Dolan is Director of the Friesner Herbarium at Butler University and an INPAWS member.

Illustrations by Jan Glimn Lacy, botanical illustrator and member of INPAWS.



Cotyledons in different plants. Some stay below ground.

Indianapolis Improvements Include Native Plants

by Don Miller

You find a magic lamp and the Genie grants you three wishes. What would they be? Of course, being a devoted INPAWS member you request a magic wand that restores plant communities—or perhaps entire ecosystems. Having this kind of magic would definitely frighten your neighbors. Without magic, and armed only with crude tools, settlers managed to remove 257,000 acres of forest and wetlands of Marion County in less than 200 years. Perhaps the real magic comes with a natural system that continues to create and sustain life despite the human impacts.

Educational programs have made many people aware of some of the environmental problems that impact natural systems. Pollution is just one of the human signs that indicate we are not living successfully within the natural world. Author D. Orr states, “When human artifacts and systems are well designed, they are in harmony with the ecological patterns in which they are embedded. When poorly designed, they undermine those larger patterns, creating pollution, higher costs, and social stress.” Although modern society is a long way from implementing sustainable living habits and eco-friendly cities, progress is being made.

Native vegetation has become part of the cities’ control plans to improve water quality. A 42-acre engineered wetland is being built to incorporate 70,000 wetland plants and 14 acres of seeded wet-mesic prairie species. The wetland is designed to improve floodplain storage and treat polluted waters on Pogue’s Run waterway. Another project is planned to build an engineered wetland to filter runoff from

the Indiana State Fair Grounds before it enters Fall Creek waterway.

City-staffed watershed teams are meeting on a monthly basis to coordinate projects and issues that affect water quality. Native vegetation is a major component of projects being currently planned. The discussion items include wastewater recycling systems, eco-swales (broad ditches packed with natives), habitat restoration, and tree planting to increase groundwater recharge, to filter water and slow stormwater runoff. Native plants will be used in conjunction with a variety of hard structures to reduce pollution entering our waterways. These clean water initiatives dovetail into Indy Parks native plant programs to educate, beautify, and provide wildlife habitat.

Indy Parks began to use native plants to increase the naturalness of parks and Greenways five years ago. The small native demonstration plantings now total 55 acres of seeded area and about 75,000 native plants installed. A local restoration nursery provided the majority of the local-genotype plant material and services necessary to make sure the right plant communities were chosen for each location. Plant types used were wet to mesic prairie varieties, savanna compositions, and woodland varieties. Native species were also planted in ornamental situations around park signs, schools and along the linear Greenways. The small demonstration areas are providing the local examples needed to promote the benefits of native plants.

The goal now is to create a large-scale process to introduce and sustain native vegetation. For the goal

to become reality, vendors and city staff will need to become knowledgeable about how to maintain the native plantings. Mowing and careful use of herbicide will be important tools necessary in managing urban areas that are plagued with invasive and non-native weeds. Invasive weeds are thought to be both the short and long-term challenge. Another challenge will be training and quality control as mowing crews learn to be gardeners. Native landscapes and gardens will not survive the complaints from citizens if the plantings look like they are weedy and not being maintained. The parkways and linear routes along Indy Parks Greenways will most likely be the first areas to be considered for the conversion since these often buffer waterways.

Indy Parks wishes to thank all of you working to educate about the importance of native plants. By our observation, the interest in native plants has increased tremendously over the last five years. Federal regulations stemming from the Clean Water Act also influence the use of native plants as a means to clean up pollution. Indy Parks and other city departments hope to coordinate native plant initiatives that turn into large-scale native plantings within the next 2 years. However, native plant installation projects receive a lower priority than programs to acquire and preserve high-quality natural areas. We cannot really restore the ecosystems that natural processes took eons to create. For that, we would need a magic wand!

Don Miller is the Land Stewardship Coordinator for Indy Parks, a member of INPAWS, and a regular contributor to this newsletter.

Twelfth Annual *Celebration of Nature*

Saturday and Sunday,
December 4th and 5th, and
December 11th and 12th.
10 AM to 4 PM
Eagle Creek Park's Lilly Lodge.

The exhibit features art forms from a variety of media depicting the natural world of flowers, animals and birds. Each year carvers, sculptors, photographers, painters, and weavers gather to display their personal response to the wonders of nature.

