INDIANA NATIVE PLANT
and Wildflower Society

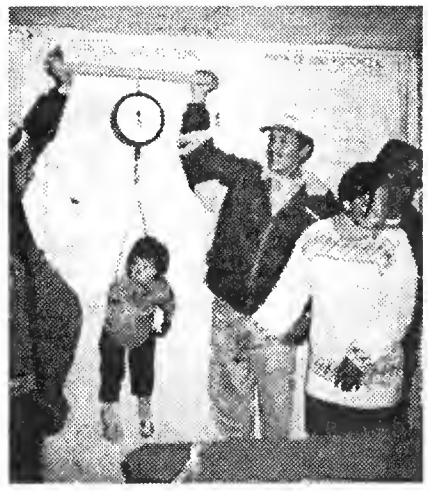
Volume 9 Number 1 • Spring 2002

NEWS

Population and Environment: Making the Link

by Karin M. Krchnak

In 1999, world population reached 6 billion, and if current rates continue, human population could reach 13 billion by the middle of this century. Population growth and ever-increasing consumption rates are causing severe deforestation, habitat fragmentation, water scarcity, loss of biodiversity, and pollution, including emissions believed to cause climate change. The world is in the midst of a mass extinction unlike any since the extinction of the dinosaurs 65 million years ago. Extinction rates are currently estimated to be 100 to 1,000 times greater than normal; indeed, scientists estimate that 2/3 of all species may disappear by the end of this century.



Voluntary promoters in the Pasguaso community show how they help parents measure their children.

With rapid population growth and increased consumption in Industrialized countries, one-third to one-half of Earth's land surface has been transformed, and 50% of the original forest cover has been cleared. Half of the world's wetlands were lost in the 20th century.

No one is certain how many people the Earth can sustain. There are many factors that enter into that equation, including land use practices and consumption levels. However, the planet has finite resources that need to be shared by an unprecedented number of humans.

While population growth is a driving force behind a number of the world's problems, water quality and water quantity may be the most critical. Water is the most precious resource as there is no more freshwater on the Earth today than there was 2,000 years ago. Yet, in the last 70 years, human population has tripled and human freshwater consumption has increased sixfold. Currently, humans use over half of all available freshwater. If consumption per person remains steady, by 2025 we could be using 70% of the total because of population growth alone. If per capita consumption everywhere reaches the level of developed countries, we could be using 90% of available water each year.

More than 90% of the world's population growth is occurring in the developing world. In these countries, the impact of population on the environment is linked as both cause and effect to a complex of other problems such as poverty, inadequate health care and education, a declining natural resource base, and a highly degraded environment.

We know that human population growth will continue in the coming decades. There is strong evidence, however, that assistance for

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women's and girl's health, education, and reproductive services under international family planning programs helps lower fertility rates and slow population growth. The United States made a commitment at the 1994 International Conference on Population and Development (ICPD) in Cairo to provide development assistance to help make family planning universally available by 2015. Regrettably, the U.S. Has consistently fallen far short of meeting this commitment, ranking last among industrialized countries. In addition, the current Administration may try to zero out funding for the United Nations Population Fund (UNFPA) which provides such critical services as educational materials for families, training for clinical and community health care providers, girls' education, and supplies such as contraceptives and sterile birthing kits.

The National Wildlife Federation supports full and unrestricted international family planning assistance because it is a common sense way to slow population growth and promote healthy families and a healthy environment. Slowing population growth would give the ecosystems that sustain all life a chance to adapt and replenish themselves.

The World Conference on Sustainable Development, to be held in August-September 2002 in South Africa, will address the complex issues facing all of us this century. NWF and others will be in South Africa to urge World leaders to take concrete steps and develop action agendas. High-consumption industrial countries, and high-birth-rate developing countries, are in this together. We invite everyone to get involved so that the healing power of nature will remain strong for generations to come.

For more information, please visit www.nwf.org/population/ or email krchank@nwf.org.

Karin M. Krchnak is Program Manager for the Population & Environment Program with the National Wildlife Federation. As an environmental lawyer, Ms. Krchnak has worked to improve policies and procedures related to environmental management and resource conser-

The Newsletter of the
Indiana Native Plant and Wildflower Society

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.

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

In his book *Consilience*, E. O. Wilson discusses how the human brain developed to produce among other things "language and its symbol-based product, culture. The result," he says, "was the capacity to take possession of the planet." This occurred "to the grief of most preexisting life forms." (p.98)

We humans now directly or indirectly affect the entire planet with our actions. Although I live in Zionsville, Indiana, because of the global economy, the choices I make affect ecosystems and people in Brazil (where my coffee was grown), China (where the blouse I am wearing was manufactured), France (where the brie I'm serving for an appetizer tonight was processed), France (the source of the accompanying wine) and England (where my dinner china was produced). Industrial toxins have been found in the breast milk of women in some of the remotest, least industrial places on Earth and in Arctic ice.

Most people are either ignorant of or chose to ignore the impacts their actions have on the local and global environment. However, we who care for the earth must consider all of our actions in the context of their global effect. Knowing that four thousand plant species are in danger of extinction in this country alone is a wake up call. If these plants are not to be lost to all but memory, we must develop a land ethic. We all live by our own moral code, usually limited to our immediate environment: the people and places with which we come into direct contact. The challenge is to expand the application of that moral code to evaluate the global impact of all our actions. What did it take to get my shoes on the shelf of the local department store? What effect does my choice of transportation have on the air quality in my county? What is happening to the ground water when I apply fertilizer to my lawn? Although the prospect of adopting a land ethic to guide our actions may on first consideration seem daunting, we must never underestimate the power one individual can have to affect change.

Opportunities are as close as our own backyards and the highways that carry us to the market!

In conclusion, as I sat down to write this message, I began to review the past accomplishments of INPAWS and to anticipate what this year can offer. This of course led to some New Year's resolutions. Roger Hedge has planned some exciting and unique field trips for us this year and one goal I have set is for a record turnout for these events. Let's strive to visit many of our unique and common habitats by attending these field trips. Encourage a friend to join the Society in one of our invasive species removal projects, where not only will you help protect our native ecosystems, you'll enjoy camaraderie and learn about the native species found throughout the state.

Let's work to increase membership and participation in the regional chapters by a minimum of 20% this year. This year I hope to expand the role that committees and the general membership play in defining the direction of the Society. And of course, I cannot forget to mention, we must increase our volunteer base (which means you) so check with your local chapter president to find areas of need and become involved. We need a diverse array of talents so even if you are just beginning your education in native plants your many other skills are much needed to help us grow as an organization.

Our success is dependent on the efforts of all our members.

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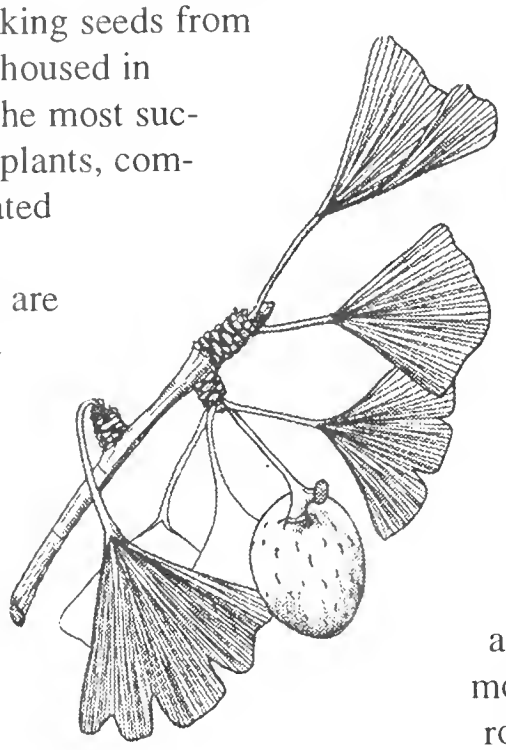
vation worldwide. Most recently, as Country Director, Western Newly Independent States and Director of the Environmental Law Program for the American Bar Association Central and Eastern European Law Initiative, Ms. Krchnak worked with government officials, industry representatives, academics, non-governmental organizations, and the public to reach a consensus on creating policies that will best manage health, resources, and environmental problems facing the former Soviet Union. In addition, she has worked as an environmental attorney for Science Applications International Corporation and the Environmental Law Institute, and as an editor for the East Asian Legal Studies Program at the University of Maryland School of Law. Ms. Krchnak received her A.B. in Political Science from Duke University and her J.D. from the University of Maryland School of Law. Ms. Krchnak is also Adjunct Faculty at the University of Maryland School of Law.

Botany 101 – twelfth in a series

Gymnosperms

by Dr. Rebecca Dolan

We've spent the last columns looking at details of anatomy in flowering plants, that is, plants that reproduce by making seeds from fertilized ovules housed in flowers. This is the most successful group of plants, comprising an estimated 250,000 species. Flowering plants are thought to be the most recently evolved group of plants, coming into their own at about the time the dinosaurs went extinct. Their great success is likely due to a complex structure that allows flowering plants to occupy a wide range of habitats, the protection of seeds within flowers and fruits, and coevolution with pollinators that vector pollen in a directed way from plant to plant.



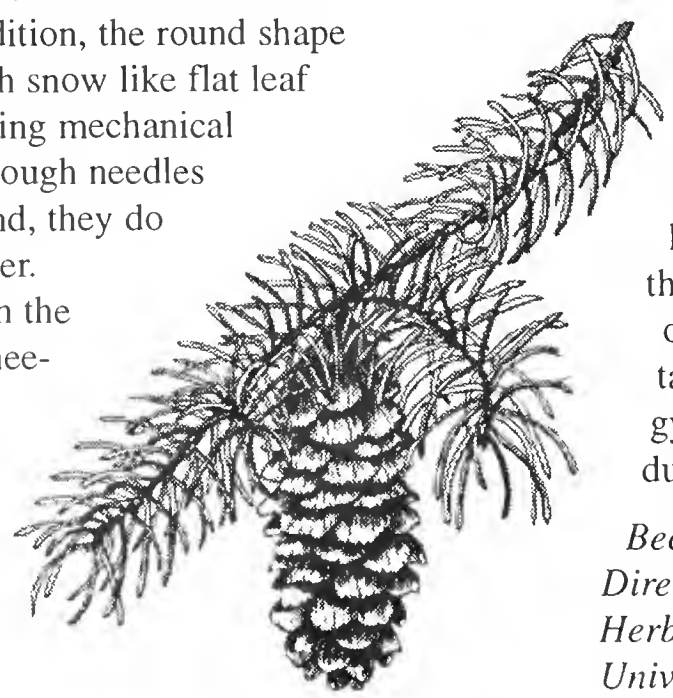
Maidenhair Tree
(Ginkgo biloba)

Gymnosperms are plants that are one step back on the evolutionary tree. Their name means 'naked seeded.' Seeds are not protected in a flower, but are borne on highly modified branches (cones). Pollen is wind-dispersed. There are an estimated 800 species of gymnosperms today.

The most familiar gymnosperms are **conifers** (cone-bearers) like pine, fir and spruce. Most in our area are evergreen, maintaining their leaves, or needles, all year long. They are able to do this because of features of needles that prevent water loss.

Deciduous trees like oaks and maples primarily lose their leaves because they cannot maintain water balance in the winter when the ground freezes.

Conifer needles, pine, for example, have a very thick, waxy cuticle and stomates sunken below the surface. They also have a layer of waterproof **suberin** inside, as roots do, to prevent free movement of water. The roundish shape of needles has a low surface-to-volume ratio, reducing the surface area for water loss. In addition, the round shape does not catch snow like flat leaf blades, reducing mechanical damage. Although needles last year-round, they do not last forever. Depending on the species, the needles drop after one or more years, and are replaced with fresh ones.



White Spruce
(Picea glauca)

Wood anatomy of gymnosperms is different from that of flowering plants. Pine and other conifers do not produce many fibers (very tough support cells) in their wood, or secondary xylem, and are called softwood trees. Hardwood trees are all flowering plants. But, botany loves exceptions, and balsa wood, a seemingly classic softwood, comes from a flowering plant tree of the tropics.

Now, for more of those much-loved botanical exceptions: neither all gymnosperms nor all conifers are evergreen. Dawn redwood and bald cypress and larch are examples that are deciduous, dropping their needles every year. And, of course, some flowering plants are evergreen, like rhododendron and holly. And, guess what, not all gymnosperms have needle-shaped leaves. In an amazing twist of botany, ginkgo trees are gymnosperms, even though they have flat leaf blades.

In the next issue we will look at how to distinguish the common groups of conifers and then tackle intricacies of gymnosperm reproduction.

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

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

Annual Native Plant Sale and Auction Saturday, May 11, 2002

The great seasonal calendar is flipping its pages at record speed and the unusually mild days of January and February this year make gardeners itch to get outside and start digging. I understand this urge all too well, but knowing Indiana's propensity for late April and May frosts I've confined my efforts to opening the back door to take a fresh look around and contemplate the changes I can implement to make my landscape more inviting. And this of course, is the enduring appeal of gardening. As the seasons come and go there is always something to anticipate.

Which brings me to the subject at hand. It is time to mark your calendars for the much anticipated INPAWS Annual Native Plant Sale and Auction!! This year's sale will be held on Saturday, May 11, 2002 in Ross Hall at Saint Pius X School. This is the same location as last year and as in the past the sale will begin at 10:00 a.m. and the auction will follow immediately at 11:00. Kelly Frank will be chairing the event this year. She can be reached at 765-436-2483 or by email:kiwison@frontiernet.net.

We are anticipating another successful sale but for this to become a reality we are counting on membership support. Please start saving plant containers and box lids for the event. And of course, we need your plant donations!! Please remember to label your plants and to dig and pot them at least two weeks before the sale. We would very much prefer to have all plants delivered to the school on Friday evening between 5:00 and 9:00 p.m. Donations will still be gratefully accepted Saturday morning from 7:00 to 9:00 a.m. If you are not able to deliver your plants Friday evening, transport assistance may be available.

The school and church are on the northwest corner of 71st Street and Santo Drive (4 blocks east of Keystone). The school is north of the church.

Enter the school parking lot from Santo Drive. The address for the school is 7200 Santo Drive, Indianapolis, IN.

Watch for more information as the date of the sale approaches. Looking forward to seeing you there!

Linda Oxenrider

An Alien Unmasked

For thousands of years, the "common reed," *Phragmites australis*, was a component of marshes in both the Old World and the New World–one component species among many. However, starting about 150 years ago in New England, the reed ran wild, crowding out the other plant species with which it had formerly coexisted. Today, in much of that region and beyond, many marshes have degenerated into near-monocultures of *P. australis*.

Kristen Saltonstall, a graduate student in ecology and evolutionary biology at Yale, has used molecular analysis to shed light on the change. By examining samples from herbaria and from nature, she has been able to distinguish the DNA of the old, native North American common reed from that of its Eurasian cousins. The aggressive, monopolist reeds of modern New England carry the Eurasian DNA pattern, not that of the formerly native North American strain. "There are simply no native types left in our area," says Saltonstall. Saltonstall and other scientists speculate that the "cryptic invasion" of aggressive reeds began when European reeds, used as packing material, were discarded in the waters of New England seaports. Strangely enough, in European marshes, the European reeds have not become the aggressive problem that they are in North America.

This article is based on an article by Bruce Fellman in the November 2001 issue of Yale Alumni *magazine.*

Honeysuckle

Not only are those Asian bush honeysuckles invasive, they can be tricky to identify given their tendency to hybridize. For those interested, Kay Yatskievych is offering help with identification through a project she's working on. See her message below... and thanks, Kay!

Kay writes - I've just begun working on IDnature guides, which is a multi-entry visual identification system for the web. As part of a grant that the group is to receive, I have agreed to include a minimum of 50 invasive plant species, with an emphasis on those in the genus Lonicera. If anyone has populations of Lonicera that they are having trouble identifying and would like to make a collection for me to look at, I'd be happy to try to get a name on them as I'm working through these problems of identification. I am in Indiana once a month, usually spending one day at Friesner Herbarium at Butler University and one day at Deam Herbarium at Indiana University, so I could make arrangements to pick up specimens or go to the site and collect one myself. I'm also going to want to photograph more species when they come into bloom.

Kay Yatskievych

kay.yatskievych@mobot.org

Tree Planting Party

The Sycamore Land Trust invites volunteers to help plant trees at the Touch The Earth preserve just west of Columbus, on Saturday, April 13. Volunteers can meet at 8:30 AM at the Monroe County Library's Kirkwood entrance; or at the preserve itself, on Country Club Road, south of S.R. 46, at 9:30 AM. Bring gloves and drinking water; SLT will provide some goodies. For information, contact Dave Welch, davwelch@indiana.edu, or Art Hopkins, arthop@earthlink.net.

SLT's Annual Gardening and Landscaping Show

INPAWS readers are invited to attend the Sycamore Land Trust's annual Gardening & Landscaping Show on March 23, 2002, from 9 AM to 4 PM at the Bloomington Convention Center. There will be booths and displays, childrens' activities, speakers, and more. There is a special $4/person entry fee for groups of ten or more who register by March 10th. A form for group rates is available at the website. For information, see

www.sycamorelandtrust.org.

Indiana Kudzu Eradication Project

The Indiana Department of Natural Resources, Division of Entomology and Plant Pathology has started a project aimed at identifying all kudzu sites in Indiana, followed by eradication/control of those sites. Based on the inventory work of Dr. Bill Overlease, and information gathered and passed on by others, we currently know of approximately 25 sites in 15 counties. Most of these locations have been identified in the southern 1/3 of the state; with one exception near Lake Michigan in LaPorte County.

In the upcoming months, we intend on further defining these locations through the use of GPS mapping. This will allow us to pinpoint the sites,and determine how large a population we are actually dealing with, so that we can devise a treatment program to suit the problem. If you are aware of any sites for kudzu in the state, please contact Jason Shorter with this information.

Jason L. Shorter
Southern Region Supervisor
Indiana Department of Natural Resources
Division of Entomology & Plant Pathology
402 West Washington Street, Room W-290
Indianapolis, Indiana 46204-2739
Phone: (317) 232-4120
Fax: (317) 232-2649
E-mail: jshorter@dnr.state.in.us
http://www.IN.gov/dnr/entomolo

Speakers Bureau

INPAWS now owns three traveling slide presentations available to members for presentations. Each slide carousel contains about 40 slides and each program has its own script. Presentations take about 45 minutes.

Ellen Jacquart has created a slide program on invasive plants.

Colletta Kosiba has put together two new slide programs–one on native spring wildflowers and the other on native summer wildflowers. She includes gardening uses for each plant, and medicinal uses and folklore when available.

Colletta reports that we have had thirteen requests for the three slide programs: 5 requests for spring wildflowers, 2 requests for summer wildflowers and 6 requests for invasive plants. She says, "It is easy: show the slide and read the text."

We hope INPAWS members will take advantage of these programs to educate people in their area. The public library is a good place to give the program.

Contact Colletta and she will send you the slide carousels and scripts. After you have given the program, return the "kit" to Colletta.

This is another great benefit for INPAWS members and a way to educate the public about our mission.

Ideas for future slide programs:
1) trees & shrubs,
2) edible plants.

If you have extra slides to share, please mail them to Colletta.

Please contact
Colletta Kosiba
Speakers Bureau chairman
5430 N 600 E
Brownsburg, IN 46112
317-852-5973
k_colletta@hotmail.com

From Rita's Backyard located in Fishers, IN

We are currently looking to hire our staff for the coming season.

We could use part-time help, either temporary, 6–8 weeks April through June, or longer, April through October.

We carry trees, shrubs, perennials, herbs, and annuals. We also have a gift shop with decorative containers, fountains, and garden accessories.

Contact Rita Beck, Owner
Ritasbackyard@cs.com
12233 E. 116th St, Fishers, IN
317-842-0235

Renew Your Membership for 2002

Please use **only the new form**, which you should find inserted in this issue of the newsletter.

For more information please contact Membership Chairman
Mary Welch-Keesey
317-638-4328
marywelchkeesey@cs.com

If your mailing address changes, please be sure to update it by contacting the membership chairman, or your chapter president. (INPAWS is charged 60¢ for each returned post card, and more than $1.00 for each returned newsletter!)

Also, please contact the membership chairman and/or your Chapter President with your correct email address, so that we can keep you updated on INPAWS activities in a timely manner.

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.

Send us your news, questions, comments, ideas, suggestions.

Please email Anne Wilson wilson@hsonline.net

One of World's Rarest Plants Discovered in Indiana

Short's Goldenrod *(Solidago shortii)* Turns Up During Inventory

by Michael A. Homoya

There are approximately 25 species of goldenrod native to Indiana, ranging from the extremely common tall goldenrod, to the very rare stout-ragged goldenrod. None, however, is as rare as one recently discovered in southern Indiana.

In a cooperative project with The Nature Conservancy, ecologists with the Indiana Department of Natural Resources Division of Nature Preserves have been conducting a botanical and natural area inventory within the watershed of the Blue River in Harrison, Crawford and Washington counties.

Short's Goldenrod
(Solidago shortii)

In August of 2001 Michael Homoya, Brian Abrell, and Amy Akin of the DNR were surveying areas bordering the Blue River within Harrison-Crawford State Forest and encountered a species of goldenrod that looked strangely familiar. Familiar because not too many years earlier, in 1995, Mike and Brian had seen the goldenrod by participating in an effort to re-establish Short's goldenrod at the Falls of the Ohio State Park. The seven clumps planted at the Falls died within a year of planting because of flooding, but the memory of their appearance remained with the ecologists.

Their first reaction upon discovery of the goldenrod at the new site was cautious elation sprinkled with a dose of disbelief. But after careful inspection of the plants, and realization of the fact that the habitat was similar to that which once occurred at the Falls, they were satisfied that they had found one of the rarest plants on the globe.

Distinguishing Short's goldenrod utilizes features perhaps not readily apparent to those previously unfamiliar with the species. It closely resembles our common tall goldenrod *(Solidago canadensis var. scabra, = S. altissima)*, and smooth goldenrod *(S. gigantea)*. Features to look for that separate Short's goldenrod from those include glabrous and thick (almost fleshy) bluish-green leaves, and larger (and fewer) ray flowers. As well, Short's produces a more extensive root system, an adaptation that allows it to survive during extended periods of drought.

The new Indiana site is one of only two known areas on earth to harbor wild populations of the goldenrod.

Short's goldenrod *(Solidago shortii)* is named after its discoverer, Dr. Charles Short of Louisville. He found it in 1840 growing on a limestone outcrop in Kentucky known as Rock Island, located within the Falls of the Ohio (River) between Clarksville, IN and Louisville, KY. It was last collected from Rock Island in 1860, although it might still have been there until the Island was greatly altered by the construction of locks and dams at the Falls in the early 1900's. It was considered extinct until the pre-eminent ecologist E. Lucy Braun found a population in 1939 in the Blue Lick Springs area of eastern Kentucky.

The two locations in Kentucky known to harbor Short's goldenrod were connected prior to 1800 by a buffalo trace, and it has been speculated that bison transported goldenrod seed from one locality to the other.

Common Tall Goldenrod
(Solidago altissima)

Interestingly, the same buffalo trace extended into Indiana and crossed the Blue River.

Short's goldenrod is a federally listed endangered species, one of only two plant species with such status occurring in Indiana.

Ed. note: this article was from a news release provided by the Department of Natural Resources.

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.*

INPAWS Chapter Reports

Central Chapter News

Central Chapter officers will be meeting soon to plan meetings for this spring, summer and fall. Visits to local gardens to view spring wildflowers, an invasive plant removal day on June 8th at Broad Ripple Park, a program on water features in the home garden, one on repairing soil erosion near streams and rivers, and a seed and plant exchange in the fall accompanied by a pitch-in dinner are all in the planning stage. Until the fall meeting, post cards announcing dates and times will be sent to all INPAWS members who reside in the nine central counties. After the October meeting, post cards will only go to paid central chapter members. According to a survey filled out by attendees at the first two chapter meetings, bimonthly meetings on a weekend during the day at various locations with notices of meetings sent by email was the way members wanted the chapter to be run. Any suggestions or ideas for future meeting topics or sites should be sent to Betsy Wilson (317-255-3304 , geobet@iquest.net) or Kim Krull (317-849-1084, ponderkim@aol.com).
Betsy Wilson

South Central Chapter News

The south central chapter of INPAWS (SCINPAWS) was voted into existence on December 6, 2001. The following people are officers for 2002-04: Sherri McConnell, president; Russell Boulding, treasurer; Lucille Bertuccio, recording secretary. Cathy Meyer is program chair, and Ellen Jacquart is invasive plants chair. The chapter's first program on spring flowers was presented by Jim Eagleman on February 13 at Brown County State Park. Ellen Jacquart will present a talk on invasive plants on April 24. This program is jointly sponsored by the SCINPAWS and the Sassafras Audubon Society, the local Audubon chapter in the Bloomington area. The SCINPAWS will have a table at the Gardening and Landscaping Show sponsored by the Sycamore Land Trust and the Hoosier Times on Saturday, March 23, 2002 in Bloomington. Also in Bloomington, SCINPAWS will be at EarthFest at Karst Farm, a Monroe County park, on May 18.