This is a statewide exhibit featuring both the better known and newer faces in the art world.

The event is sponsored by the Eagle Creek Park Foundation as part of an ongoing expression of their interest and concern for the natural world. This year the artwork will be available for purchase—a timely opportunity for a good gift idea for the holiday season. Many of the artists will be present to talk with the visitors about their work. The event will be free and open to the public. There is a park admission fee.

For more information, call
(317) 327-7148.

Carolyn Harstad's
wildflower photographs
are on exhibit (and for sale)
at the Indiana Historical
Society's new gift shop, *The
History Market*. The exhibit
will hang from September
13 to October 31. The
Indiana Historical Society is
free and open to the public
Tuesday through Sunday
(closed Monday). For more
information, call 317-232-
1882.

Devoe and Potter Nature Photography Exhibit

On Saturday and Sunday, October 23 and 24, Mavis DeVoe and Tom Potter will exhibit new and recent photographs of natural history. The all-color exhibit will feature wildflowers, scenics, birds, mammals, and the human experience in the natural world.

Mavis DeVoe has recently achieved renown for her award-winning photography featuring wildflowers from across the United States. She has had a number of one-person exhibits around the Central Indiana area in the past year. Mavis has been featured in the Indianapolis Star and other local area news media.

Tom Potter has been teaching nature photography and leading natural history tours for both nature study and photography since 1984. He does archival photographic printing for a number of local photographers. Although Tom's images have been published in a variety of national publications over the years, he prefers to use his work for teaching and multi-media productions. Tom also chairs the annual Nature Photography Contest and Celebration of Nature at Eagle Creek Park.

Their exhibit will be displayed from 10 AM to 4 PM on Saturday and Sunday at the Lilly Lodge next to the Nature Center at Eagle Creek Park. The exhibit is free and open to the public. There is a park entrance fee. For more information, call the Nature Center at (317) 327-7148.



Annual Nature Photography Contest and Exhibit

The annual Nature Photography Contest sponsored by the Eagle Creek Park Nature Center will be open for public viewing on Saturday and Sunday November 6th and 7th. Photographic works in black and white and color by photographers from around the state will be displayed from 10 AM to 4 PM.

Each year over sixty photographers enter their work for this competition. A wide variety of subject matter is included. Many of these photographers are winners at the annual state fair competition. The entries are judged on technical excellence, composition, artistic merit, and overall impact. A Best-of-Show in black and white and color is also awarded. The Judges for this exhibit are Tom Potter and Gary Potts, who are both award-winning photographers in their own right.

The display of the contest, hung as an exhibit, is free and open to the public. There is a park admission fee.

For more information, call the Nature Center at Eagle Creek Park at (317) 327-7148.

A lovely wine and cheese reception/booksigning was held for Carolyn Harstad's book *Go Native! Gardening with Native Plants in the Lower Midwest*, at the Indianapolis Art Center, in Broad Ripple, on Friday, September 17. Thanks to Marilyn Spurgeon, who chaired the event.

Before Hoosiers, There Were Fine Plants Here

by JoEllen Meyers Sharp

Some of the best plants for today's gardens have been rooted in the Midwest landscape for hundreds of years.

These plants have survived and thrived regardless of their environment to scent the air and provide food and medicine for American Indians, settlers and residents today.

Some of the plants are familiar, such as purple coneflower, while others, like rattlesnake master, are less well known. What they have in common, however, is that they are native.

"Native plants are defined as those that have grown in a particular area since before the settlers arrived," says Carolyn Harstad, author of *GoNative! Gardening with Native Plants and Wildflowers in the Lower Midwest*, published last month by Indiana University Press (\$35 hardback, \$24.95 paperback).

The lower Midwest is Indiana, Ohio, Illinois, Missouri, Kentucky, the southern parts of Iowa, Michigan and Wisconsin and the northern part of Tennessee, frequently referred to as the Zombie

Zones because of the extreme temperatures.

Harstad shares many of her experiences with native plants and wildflowers, from growing them to hiking through countrysides to view them. Her approach is warm and inviting. The book includes interesting historical tidbits on various plants and practices throughout time. It is easy to read and should be of interest to beginner or experienced gardeners.

As with any good garden book, *Go Native!* covers the basics, from building the soil to planning the landscape. More unusual is a chapter about protecting the landscape when building a new home.