Please contact Sherri McConnell at 812-332-4295 or shermcconnell@netscape.net for information about SCINPAWS or SCINPAWS activities. Residents of Bartholomew, Brown, Greene, Jackson, Lawrence, Monroe, Morgan and Owen counties are invited to become members of SCINPAWS.

Wildflower Foray

The Wildflower Foray is April 26-28 and features hikes in Brown and Monroe Counties to count species in bloom and learn about wildflower identification, photography, plant uses, birds, and more. The Saturday evening program at the T.C. Steele Historic Site will be presented by Ross Brittain of the Bloomington Wild Birds Unlimited store. He will be talking about creating wildlife habitat at home by using native plants. All of the programs are free and open to everyone. For more information and a schedule of events, contact T. C. Steele Historic Site at 812-988-2785 or e-mail tcsteele@bloomington.in.us

East Central Indiana Chapter News

Thursday, March 28

7 PM in the Indiana Room at Minnetrista Cultural Center, Muncie

Betty Luzney will give a slide presentation on poisonous plants. Betty is a past president of Master Gardeners and the Minnetrista Horticulture Club.

Saturday, May 5

The Indiana Audubon Society has asked East Central chapter of INPAWS to provide a leader for a nature walk at Mary Gray Bird Sanctuary in Connersville at 9:30 AM and 1:30 PM. Dr. Torke has graciously agreed to lead the walks. Anyone wishing to drive down with East Central needs to be at the Minnetrista Cultural Center in Muncie no later than 7am on May 5th.

We will car pool down from there. I need to know by April 15 how many are planning to travel from Minnetrista so I can arrange for lunch. Lunch will be $5.50 but you are free to pack your own lunch. Dan Leach Vice President of Indiana Audubon Society has graciously waived the registration fee for INPAWS attendees. Those wishing to make their own reservations may do so by mail before April 19 to:

Deanna Barricklow
3499 S. Bird Sanctuary Road
Connersville, IN 47331-8721

Plant detectives . . .

Challenge Plants of the Dunes – fifth in a series

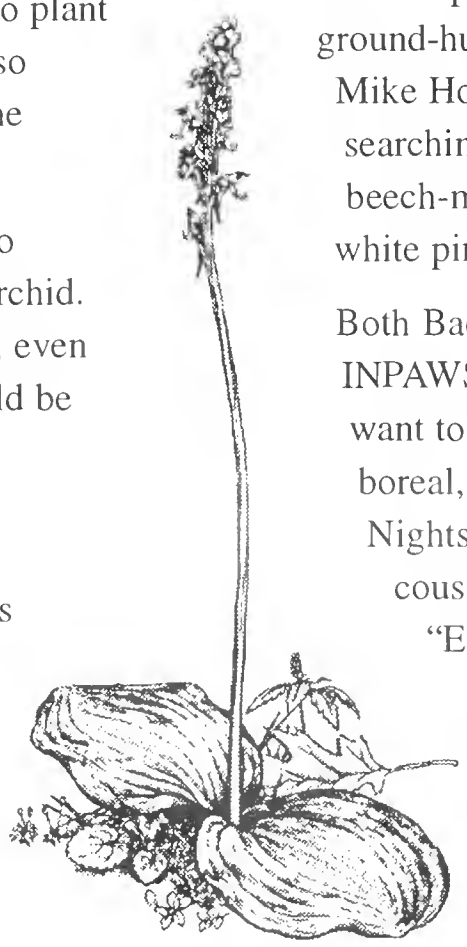
What's on Your "Find-in-2002" List?

by Barbara Plampin

"Found once," "endangered," "threatened," "rare," "extirpated"...

These are siren calls to plant detectives. For those so inclined, here are some quests for late spring.

It is always exciting to find an orchid. Any orchid. A good starting quest, even in early January, would be the fairly common (Downy) Rattlesnake Plantain *(Goodyera pubescens)* because its white-networked leaves remain evergreen. Found in scattered counties, plants frequent cut-over woods, sometimes thriving amid discarded tires. Return in July to see the flowers.



Hooker's Orchid
(Platanthera hookeri)
Illustration by Paul Nelson

John Bacone, Division of Nature Preserves, "would like to hear about" the extirpated Hooker's Orchid *(Habenaria or Platanthera hookeri)*.

Confined to the Dunes, Hooker's last appeared in 1969 amid Indiana Dunes State Park's white pines, but has not been seen since. Over-collecting and deer are the suspected villains. Between late May and early June, seek the "ice tongs" profiles of yellowish green flowers above the paired, matte-finish, ground-hugging orbicular leaves. Mike Homoya suggests searching for Hooker's orchid in beech-maple forests, as well as white pine.

Both Bacone and Jan Hunter, of INPAWS North West Chapter, want to find the extirpated boreal, Small Enchanter's Nightshade *(Circaea alpina)*, cousin of the weedy "Enchanter's Nightshade" *(Circaea lutetiana canadensis)*. The small version's Calyx lobes are less than 1.5 mm long, and fruits lack furrows. For the record, roots are tuberously thickened rhizomes. However, I've observed a lot with unthickened rhizomes.

June and July searches in La Porte County's boreal flatwoods might pay off.

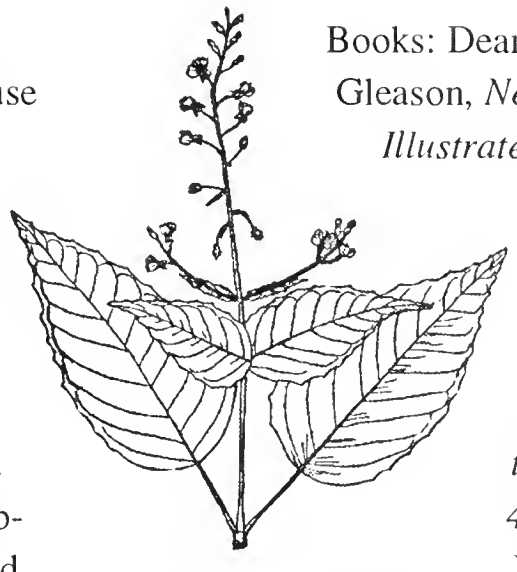
The extirpated Twin Flower *(Linnaea borealis americana or longifolia)* also appears on Jan's search-list. Paired pink flowers resembling old-fashioned dressing table lamps nod above delicate, creeping, slightly woody, evergreen leaves. The Dunes once had plants, but a moving dune apparently overwhelmed one healthy population, and the Cowles Bog plants went missing decades ago. Associates remain, among them Poison Sumac *(Rhus vernix)*, Small-forget-me-not *(Myosotis laxa)*, Tamarack (Larix laricina), Eastern White Cedar *(Thuja occidentalis)*, and Cinnamon Fern *(Osmunda cinnamomea)*. Another associate, Bunchberry *(Cornus canadensis)* has "gone missing from Indiana."

Searching here or in La Porte County's boreal flatwoods in mid-June could turn up plants. Confined historically to Noble, Lake, Porter, and La Porte Counties, this "boreal" or "northern" species flourishes much farther north, even in Labrador and Alaska.

Small Enchanter's Nightshade
(Circaea alpina)

Tom Post, Division of Nature Preserves, suggests searching seepy, wooded Duneland slopes, and in a few other counties in the northern tier, for the endangered, native Highbush

Cranberry *(Viburnum trilobum)*. Don't confuse the May-June blooming flowers of the native species with those of the exotic European Highbush Cranberry *(V. Opulus)*. The best clue will probably be the club-shaped or columnar glands on the native's leaf stalks.



Enchanter's Nightshade
(Circaea lutetiana canadensis)

If you do go questing for any of these challenge plants of the Dunes, let us know how you come out. Good luck!

Books: Deam, *Flora of Indiana*; Gleason, *New Britton & Brown Illustrated Flora*; Homoya, *Orchids of Indiana*; Pepoon, *Flora of the Chicago Region*; Swink and Wilhelm, *Plants of the Chicago Region, 4th edition*; Yatskievych, *Field Guide to Indiana Wildflowers.*

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.

Illustration of Platanthera hookeri *by Paul Nelson, from* Orchids of Indiana, *written by Michael A. Homoya, published by the Indiana Academy of Science/I.U. Press, in 1993. Mr. Nelson is a cousin of Mr. Homoya. He is retired from the Missouri Department of Natural Resources, and now works as a fire ecologist with the Mark Twain National Forest in Missouri.*

More Rarities . . .

Was that colony of broadly elliptic-leaved, winged-petioled violets seen last fall along Porter County's Calumet Trail *really* the rare Primrose-leaved Violet *(Viola primulifolia)*? Come mid-May, I'll revisit this marshy site and find out. Lack of flowers, seeds, and the occasional, but characteristic sub-cordate leaf bases prevented certain identification. Possibly, the plants are the fairly common Lance-leaved Violet *(V. lanceolata)* whose autumn leaves confusingly broaden and elongate.

Both species have maddeningly similar white flowers with brown-purple-veined lower petals. Primrose-leaved may have slightly bearded lateral petals and red-brown seeds; Lance-leaved may have beard-less laterals, brown seeds, and frequently red peduncles. I've never seen Primrose-leaved in the Dunes; this species comes to us from the Atlantic and Gulf coastal plains where the leaves often have sub-cordate bases. Searchers might try the primary Indiana location, the Kankakee Valley.

Primrose-leaved Violet
(Viola primulifolia)

By the way, Small Forget-Me-Not *(Myosotis laxa)* and other rarities along the Calumet Bike Trail have had a reprieve from 'rehabilitation' because there isn't enough money to re-build the trail.

2001 Growing Season a Success for the Graphic Packaging Corporation Innovative Erosion Control Project Using Native Plants in Kalamazoo, MI

A highly eroded portion of property along the Kalamazoo River owned by Graphic Packaging Corporation of Kalamazoo, Michigan was planted in fall, 2000 with native prairie grasses and wildflowers, a unique method for soil stabilization at industrial properties. The experiment, funded by a grant through the Great Lakes Commission and carried out by Kieser & Associates of Kalamazoo, Michigan, aims to demonstrate the feasibility of using native grass and flower mixes at industrial sites. Additional benefits of the project include habitat creation for grassland insects, opportunities for prairie education, and a colorful attraction along the river corridor throughout the year. More information about the project is available at http://www.kieser-associates.com/prairie.

The project site, measuring approximately 5 acres in size, was divided into three plots of approximately equal size. The southern plot was planted in the conventional fashion, adding topsoil and using turf grasses. The center plot was also spread with topsoil, but was planted in native prairie grasses and wildflowers. The northern plot received no topsoil and was planted with prairie plants.

The results of the 2001 growing season support the hypothesis that native grasses and flowers are appropriate forms of ground cover for industrial sites where soil quality is poor. The native plants occurring on the northern plot, without the aid of topsoil, outperformed the plants on the other two plots, remaining green and flowering throughout the growing season. Very few weeds were observed on this plot, demonstrating that such non-native plants cannot tolerate the harsh conditions of poor soil and lack of moisture existing at the site.

Alternatively, weeds flourished on the middle plot, where topsoil had been applied. A small number of native prairie seedlings were observed struggling against the weeds on this plot only after the thick tangle of weeds had been mowed in mid-summer. Both the weeds of the middle plot and the turf grasses planted on the southern plot went dormant partway through the summer, unable to tolerate the hot, dry conditions. Photos and additional information are provided at the recently updated http://www.kieser-associates.com/prairie. The plots will be monitored for several years to determine the short and long-term effects of such a planting.

Plus, mention that you are a member of the Indiana Native Plant and Wildflower Society and receive a ten percent discount!

The 2002 Natural Resources Training Sessions for Invasive Species and Wildland Fires

You are invited to explore the latest best practices, lessons learned and cutting edge ideas for managing invasive species and wildland fire programs, at the 2002 Natural Resources Training Sessions for Invasive Species & Wildland Fires, April 22-25, 2002, at the Sheraton Denver West Hotel in Denver, CO. You will emerge from these training sessions with strategies, tools and techniques to strengthen your natural resources programs and policies.

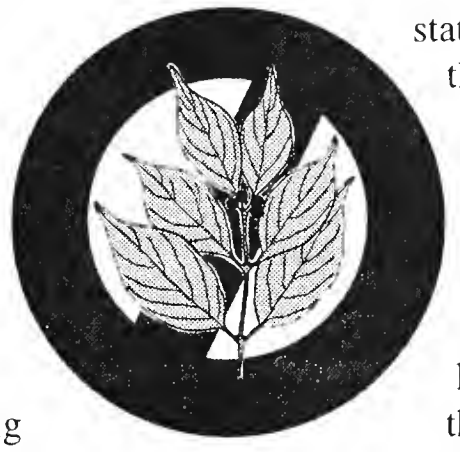
Across the nation, the threat of invasive species and wildland fire to our environment and natural resources is growing. The 2002 Natural Resources Training Sessions are the only national conferences that bring together key "thought leaders." policymakers, leading experts, and veteran program managers to discuss both these critical issues in one setting. For further information, a complete agenda, or registration, please contact James Lewis at 703-519-6270, or visit www.performanceweb.org.

The Plants Not to Plant in Indiana

by Ellen Jacquart

You've decided to remake your backyard into a beautiful haven for wildlife. You've read all the brochures from different agencies and groups dedicated to managing for wildlife. You've called your local extension office, talked to your local wildlife biologist. And you're utterly confused.

You are hearing that Korean lespedeza is a great species to plant for wildlife habitat. But you are reading in an INPAWS brochure that it is an invasive plant threatening natural areas in Indiana. You're reading in a USDA brochure that Amur honeysuckle berries are an important food source for birds. But you've seen what this aggressive shrub from Asia has done to forest understories in central Indiana, and you can't believe it's a good thing for wildlife. What's going on?



Amur Honeysuckle
(Lonicera maackii)

There is clearly a lack of consensus among resource professionals about which species pose a threat to natural areas in Indiana. Despite increasing concern about the spread of invasive plant species across the state, many of the species listed in the INPAWS brochure ***Invasive Plants in Indiana*** are still widely available from nurseries and still recommended by state and federal agencies! Ironically, these agency recommendations of invasive species are being made at the same time other state and federal agencies are spending your tax dollars to eradicate these same species from our landscape in order to protect natural areas. Concern about this issue led to the formation of the Invasive Plant Species Assessment Working Group (IPSAWG). This group is made up of a diverse array of partners (see box), including INPAWS. Our goal is to develop an objective way to assess the invasive species currently being recommended, sold or planted in the state –to find out which are the baddest of the bad–and to develop recommendations for each of these species.

The assessment is in a draft stage now, based largely on an assessment that was developed in Florida a few years ago. The partners in IPSAWG are working together to adapt it for Indiana, and then will choose the invasive species to review using the tool. Within a few years, we hope to have the evidence to show which species are invading the fastest and causing the greatest ecological damage. Ultimately, the goal is that all agencies would have consistent policies on appropriate species to use for wildlife habitat, soil erosion control, landscaping, etc. And you, the public, will be much less confused.

Ellen Jacquart is the 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 Invasives Committee for INPAWS she led the effort to develop the Invasive Plants of Indiana brochure.

IPSAWG Partners:

- INPAWS
- The Nature Conservancy
- Indiana Nursery and Landscape Association
- Indiana Chapter of the American Society of Landscape Architects
- Indiana Forage Council
- Indiana Wildlife Federation
- Indiana State Beekeepers Association
- Indiana Beekeeper's Association
- Indiana Department of Natural Resources:
  - -Division of Entomology and Plant Pathology
  - -Division of Fish and Wildlife
  - -Division of Soil Conservation
  - -Division of Reclamation
  - -Division of Forestry
  - -Division of Nature Preserves
  - -Division of State Parks and Reservoirs
- Hoosier National Forest
- Indiana Academy of Science
- Natural Resources Conservation Service
- Indiana Department of Environmental Management
- Indiana Department of Transportation
- Purdue Cooperative Extension Service
- Seed Administrator, Office of the Indiana State Chemist

Descriptions of INPAWS 2002 Calendar of Events

See quick reference on back page

Eagle's Crest Nature Preserve
Saturday, April 20, 1 PM
Division of Nature Preserves Botanist and author of *Orchids of Indiana*, Mike Homoya will lead a hike through Eagle's Crest Nature Preserve at Eagle Creek Park on the northwest side of Indianapolis. This little-known preserve features a very rich, high quality, mesic upland forest where we will view an impressive array of spring wildflowers and other plants.

Big Walnut Nature Preserve
Saturday, May 18, 10 AM
Tom Swinford, Regional Ecologist for the Division of Nature Preserves and Co-Vice President of INPAWS will guide us through a portion of this nature preserve that borders the scenic Big Walnut Creek in west-central Indiana's Putnam County. This will be an ideal time to view this beautiful site and its variety of high quality forest communities including oak uplands, mesic ravines, and floodplain forest. Other features of this spectacular nature preserve include large trees and an abundance of spring wildflowers. Tom will point these features out and also discuss recent management activities that he is supervising there.

Hemlock Cliffs and Boone Creek Barrens Natural Areas
Saturday, June 8, 10:30 AM
Forest Service Botanist Steve Olson will meet our group to show us these significant natural areas in deep southern Indiana. Massive sandstone cliffs cloaked in eastern hemlock and a variety of ferns make Hemlock Cliffs Natural Area one of the most scenic areas in southern Indiana. Mountain laurel and other ericaceous (heath) shrubs are common along the ridge tops and a plethora of ferns and other cliff-dwelling plants occur here as well. Located in the Shawnee Hills Natural Region, this rugged Crawford County natural area will offer a challenging, but rewarding hike. Be sure to bring a bag lunch and enjoy it with our group following the hike.

Afterwards, we will go to Boone Creek Barrens in Perry County to look at a very different and unusual natural area. Boone Creek consists of dry upland forests of centuries-old post oak with small, scattered barrens openings and many unusual plants. This is one of only two sites for the very rare prairie parsley *(Polytaenia nuttallii)* in southern Indiana. In addition to the interesting plants that Steve will show us, management activities of the site will also be discussed.

Leavenworth Barrens Nature Preserve
Saturday, August 3, 10:30 AM
Division of Nature Preserves Botanist, Mike Homoya will join us at this scenic Crawford County site to learn about limestone barrens. Located within the Harrison-Crawford State Forest near the small Ohio River community of Leavenworth, this preserve contains fine examples of dry upland oak-hickory forest, but the principal feature for which the area is protected and managed is the barrens. These dry, rather infertile sites are characterized by scrubby tree growth and open areas with sun-loving grasses and wildflowers. Interesting plants that we hope to see include post and blackjack oak, Indian grass *(Sorghastrum nutans)*, little bluestem *(Schizachyrium scoparium)*, prairie dock *(Silphium terebinthinaceum)*, blazing star *(Liatris spp.)*, and rattlesnake master *(Eryngium yuccifolium)*.

Granville Sand Barrens
Saturday, August 31, 2 PM
A hike led by Dr. David Krohne, Plant Ecologist at Wabash College. This nature preserve is a recent acquisition by the Lafayette based land trust, NICHES. Many of our members may recall that INPAWS provided financial support for this important project. Dr. Krohne will give us a tour of the dry sand barrens, a very rare natural community type along the Wabash River. Among the more unusual and interesting plants occurring here are golden aster *(Chrysopsis camporum)* and blue curls *(Trichostema dichotomum)*.

Lime Lake and Gene Stratton Porter State Historic Site
Saturday, September 21, 10 AM
We will travel to northeast Indiana's beautiful lake country where the first part of our tour will be to view one of the state's highest quality wetland fens. Located in the extreme northwest corner of Steuben County, this important natural area is unknown to most, if not all of our members. It is currently owned and managed by the

Division of Nature Preserves, but has not yet been officially dedicated. Lee Casebere, Assistant Director for the Division of Nature Preserves and a past board member of INPAWS will lead us through this fascinating wetland, a site that is chocked full of rare plants and unusual physical features. Among the more unusual plants we may see are false asphodel *(Tofieldia glutinosa)*, tufted hairgrass *(Deschampsia cespitosa)*, and fringed gentian *(Gentiana procera)*.

Following our trip to Lime Lake we will head south to Gene Stratton Porter State Historic Site near Rome City in Noble County. Please pack a bag lunch as we will eat there and later be joined by Naturalist Pat Bolman who will guide us around the grounds of the former home of famed Hoosier naturalist and author Gene Stratton Porter. A special highlight of this portion of our trip will be a tour of the exquisite gardens that are maintained on the grounds.

All times are Indy (EST) time. Meeting sites and other details will be announced. For more information contact Programs/Field Trips Chairman Roger Hedge (317) 232-8062 rhedge@dnr.state.in.us

Letters

I really enjoyed the article on the Kankakee mallow especially since I have been growing it here at home. I was given seeds from the original island site by a former curator of the Purdue Herbaria who personally collected them. You might mention in the next newsletter that they are easily propagated by cuttings. I suggest using rooting hormone since I have never tried doing without it. (Collecting seeds has been extremely difficult because Japanese beetles love the flowers.)

Chris Brewster, President
INPAWS Central Chapter
Cooperstown, NY 13326

Last fall I received a publications list for educators and naturalists from the North Cascades Institute, Sedro-Woolley, WA. Most were specific to the state of Washington. But the following could be useful in Indiana, even though with a Northwest slant.

Native Plant Notebook. 1998. 412 pp. Technical USFS manual packed with information on how to use local native plants for restoration and revegetation projects. Bioengineering and site preparation, propagation and collections of species common to the western Cascades, prototype contract, monitoring and more. Shrink-wrapped, 3 hole punched. $30.00.

Celebrating Wildflowers: Educator's Guide to the Appreciation and Conservation of Native Plants. 1996. W. Scherrer, T. Johannessen. 222 pp. Spiral bound. Native plant education. Field & classroom activities. 100+ plant cards. Interdisciplinary, outstanding. Grades 4-8. $20.00.

Celebrating Wildflowers Across the Nation: How to Develop a Regional Native Plant Education Program. 1999. W. Scherrer. 42pp. A Model Program in Washington State, How to Develop a Native Plant Education Program, How to Develop a Native Plant Curriculum Guide, How to Organize and Conduct Teacher Training Workshops, Appendices. $10.00.

For more information or to order you may call 360-856-5700 ext. 209.

Ruth Ann Ingraham

Dear Scott:

On behalf of the Indiana Native Plant and Wildflower Society (INPAWS), I am pleased to express our profuse thanks for your gift of a half-pound of stratified ginseng *(Panax quinquefolius)* seeds.

They arrived in excellent condition, packed well and included a chilling bag. Your careful packaging reflects the devotion to excellence that has been demonstrated in your communications and your web site design.

Some of the seeds will be placed with a few of our members who have the necessary knowledge and site availability necessary for optimum propagation results.

All plants grown from your donated seeds will be sold for optimum return, and the proceeds used to further our Mission Statement available for viewing on our website www.inpaws.org.

With sincere gratitude to friends of conservation Scott and Sylva,

Rolland Kontak

INPAWS 2002 Calendar of Events

All times below are Indy (EST) time. Meeting sites and other details will be announced.
For more information contact Programs/Field Trips Chairman Roger Hedge
(317) 232-8062 rhedge@dnr.state.in.us

Eagle's Crest Nature Preserve
Saturday, April 20, 1 PM
Eagle Creek Park on the northwest side of Indianapolis.

Annual Native Plant Auction and Sale
Saturday, May 11
see details on page 5

Big Walnut Nature Preserve
Saturday, May 18, 10 AM
Big Walnut Creek in west-central Indiana's Putnam County.

Hemlock Cliffs and Boone Creek Barrens Natural Areas
Saturday, June 8, 10:30 AM
southern Indiana.

Leavenworth Barrens Nature Preserve
Saturday, August 3, 10:30 AM
Harrison-Crawford State Forest near the small Ohio River community of Leavenworth.

Granville Sand Barrens
Saturday, August 31, 2 PM
Wabash River.

Lime Lake and Gene Stratton Porter State Historic Site
Saturday, September 21, 10 AM
Steuben County

November
Annual Fall Conference
Date to be announced.
Location: one of our Indiana state parks. Possible overnight stay at the inn.