Chapters cover trees, shrubs, vines, ground covers and ferns. Others discuss prairie and meadow plantings, plants for wet areas, woodland gardens and attracting wildlife, birds and butterflies. Chapters list recommended plants and why they are good additions to the Midwest landscape.

Harstad also warns gardeners about invasive exotic plants—those brought

from outside the Midwest or other lands—that can take over natural areas and native plantings. The chapter lists the six worst offenders (garlic mustard, amur honeysuckle, multiflora rose, purple loosestrife, glossy buckthorn and autumn olive) and how to get rid of them.

Harstad, a founder of the Indiana Native Plant and Wildflower Society, is not a native plant snob. She has a great love of hostas and many other plants from exotic lands. However, she says she's come to appreciate the glories of native plants and thinks most gardens would benefit from using them.

Go Native! is a must for the Hoosier gardener and is likely to be at the top of the list for the upcoming gift-giving season.

JoEllen Meyers Sharp is gardening columnist for the Indianapolis Star and the Education Committee Chairwoman of INPAWS.

This review was first printed in the Indianapolis Star, Sunday, October 3, 1999, p. J10.

Order an autographed copy of *Go Native!* by sending a check made payable to INPAWS, for \$24.95, paperback, or \$35, hardcover, plus \$4 postage and handling to

INPAWS
5952 Lieber Road
Indianapolis, IN 46228

Questions?
Call 317-257-9452.

There will be a booksigning for *Go Native!* at the **Little Professor Bookstore** in Fort Wayne on Saturday, October 23, from 1:30 to 3:00 PM.

The West Lafayette chapter of INPAWS is also sponsoring a booksigning for Carolyn on Sunday, November 7, from 1:00 to 5:00 PM at the **Little Professor Book Company** in West Lafayette.

And of course, INPAWS will be selling *Go Native!* at the Annual Fall Conference on November 20.

See the September issue of Indianapolis Monthly for an article about Carolyn's book.



INDIANA NATIVE PLANT
and Wildflower Society

MEMBERSHIP APPLICATION/RENEWAL

Annual dues pertain to the fiscal year January 1 - December 31. Dues paid after September 1 are applied to the following fiscal year.

Student \$10 Individual \$18 Family \$25 Patron \$100 Sponsor \$250 Corporate \$500
 Supporter (Additional Donation) \$ _____ Total Enclosed \$ _____

NAME _____ TELEPHONE _____
 ADDRESS _____ EMAIL/FAX _____
 CITY _____ STATE _____ ZIP _____
 COUNTY _____ NEW RENEWAL

How did you hear about INPAWS?

10/99

GIFTS DO HELP. INPAWS donors at the *Supporter, Patron, Sponsor* and *Corporate* levels will receive special recognition. All donations above *Student, Individual* and *Family* dues are most appreciated and can aid our mission. Donations are tax-deductible to the extent provided by law.

Please complete this form (or photocopy first) and mail, along with your check made payable to:

Indiana Native Plant and Wildflower Society, or INPAWS
 c/o Katrina Vollmer
 3134 Greenbriar Lane
 Nashville, IN 47448

I would like information on these committees:

- | | | |
|--|--|--|
| <input type="checkbox"/> Annual Meeting | <input type="checkbox"/> Hospitality | <input type="checkbox"/> Programs/
Field Trips |
| <input type="checkbox"/> Auction | <input type="checkbox"/> Membership | <input type="checkbox"/> Publications |
| <input type="checkbox"/> Conservation | <input type="checkbox"/> Native Plant
Education | <input type="checkbox"/> Publicity |
| <input type="checkbox"/> Demo Gardens | <input type="checkbox"/> Native Plant
Rescue | <input type="checkbox"/> Speakers
Bureau |
| <input type="checkbox"/> Fund Raising | <input type="checkbox"/> Grants & Awards | <input type="checkbox"/> Special
Projects |
| <input type="checkbox"/> Grants & Awards | <input type="checkbox"/> Newsletter | <input type="checkbox"/> Volunteers
Coordinator |
| <input type="checkbox"/> Historian | | |
| <input type="checkbox"/> Other | | |



INDIANA NATIVE PLANT
and Wildflower Society

3134 Greenbriar Lane
 Nashville, IN 47448

Non-Profit
 Organization
 U.S. Postage
 PAID
 Indianapolis, IN
 Permit No. 9892

Address Correction Requested