Please save this calendar for future reference.
See more detailed descriptions of these trips on page 14

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INDIANA NATIVE PLANT
and Wildflower Society

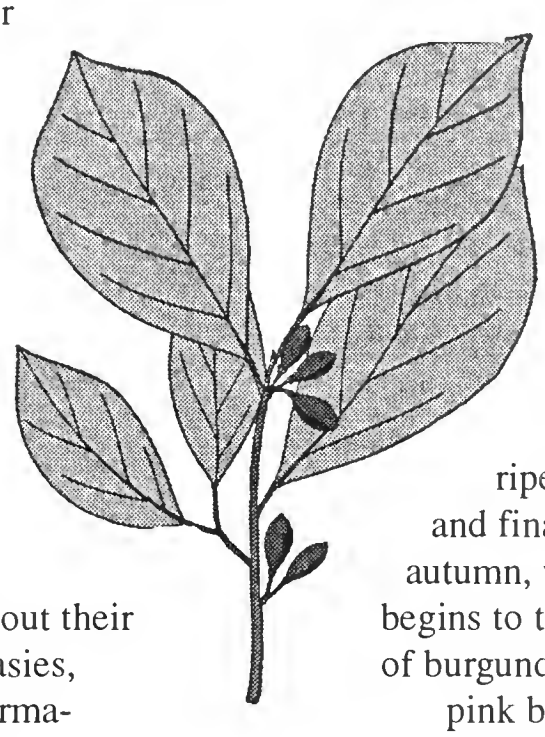
Volume 9 Number 2 • Summer 2002

NEWS

Raising Native Understory Shrubs from Seed

by Bill Cullina

Growing anything from seed requires some commitment of time and space, but the rewards are great. Also it is usually the only way to obtain native plants from seed–plants truly indigenous to your own neighborhood or corner of the province. I have chosen to focus on a few of these, all common understory shrubs in our forests, but often difficult to obtain from commercial nurseries. I have limited myself to five so that I can go into greater detail about their wants and idiosyncrasies, but much of the information can be applied to other trees, shrubs and wildflowers you might wish to grow. While I do propagate some plants from cuttings, I prefer seed both because it preserves more of the genetic diversity inherent in most wild populations and because it is frankly easier most of the time.



Spicebush
(Lindera benzoin)

Hobblebush

Viburnum lantanoides or *alnifolium* is a familiar colonial shrub of the cool damp forests of New England and eastern Canada. Though in the wild it is usually a stoloniferous shrub spreading about in search of light gaps, in the garden it becomes a beautifully layered, rounded specimen producing charming cymes of creamy white flowers ringed with a skirt of large sterile petals like the lace cap hydrangeas. Six inch oval leaves ridged like a crinkled potato chip frame berries that ripen from green to red and finally blue-black by autumn, when the foliage begins to turn an amazing mix of burgundy, lime green, and pink before falling. It is one of the most recognizable shrubs in the northern hardwood forests, yet few if any nurseries produce it. If you have some plants on your property, it is not difficult to dig a few rooted suckers and transplant them, but should you not be that lucky, seed is the next best option.

Many viburnums have embryos that are immature at the time the berries are ripe, and they need a few months of additional warm temperatures (after-ripening) once cleaned from the pulp to become developed enough to germinate. Since the fruits ripen naturally in the fall when temperatures have cooled too much to allow sufficient after-ripening, they will usually not germinate until the second spring. However, if you harvest the seeds as they just begin to flush red in late summer, clean and sow them outdoors, they will germinate the first spring. Another thing you must realize is that a large proportion of

Raising continued on page 2

Inside . . .

Raising continued from page 1

hobblebush seeds are non-viable. I imagine this is a ruse meant to discourage chipmunks and squirrels, who will eat the seeds. A squirrel will tend to pass on a plant that has many empty seeds in favor of one with more full ones. For the propagator, this means collecting 2-3 times more than you need in order to get enough good seed. Fortunately this is usually not a problem, as hobblebush produces copious berries.

My procedure is to pick the fruits as they blush red (mid August in central New England), mash them up a bit to crack the skins, and drop the lot into a big bucket filled with water (if the seeds float too much, drop an old plate on top of them). Let the seeds soak for 10 days until they are a putrefying mass (don't leave the bucket in the house!) and then rinse off the rotted pulp over a screen using a garden hose. You may not be able to get every last bit off, but the chemical inhibitors in the pulp should be sufficiently destroyed. Sow the seed and place it outdoors where rodents cannot get at it (I like to screen off a cold frame with hardware mesh to prevent their access). By fall, viable seeds will have sprouted a root, and these will send up cotyledons and a set of leaves the following spring. Young seedlings are best left in the flat for a year before moving them on, and they like the kind of cool, shaded spot you'd find them in naturally. Alternatively, you can put the cleaned seed in a plastic bag mixed with some moist sand or vermiculite and leave it on the desk for three months, then store it in the refrigerator until you can sow it directly into your woods in spring.

Spicebush

Lindera benzoin is a broad-leaved understory shrub of wooded wetlands throughout the eastern U.S. and southern Ontario. It has a multi-stemmed, wide-spreading habit and pretty, dull blue-green, oval leaves. The leaves and especially the bark have a great, spicy aftershave scent

Raising continued on page 12

The Newsletter of the
Indiana Native Plant and Wildflower Society

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.

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

In 1984, when my father-in-law retired, my in-laws built a home on the 100-acre family farm and moved to the country. Although never a gardener or farmer, my father-in-law loved the countryside and would often rise early in the morning, wash, dress, eat breakfast and be calmly waiting by the kitchen window as the first pink rays of sunlight spilled over the horizon. There he'd be, perhaps steamy coffee in hand, perhaps busy with a chore, but always ready to watch the day begin. Hours later, fists rubbing the sleep from our eyes, the rest of us would stumble awake.

"The doe and her fawn were at the salt lick this morning," he might say, matter-of-factly. "And I spotted that pesky woodchuck in the meadow by the barn again."

Although I never joined him on his pre-dawn vigils, I understood the motivation behind them. There's something special about the early morning.

It's a magical time when ornate spiderwebs sag with dew, shreds of mist float among the trees, the ground is bathed in soft shadows and the air hangs heavy with sweet fragrances. The first rays of daylight are greeted by the cacophony of bird songs and the blooms and foliage seem so fresh and new that it's like seeing them for the first time.

At this time of year, as the dog days of summer descend upon us, birds and squirrels and worms are up early, and so are many gardeners. They all have work to do, and the prospect of toiling under the midday sun is disagreeable. Sunrise in a garden is a special time. Besides the enjoyment of what you can gaze at, mornings always bring the optimism of what you can do. This, after all, could be the day that the big project you have been planning finally gets under way or, perhaps this is the day to tackle that nagging task that you have been putting off. Today, at this early morning hour, you could accomplish anything!

Exploding with vibrant color and fascinating shapes, the gardens of summer are beginning to bloom. Each flower is unfolding and bursting forth with distinctive charm. I hope all of your dreams are in full bloom. However, if you're like me, you may wish to relax with a cup of coffee, rub the sleep from your eyes, and just look for a while first.

goxen@iquest.net

INPAWS Annual Conference

Saturday and Sunday, November 2 and 3, 2002

Plan now to attend the INPAWS Annual Conference! This year the event will be held at **Canyon Inn** in beautiful **McCormick's Creek State Park**, Spencer, Indiana! As in the past, conference meetings will be held on Saturday.

However, we hope many of you will wish to make it a weekend by staying at the inn on Saturday evening (Those coming from a distance may want to stay Friday as well). The conference committee is busy planning exciting events for Friday evening and Sunday, including a naturalist-led hike in the park.

A block of rooms has been reserved at a cost of $59.00 for a single and $69.00 for a double. Attendees are responsible for booking their own rooms.

Reservations can be made daily from 8 AM until 10 PM by calling 1-812-829-4881
or toll-free 1-877-9CANYON.

You may also check availability and make online reservations at www.placestostay.com.

The inn is being remodeled and is always popular, so to insure availability make those reservations as soon as possible.

For more information contact Annual Conference Chairwoman Eleanor Bookwalter

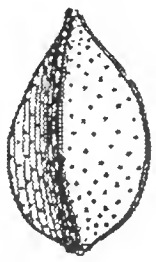
bookedbook@aol.com

Plant detectives . . .

Seeds for Ceramists

by Barbara Plampin

What's this grass doing producing eggs, I wondered, as the smooth, glossy ovals caught my eye. The minute seeds fell easily from their scales into my palm. My 10X magnifying glass revealed minuscule, pointed-tipped balloons above decorated baskets. Enlarged, what beautiful clay pots those seeds would make! The picture in Gleason's *New Britton and Brown Illustrated Flora* (1952) revealed the seeds' identity: not a grass but Tall Nut Rush *(Scleria triglomerata)*. (All "rushes" in this article are really sedge family *(Cyperaceae)* members. Sedge *(Carex)* is just one genus in this family. Like lilies, genuine rushes *(Juncaceae)* have six perianth parts. Sedge family perianths are absent or reduced to bristles.)



Seed of *Eleocharis melanocarpa*

Potters seeking inspiration for shapes, hues, textures, glazes, and decorations need only examine more pictures of sedge family seeds (achenes). Botanists, of course want to see the living plants. Swink and Wilhelm, *Plants of the Chicago Region,* Fourth Edition, 1994, tell us that many of these plants flourish in the Dunes, give associates, and indicate habitats, among them sandy marsh edges and sand mines dug down to the water table. Seeds ripen from mid-summer to early fall. Some, like Tall Nut Rush, are relatively common; others are state listed.

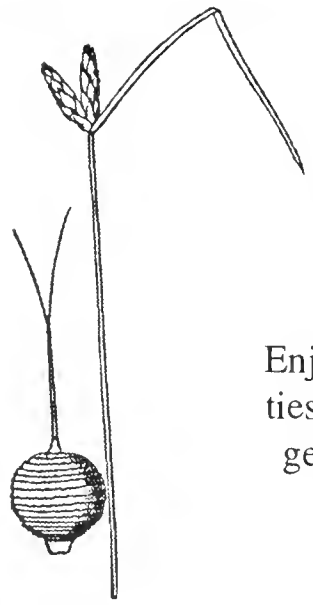
Seed of *Psilocarya scirpoides*

Besides Nut Rushes, inspiring seeds occur especially in "PERBS," my acronym for ***Psilocarya*** (Bald Rush), ***Eleocharis*** (Spike Rush), ***Rynchospora*** (Beak Rush, and ***Bulbostylis*** (Hair Sedge) and ***Scirpus*** (Bulrush). All Nut Rush "pots" sit in decorated bases or collars (hypogynia). PERBS vessels have "lids" (tubercles formed from persistent style bases). Bulrush containers have neither bases nor lids, but interesting bristles surround most Bulrush and PERBS seeds.

Seed of *Scleria reticularis*

Some more possibilities: Netted Nut Rush *(Scleria reticularis)* has matte finish white, "sordid" gray, or, in my experience, black seeds "marked with narrow ridges enclosing shallow, irregularly polygonal pits."

Black-fruited Spike Rush *(Eleocharis melanocarpa)* seeds are really dark brown. Somewhat resembling upside-down pyramids, these flat-topped, three-angled seeds are completely covered with a flattish, lighter brown lid. Each matte finish vessel bears a longitudinal fold. State-endangered Hall's Tufted Bulrush *(Scirpus hallii)* seeds are little, top-like globes with wrinkled longitudes.



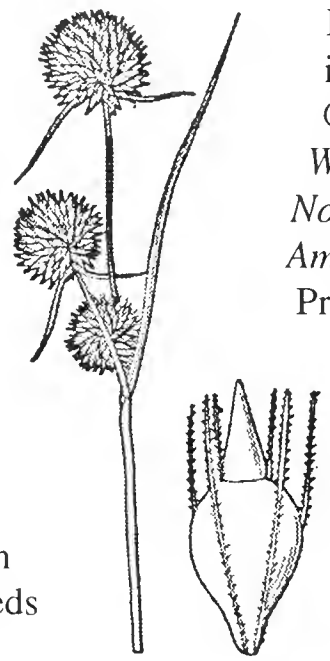
Flower Stalk and Seed of *Scirpus hallii*

Enjoy at least 42 more possibilities. Branch out into other sedge genera. Maybe you can present an Indiana "seed pot" to the Governor's Mansion.

Further Tips:

Deam, *Flora of Indiana* (1940) shows counties not found in Swink and Wilhelm. Fassett, *A Manual of Aquatic Plants* (1957) pictures everything but Nut Rushes and shows many otherwise puzzling plant parts. A dissecting microscope is helpful.

NB: About pictures: The old Britton and Brown (Dover publishing house) has large pictures of seeds–not quite as accurate as those in Fasset and Gleason. Fasset has been revised in two volumes, @$90.00, as *Aquatic and Wetland Plants of Northeastern North America*, U of Wisconsin Press, 2001?, ISBN O-299-16330-X and ISBN 0-299-16280-X). Authors are Crow and Hellquist.



Flower Stalk and Seed of *Rynchospora axillaris*

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 – thirteenth in a series

Name That Conifer

by Dr. Rebecca Dolan

There are four major groups of conifer trees in our region: pine, spruce, fir and hemlock. From a distance they may look pretty much the same, but there are a few features that allow them to be easily distinguished.

Fir needles are flat and leave a little depression on the branch when they fall off. Cones point upwards on the branch. They are papery, rather than woody, and fall apart as seeds are released.

The American hemlocks are trees, like in the poem *Hiawatha*, not like the poisonous European herb Socrates drank. Our hemlock's needles are short and borne in double-ranks along the branches. Each needle has a double white line on its undersurface. The top branch of a hemlock tree tends to droop to one side. Hemlock cones are the cutest ever, only reaching one inch in length.

Pine trees bear their needles in clusters, or fascicles. White pine has five needles per fascicle, red pine two. Pine needles are round in cross-section and you can roll them through your fingers. Pine cones hang down from the branches.

Spruce needles are 4-angled. They are borne singly on little pegs and leave bumps on the stem when they fall off. Cones hang down.

Eastern Hemlock
(Tsuga canadensis)

According to Deam's 1940 flora, the only conifers native to Indiana are:

Prostrate juniper *(Juniperus communis)*

Eastern red cedar *(Juniperus virginianus)*

Northern white cedar *(Thuja occidentalis)*

Tamarack or larch *(Larix laricina)*

Jack pine *(Pinus banksiana)*

White pine *(Pinus strobus)*

Virginia pine *(Pinus virginiana)*

Eastern hemlock *(Tsuga canadensis)*

Canada yew *(Taxus candensis)*

Southern cypress *(Taxodium distichum)*

Hemlock and Canada yew are plants with northern affinities. They are thought to survive in Indiana only in relictual populations on deep north-facing slopes of creeks where they have held on since soon after the glaciers retreated.

Interestingly, with the possible exception of red cedar, no conifers are native to Marion County.

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

Coneflower Dig

with Ellen Jacquart,
Director of Stewardship

Saturday, September 7, 2002

10:00 AM to 3:00 PM
(Indianapolis time)

Prairie Border Nature Preserve, Jasper County

Free Purple Coneflowers *(Echinacea purpurea)* to all attending! Ellen will be leading a workday at our restoration plantings at Prairie Border to remove purple coneflower and pale purple coneflower plants. These species are not native to this particular area. Bring your favorite shovel, plastic bags or pots to put the plants in, gloves, a lunch and water. You may take home as many of these plants as you like!

Directions: From the intersection of U.S. 421 and SR 10, go west four miles on SR 10 to Co. Rd. 400E. Go south one-half mile, and you will see wooded savanna on your left open up into a prairie field. Park along the road.

RSVPs would be appreciated. Call (317) 951-8818 or e-mail Ellen Jacquart at ejacquart@tnc.org to RSVP or if you have any questions.

Flora of Indiana Returns to Print

Originally published more than 60 years ago, in 1940, the *Flora of Indiana* by Charles C. Deam continues to serve as the primary source of information for anyone seriously involved in field botany and species identification. The *Flora* has just been brought back into print by The Blackburn Press, making it available again to libraries, scholars, botanists, ecologists, landscape architects, horticulturists and gardeners who wish to own or replace an invaluable reference.

In working on the book, Deam examined over 84,000 specimens; and from these he prepared keys, species accounts and range maps showing species, occurrence by county in Indiana. These maps reflect detailed accounts as of 1940 and remain useful in determining a species, general range in the state. The 1,236-page reference is finding new uses today in natural landscape restoration and protection.

For more information, we invite you to point your browser to:

http://www.blackburnpress.com/floraofindiana.html

or

http://www.amazon.com.

The Blackburn Press is a relatively new publishing company, founded with the mission of keeping in print and available for purchase at reasonable prices book titles that larger publishers have lost interest in and have declared to be "out of print." It specializes in scientific and technical books and textbooks that are classics in their field.

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Explore the latest additions to our list at
http://www.BlackburnPress.com

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.

Send us your news, questions, comments, ideas, suggestions.

Please email Anne Wilson wilson@hsonline.net

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.

STATE:

- ☐ Student $10
- ☐ Individual/Family $20
- ☐ Patron $100
- ☐ Sponsor $250
- ☐ Corporate $500

CHAPTERS:

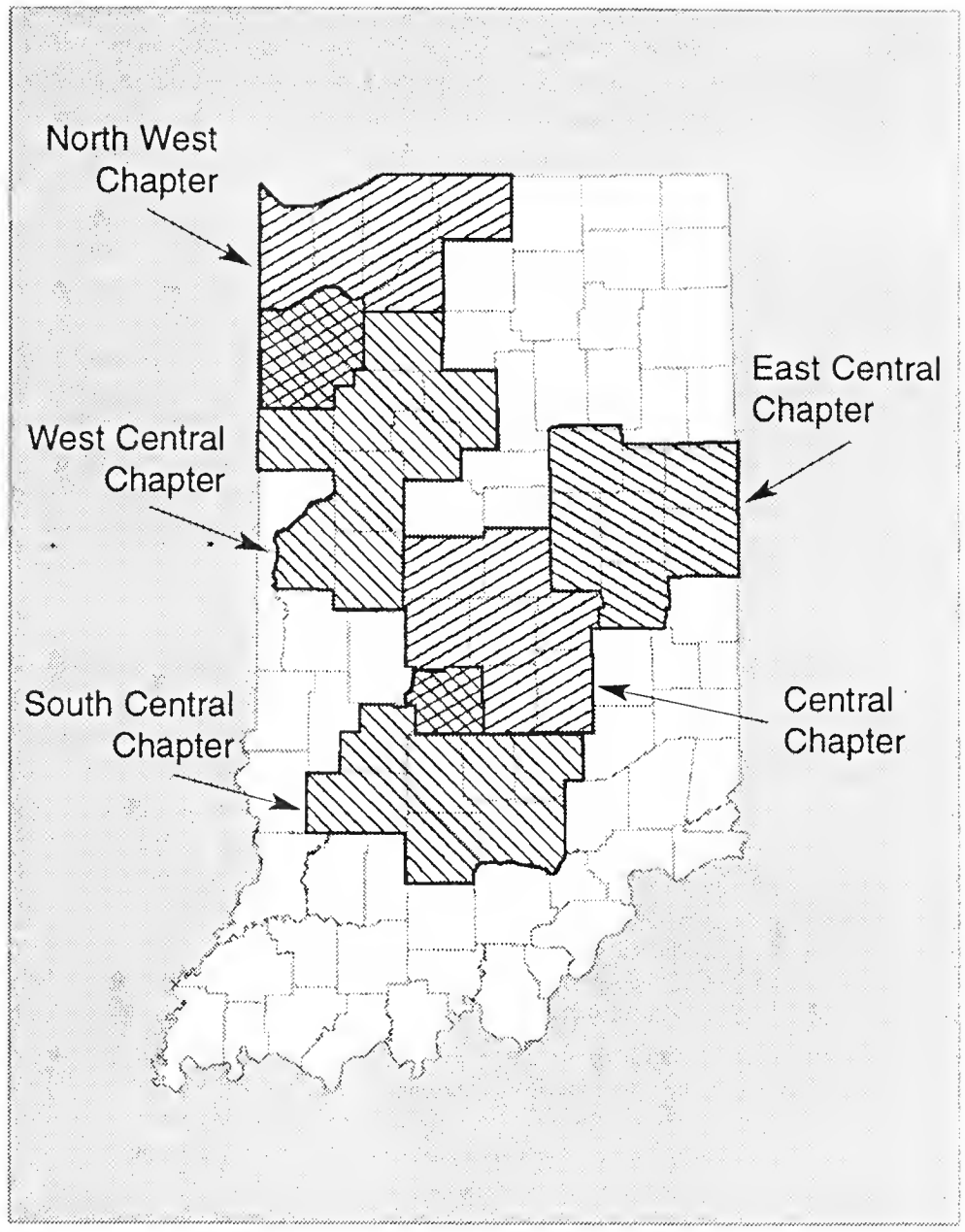
- ☐ Central $5
  Boone, Hamilton, Hancock, Hendricks, Johnson, Marion, Morgan, Shelby
- ☐ East Central $5
  Blackford, Delaware, Grant, Henry, Jay, Madison, Randolph
- ☐ North West $5
  Jasper, Lake, LaPorte, Newton, Porter, Saint Joseph, Starke
- ☐ South Central $0
  Bartholomew, Brown, Greene, Jackson, Lawrence, Monroe, Morgan, Owen
- ☐ West Central $5
  Benton, Carroll, Cass, Fountain, Jasper, Montgomery, Newton, Pulaski, Tippecanoe, Warren, White

Supporter (Additional Donation). . . $ _____

Total Enclosed . . . . . $ _____

All Chapter members must be State members.
Chapter membership is voluntary and members may join more than one chapter.

For more membership information please contact Mary Welch-Keesey, Membership Chairman mwkeesey@cs.com, 317-638-4328



Name _____

Address _____

City _____

State, ZIP _____

County _____

Telephone _____

Fax _____

Email _____

Please complete this form and attach your check payable to INPAWS or Indiana Native Plant and Wildflower Society. Send the form and your check to:

INPAWS c/o Carolyn Q. Bryson
7740 West 88th Street
Indianapolis, IN 46278-1110

All donations above Student, Individual, Family and Chapter dues are most appreciated and can aid our mission. Donations are tax-deductible to the extent provided by law.

I would like to help with:

- ☐ Annual Conference
- ☐ Conservation
- ☐ Demonstration Gardens
- ☐ Education (Child)
- ☐ Grants and Awards
- ☐ Historian
- ☐ Invasive Plant Eradication
- ☐ Membership
- ☐ Native Plant Rescue
- ☐ Newsletter
- ☐ Plant Auction/ Sale
- ☐ Programs/ Field Trips
- ☐ Public Education (Adult)
- ☐ Publicity
- ☐ Speakers Bureau

08/02

INDIANA NATIVE PLANT *and Wildflower Society*

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.

In addition to the more well known and popular wildflowers, native plants include ferns, grasses, mosses, fungi, algae, vines, shrubs and trees, and even plants we often refer to as "weeds."

A love of wildflowers,
as well as an appreciation of the importance of their habitats, is what unites members of the Indiana Native Plant and Wildflower Society. We number more than 500 and include amateurs, professionals, naturalists, gardeners, environmentalists, hikers, botanists, artists, photographers, and others who love the wild and value the beauty of nature.

Join us and:
- find out why native plants are important and how to use them in your landscape
- learn how to protect habitats for native flora and fauna and how to rescue those doomed by habitat destruction
- participate in native plant and seed auctions and sales, field trips to spectacular Indiana sites, slide shows, and other activities
- receive our quarterly newsletter which will keep you informed about native plant issues and related events around the state

Among its conservation efforts INPAWS has:
- contributed toward the purchase of threatened land
- helped fund a biological control program against invasive non-native plants
- joined with other organizations to print educational materials about non-native invasive plants and landscaping with native plants

The Indiana Native Plant and Wildflower Society is a not-for-profit 501(c)(3) organization.

For more information visit our website: www.inpaws.org

Indiana Native Plant and Wildflower Society (INPAWS)

Small Grants Program Guidelines

INPAWS has a small grants program to support projects that are in line with the mission of the society. Toward that end, the Board voted in 1998 to allocate $10,000 from the general fund to an endowment account. Interest from this account will be available for grants. The Awards Committee anticipates funding two grants of up to $500 each this year.

We hope that these small grants will be used in conjunction with other sources of funding for project enhancement such as signage and brochures, special plantings or purchase of native seed stock.

The mission of INPAWS 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.

Applications are requested from groups or individuals and must be post-marked by **October 1, 2002**. They will be reviewed by the committee.

Application Procedures for the INPAWS Small Grants Program

Please submit the following:

1. Cover sheet including

- Name of project
- Amount requested
- Location
- Applicant/contact person name, address, telephone
- New or existing project
- Category that best describes the project: research, training, education, conservation and habitat, demonstration garden, etc.

2. Text of proposal
(not to exceed 2 pages)

a) A summary of the project, not to exceed fifty words

b) A clear, concise description of the project which includes the following:
- How does the project further the INPAWS mission?
- Why is the project needed?
- Specific objectives to be achieved
- Specific information on how INPAWS grant funds would be used
- Who benefits from the project? How many? How do they benefit?
- Names of organizations involved, if any, with a brief description of each, including number of members
- Financial resources committed to the project from other sources, if any
- Anticipated starting and completion date of the project

3. Budget sheet showing:

a) Labor, material and program costs

b) Sources and amounts of funds already raised, if any

c) Total cost of project

Fifty percent of funds awarded will be available at the start of the project, 50% upon receipt of a final report by the Awards Committee. In addition, successful awardees must prepare a poster or other presentation to share with the membership at the Annual Conference subsequent to completion of the project.

Mail four copies of the grant proposal, post-marked by **October 1, 2002,** to Dr. Rebecca Dolan.

Larger Grant Awards

At the discretion of the Board and membership, larger awards may be made from time to time from the assets of the operating budget. Requests for funds for special projects may be made at any time to the Executive Committee. All requests must be made in writing with a clear statement of how the award would further the mission of INPAWS and benefit our membership.

Dr. Rebecca Dolan
Friesner Herbarium
Butler University
4600 Sunset Avenue
Indianapolis, IN 46208

317-940-9413
317-940-9519 FAX
rdolan@butler.edu

INPAWS Chapter Reports

Central Chapter News

A reminder that information about the Central Chapter's upcoming meetings and events will be sent out by e-mail. You will be notified about opportunities, such as plant rescues, by e-mail as well. If you are a chapter member and are not currently receiving our mails, we may not have your correct, current address. Those who do not have e-mail will be notified by phone or post card, time permitting. If you want to be notified by phone or if you change your e-mail address, please let us know.

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

Mark Outcalt
317-257-3574

maryhel@earthlink.net

Coming Events

Saturday, August 17,
2 to 4 PM
Holliday Park Nature Center
Sophia and Dan Anderson will present a slide show on cooking with native plants. Bring native plants that have multiplied or seeds that you have collected for our first annual plant/seed exchange following the program.

Saturday, September 7,
10 AM to noon
Program and tour of the restoration of the formal gardens belonging to the Allison Mansion on the campus of Marion College. The garden was designed in 1915 by Jens Jenson using all native plants. A brief history and look at the original design will be followed by a walk around the garden. Park in the lot south of Allison Mansion and meet at the Colonnades just south of the Mansion.

Sunday, October 6
annual meeting of the Central Chapter. Pitch-in dinner, slide show and election of officers.

Saturday, December 7
pitch-in Christmas party at Betsy and George Wilson's.

East Central Indiana Chapter Summer Field Trips

Saturday August 17 9:30 AM
Meet at the Fairgrounds across from Minnetrista Cultural Center in Muncie. Byron Torke will be taking us to Summit Lake to see the DNR prairie plantings as well as Rogerville Cemetery's natural prairie.

If you have any questions e-mail me or phone

Marcia Johnson
(765) 288-5629
marciaj50@aol.com

South Central Chapter News

We had a great time at the Sycamore Land Trust Gardening and Landscaping Show. Cathy Meyer, Ellen Jacquart and I tended the SCINPAWS table in shifts.

We had a tri-fold display of invasive plants made by Carolyn Bryson, and brochures on landscaping with native plants and on invasive plants in Indiana. Many people picked up these and the SCINPAWS membership forms. The display brought many people to the table with questions about invasives, and laments that purple loosestrife was on the list. We got a variety of questions:

- How do I get rid of Japanese Honeysuckle?
- I've got that plant in my yard, what is it? (From a picture of Bush Honeysuckle in the invasives brochure.)
- What plant can I use as groundcover to replace the Ivy and Vinca that is taking over. (Ellen suggested wild ginger, and showed him the chapter in *Go Native!* (by Carolyn Harstad) on ground cover.)
- What is the difference between an heirloom plant and a native plant? (This question was prompted by our location next to the Wylie House table where they were selling heirloom plant seeds.)
- Where can I buy native plants?
- I am starting a project to create a prairie in Gary; what types of plants do you suggest? Where do I find out what kinds of plants are appropriate to my area?
- and many more.

There was a lot of interest in landscaping with native plants, and we ran out of that brochure. We also had display copies of *Go Native!*, the *Field Guide to Indiana Wildflowers,* and Landscaping for Wildlife. People were particularly interested in *Go Native!,* and we sent quite a few people down to the Indiana University Press table where they could purchase the book.

Lucille Bertuccio did a presentation on worm composting on behalf of SCINPAWS. There were many good questions during this presentation, and Lucille made it look easy. Other SCINPAWS members made presentations. Russell Boulding talked about soils of southern Indiana, and Art Hopkins gave an around- the-world slide tour of features that make great garden landscapes great.

Thanks to Cathy and Ellen for staffing the table, thanks to Ellen for picking up the tri-fold display and brochures in Indy and bringing them to the convention center, thanks to Carolyn for making the display, and thanks to Lucille for making the presentation on worm composting.

The invasives display now belongs to the chapter, so if you know of an event in the area where you think people would be interested in learning more about native plants and SCINPAWS, give me a call or e-mail. I have the materials at my house.

Sherri McConnell
(812) 332-4295
shermcconnell@netscape.net

West Central Chapter News

This spring and summer the West Central Chapter has joined with the Sycamore Audubon Society and the Tippecanoe and West Lafayette Parks Departments to co-sponsor a nature series called "Wednesdays in the Wild" which includes walks through local parks and nature preserves. For example, on June 26 there was a walk through the prairie at the Museums at Prophetstown.

We also exhibited displays on landscaping with native wildflowers or dealing with invasive alien plants at the opening of Lafayette's Columbian Park Zoo (May 18), Wildcat Creek Environmental Day (June 8), Father's Day at the Museums at Prophetstown (June 16) and Wabash Riverfest (July 13).

Our next meeting, open to the public, will be on Monday, August 26, with a slide program by Wabash College ecology professor David Krohne. Be on the lookout for more information or email me.

Chris Brewster
jim.chris.brewster@worldnet.att.net

Plant Sale Success!

Kelly A. Frank,
Annual Plant Sale Chair

This year's INPAWS plant sale is now in the books and I am pleased to report that it was a huge success in every way. It netted nearly $7200 in sales, over 200 sales, 15 memberships and many happy plant shoppers–all in two and a half hours!!!

None of this would have been possible without the contribution of more than 40 volunteers and 34 plant donors !!! The volunteers were amazing, each one so dedicated and fun to work with. And the plants were impressive as well.

Thanks to all the donors for digging at least two weeks in advance (the plants were in beautiful condition), for labeling all the material, and for donating so much.

This was my first year as chair of the event and also my first year attending an INPAWS plant sale. I am grateful to Linda Oxenrider for offering me the opportunity to get involved with such dedicated plant lovers and stewards. I also have to thank Jan Gustaferro, former plant sale chair, for coaching me through this year's sale. I am happy to chair the event again in 2003 (which will be at the same great location, St. Pius X School on the Saturday before Mother's Day).

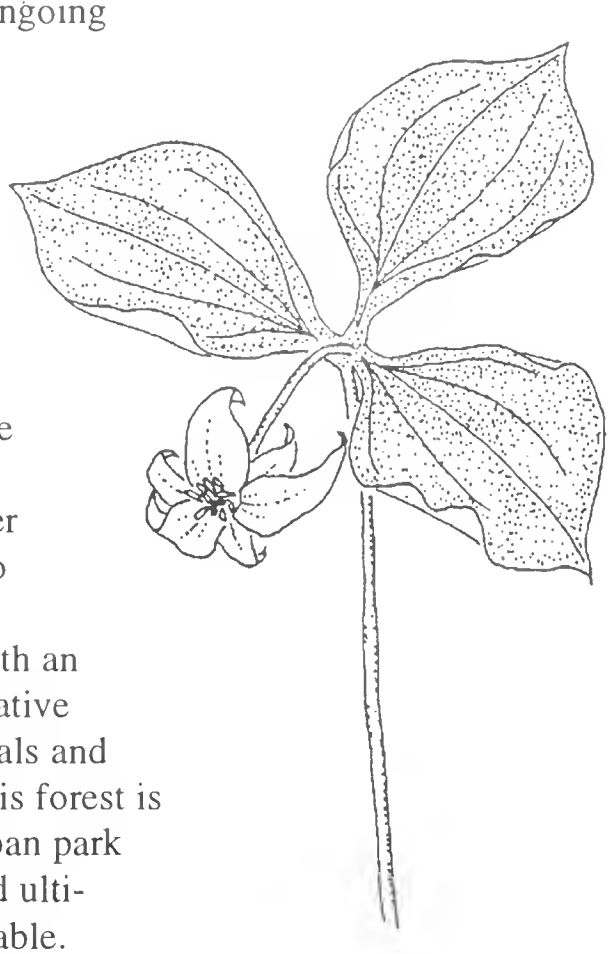
I would be grateful for any comments about this year's sale, or suggestions for next year. Please send them to me at
kiwisan@fontiernet.net
or 10855 W 650 N,
Thorntown, IN 46071-9093.

Thank you again all who donated, volunteered, and shopped–see you at the sale next year!

Reclaiming the Forest in Broad Ripple Park in Indianapolis

by Ruth Ann Ingraham

On Saturday morning, June 8, 2002, twelve of us entered the deep shade of the old remnant forest in Broad Ripple Park on the north side of Indianapolis to join forces with Indy Parks. Don Miller, Land Stewardship Coordinator, and Andrew Mertz, Project Manager of Land Stewardship, and INPAWS continued the ongoing work to eliminate exotic invasives there. INPAWS adopted this forest in 2000, and hopes to remove it from the clutches of killer invasives and to return it to a healthy state with an abundance of native spring ephemerals and young trees. This forest is in a popular urban park and is small and ultimately manageable.



White trillium
(Trillium flexipes)

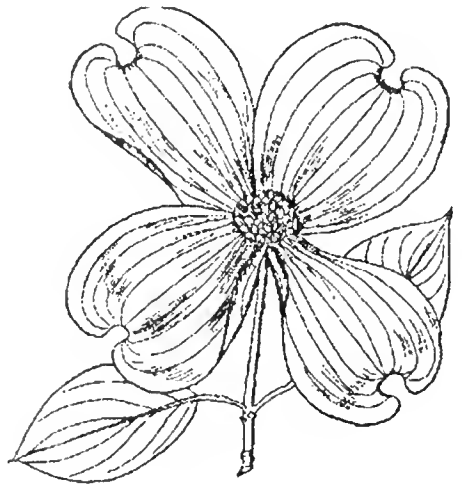
Don and Andrew had cut about an acre of Amur bush honeysuckle shrubs before we, the volunteers, arrived. Indy Parks staff would later spray the raw stumps with herbicide. We dragged the cut branches into small piles within the woods. (In the past we dragged the branches out of the forest to be chipped and used as mulch, a process that works in the spring and summer but not in the fall when the shrubs have ripe berries.) This done, we pulled Amur honeysuckle saplings and small shrubs and garlic mustard which we stuffed into black plastic bags to be incinerated.

Large areas of the forest floor are densely packed with creeping euonymus or winter creeper. This tenacious invasive is difficult to eradicate because of the waxy coating on the foliage. But Don has found a herbicide with a penetrating surfactant that he hopes will work and had applied it to test areas earlier. Several patches had wilted and were turning brown following a single treatment. Creeping euonymus has climbed the trunks of several trees where it will bloom and produce fruit. This must be pried loose and pulled down.

The difference in the appearance of the forest where we have cleared bush honeysuckle in the past and what remains to be done is dramatic. Once again you can look into and through the forest. Before we began two years ago, the understory was solid Amur honeysuckle. Trilliums, false Solomon's seal, wild ginger, and May apples were seen and we heard a great crested flycatcher and red-eyed vireos in the treetops. There is more to be done and stewardship will never end. However, with willing volunteers this forest will be a small gem. Don observes that the herb layer is starting to regenerate as are the shrubs and canopy trees such as red oak.

Afterwards we met under my beech trees for pizza, provided by Indy Parks, and fresh strawberries on ice cream and cake. Then we toured my garden and that of INPAWS member and neighbor, Rob Day.

Volunteers were David and Nancy Martikke, Ron Jackson, Kim Krull, Diana and Lewis Simpson, Tom Hulvershorn, Charles and Marilyn Spurgeon, Christy Krieg, Helen Merrill and myself.



Dogwood
(Cornus florida)

Birds Serving up their own Dinner

Landscaping for Indiana Wildlife

by Greg Oskay

With all of the various lists of native Indiana wildflowers, trees and shrubs that can be planted to attract wildlife, how do you figure out which ones will be their favorites? You might go for a walk around the neighborhood and see a flock Cedar Waxwings gorging themselves on berries from a Hawthorn. Okay, that may seem a little too easy. Or it may really be quite difficult, getting out in all seasons of the year to see what the birds are feasting on. Then you have to find a source for all of the assorted plants.

Elderberry
(Sambucus canadensis)

Why not let the birds help you out with the seed gathering and planting. They are perfectly content to help set their own table. Never seen a thrush in your garden wielding a shovel and hoe? They will help out with the dirty work (please excuse the pun) all the same.

When the birds chow down on berries from several species of trees and shrubs, the pulp nourishes them but the seed pit passes on through their digestive system. In fact some seeds require this acidic digestive tract treatment in order to sprout. If the bird makes its deposit on fertile ground, up comes another plant for future generations to feed on. It may not sprout where you want it but there is no law that says you can't transplant it to where it would fit into your landscape design.

Eastern Red Cedar, various Dogwoods, Elderberry, Hackberry, Hawthorn, Pokeberry, numerous Viburnums and Virginia Creeper are just some of the beneficial wildlife plants that may be brought into your habitat by the birds. Northern Mockingbird, Gray Catbird, American Robin, Hermit Thrush, Swainson's Thrush and Cedar Waxwing are among the birds that will spread seeds in this manner and in turn be attracted by the plants that come up in our habitats. Red Fox, Opossum, Raccoon and Chipmunks will also distribute seeds far and wide through their droppings.

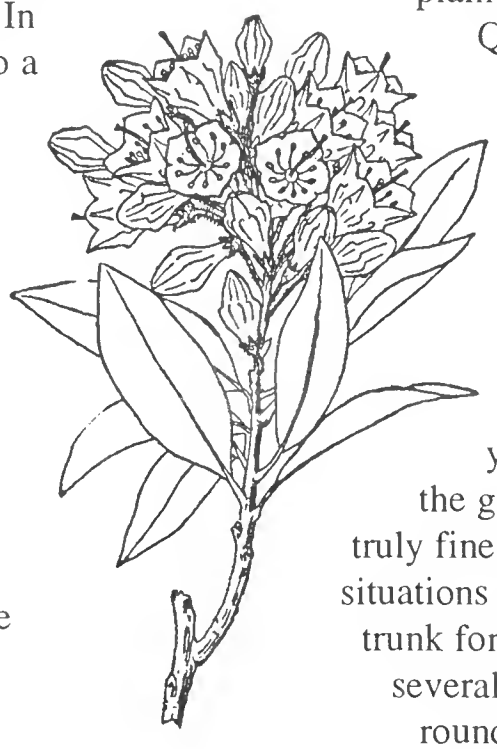
I wanted to plant Elderberries in our backyard wildlife habitat. The blossoms are attractive to butterflies and the berries will attract a variety of birds. I was unsure how to get an Elderberry bush since none of the local nurseries sold them. Elderberry is quite common in rural areas but at the time I did not know anybody from whom I could get a start. One day Bill Brink was over for a tour of our habitat. I asked him about a seedling that I did not recognize that had sprouted in the middle of the wildflower plot. He identified it as Elderberry. The birds had planted it for me. Didn't particularly want the Elderberry in the middle of the wildflowers. It was transplanted for use as a backdrop for the wildlife pond where it has prospered for many years.

Seed-eating birds will invariably drop some seeds when picking apart wildflower seed heads. These will not be scattered as far and wide as berry pits but will provide crops just the same in future years.

Not everything that comes up wild in the backyard habitat will be beneficial. Birds love the white berries of Poison Ivy. They will also spread the seeds of Bush Honeysuckle, one of our worst woody weeds. The wind distributes the seeds of many other plants. Who knows what all will sprout in your yard? Try to identify plants that come up voluntarily rather than instinctively pulling them. Selective weeding will eliminate the pest species yet save some of the birds, favorite wildlife food plants.

Raising continued from page 2

that is one of my favorite woodland smells. This is a dioecious species, with both male and female plants producing yellow-green flowers all along their twigs in earliest spring before the leaves have emerged to obscure them. The flowers provide an early bit of nectar for precocious bees and flies when little else is in bloom, and the female plants set good crops of oily, nutritious berries (technically drupes) that are relished by many birds. In order to beat the birds to a few fruits, I collect them in early fall when they are beginning to turn from green to yellow, then orange and red. The leaves begin to color a soft, luminous yellow about the time the berries are ripening, which helps remind me to collect them. You may have to search a few shrubs before you find a good berry-producing female. Collect the seeds and handle them like hobblebush. They are intolerant of drying out, so after cleaning, either sow them immediately or store them in a plastic bag filled with moist sand/vermiculite. If sown in fall and over-wintered in a screened cold frame, the little seedlings will emerge vigorously in spring, and will careful watering and a light dose of liquid fertilizer every few weeks (Miracle Gro or equivalent) they will be ready to move into individual pots or a seedling bed after a month or so. This same technique works for most **dogwoods** Cornus spp. as well as **hollies** like Ilex verticillata. Most hollies and summer-ripening dogwoods like pagoda dogwood Cornus alternifolia and gray dogwood C. racemosa need a period of warm after-ripening like hobblebush, while fall-ripening Cornus like flowering dogwood C. florida, need only a period of cold stratification after cleaning like spicebush.



Mountain Laurel
(Kalmia latifolia)

The final berried shrub I'll cover is one of my favorites–**leatherwood** Dirca palustris. In damp, floodplain forests in southern Quebec, Ontario and the eastern U.S., especially those with soil enriched by limestone, it grows as a rather scraggly, multi-stemmed plant, but like hobblebush, if you give it a place in the garden, it becomes a truly fine specimen. In such situations it will form a short trunk forking quickly into several limbs supporting a rounded crown. Its stems swell and thicken out of all proportion with their size, so the shrub takes on the same brawny thickened quality that makes bonsai so appealing. In early spring, about the time spicebush is flowering, dangling pale yellow flowers tassel every stout branch and fade just as the broadly oval to nearly rounded, 3-5 cm leaves swell large enough to notice. The foliage is a soft, glaucous green, and looks its best in dappled shade or morning sun. The problem with collecting leatherwood seeds is: a) they ripen in late spring, when I am madly rushing around with a thousand things to do; b) the seeds give little indication they are ripe other than a subtle shift from leaf green to yellow green; and c) they hide up amongst the leaves so thoroughly that I find it easier to lie down underneath the bush and look up into it to find them. If you miss the seed by a day or two, it drops off into the leaf litter and is gone. Since such inconspicuous fruits hardly seem able to attract the attention of birds, especially at this time of year when most are busy gathering insects to nourish their young, I imagine they are dispersed by herculean ants, floodwaters, or simple gravity. (Many mature Dirca have a large crop of seedlings growing underneath them that obviously got no farther than the point where they landed.) Since they are not designed to pass through a digestive system, you don't need to clean off the thin flesh from around the seed, and in fact this is one of the rare cases where sowing the uncleaned seed will give better germination. They also need a long period of after-ripening and then an equally long winter and slow warm-up in spring that is easiest to provide by sowing them outdoors in flats or a prepared seedbed and waiting until the following spring for them to germinate. Seedlings emerge with a few leaves the first year, but are best left alone until the following spring.

Witchhazel

Hamamelis virginiana has forsaken the vagaries of wind, water or animal dispersal entirely, relying instead on sheer physics. The common name comes from its use as a dowsing rod (also called water-witching) and its passing resemblance in leaf to the true hazels *Corylus* spp. These stems are good for dowsing because they fork widely at the tips, with new shoots

coming most vigorously from the ends of last year's progress. Thus, they develop a characteristic flattened and vase-shaped form that makes them easy to spot in the woodlands of eastern Canada and the U.S. Witchhazel laughs in the face of winter, sending out its small yellow flowers with their four ribbon-like petals in fall, just as its leaves are coloring a striking apricot yellow. at this time of year, it has little competition for pollinators scrambling furiously to stock up for the winter or at least find the energy to lay eggs before they die, and many of the flowers develop two-chambered woody capsules. These swell a bit the first fall, then grow in earnest the following summer so that by the time the next crop of flowers is unrolling its petals, they are ready for launch. As the seeds mature, the capsules split open, revealing their cargo in all its shiny brown beauty. There is a membrane surrounding each of the four seeds that begins to dry and constrict on contact with the air, putting pressure on the lower side of the seed until it is forcibly ejected at great velocity. the seeds can travel up to 10 meters, hopefully to a spot conducive to their establishment and growth. To collect these miniature projectiles, you must gather them just as the capsules begin to open in fall and drop the lot into a paper bag closed tightly and left indoors. after a week or two, the popping will cease, and you can pick out the pointed oval seeds. These, too, need a few months of warm moist conditions to after-ripen, which at this time of year is best accomplished by putting them in a bag of moistened sand or vermiculite and transferring them to the refrigerator (not the freezer) around New Year's Eve for the duration of the winter.

Finally, there are a few woodland shrubs that rely on wind to disperse their seeds, but these are often so tiny that they need special conditions to germinate. The most familiar of these are many members of the **Rhododendron** tribe, including the sweetly scented rose azalea *(Rhododendron prinophyllum,* formerly *R. roseum).* The rhododendrons and indeed most of their relatives like *Kalmia* spp. (sheep, bog, and **mountain laurel**) and Labrador tea *(Ledum* or now *Rhododendron groenlandicum)* are what I like to call moss germinators. their tiny seeds germinate and grow best in the mossy carpets that form on stumps, logs, and boggy hummocks. they can grow in this sort of acidic, nutrient-poor environment because the seedlings quickly become infected by ericaceous endomycorrhizae, fungi that invade their fine roots and aid in the uptake of nitrogen as well as other vital nutrients. the ever-moist moss provides these plants with a clear,m camp place to establish, and the fungi provide the rest.

To raise these plants yourself, look for ripe capsules in fall, about the time of the first hard frosts. Collect these and mash them some to loosen the seed, then shake them through a kitchen strainer to separate the winged, rust-colored seed. you can take the natural approach and store the seed in a paper envelop in the refrigerator through the winter, then shake it into a patch of damp moss (the fernleaf moss, *Thuidium delicatulum,* works well for this), but I have more consistent results if I germinate the seed indoors. My usual procedure is to scatter the seed on a flat of dampened peat moss and seal the lot in a self-sealing, plastic bag. I put the bag under fluorescent lights set for 16 hours on, 8 off, as the seeds germinate best with light and long days. If you sow them in winter and grow them under lights all winter, you will have nice little seedlings ready to move outdoors come spring. Be careful to watch the bags, and crack them open slightly should you see signs of mold. Regardless, it is better to open the bags to encourage air movement once the seed has fully sprouted. dilute liquid fertilizer will speed things along, but you may have to water the seedlings with rainwater or distilled water if your tap water is hard. (I have to collect and melt snow because our water is very high in calcium and magnesium. the results of this extra effort have been well worth the trouble.)

Bill Cullina is the Nursery Manager/Propagator for the New England Wild Flower Society, 180 Hemenway road, Framingham, MA, 01701-2699, tel. 508-877-7630, www.newfs.org.

Reprinted from *Wildflower,* Spring 2001.

INPAWS 2002 Calendar of Events

All times below are Indy (EST) time. Meeting sites and other details will be announced.
For more information contact Programs/Field Trips Chairman Roger Hedge
(317) 232-8062 rhedge@dnr.state.in.us

Granville Sand Barrens
Saturday, August 31, 2 PM

A hike led by Dr. David Krohne, Plant Ecologist at Wabash College. This nature preserve is a recent acquisition by the Lafayette based land trust, NICHES. Many of our members may recall that INPAWS provided financial support for this important project. Dr. Krohne will give us a tour of the dry sand barrens, a very rare natural community type along the Wabash River. Among the more unusual and interesting plants occurring here are golden aster *(Chrysopsis camporum)* and blue curls *(Trichostema dichotomum)*.

Annual Conference
Nov 2–3 (please see page 3)

Lime Lake and Gene Stratton Porter State Historic Site
Saturday, September 21, 10 AM

We will travel to northeast Indiana's beautiful lake country where the first part of our tour will be to view one of the state's highest quality wetland fens. Located in the extreme northwest corner of Steuben County, this important natural area is unknown to most, if not all of our members. It is currently owned and managed by the Division of Nature Preserves, but has not yet been officially dedicated. Lee Casebere, Assistant Director for the Division of Nature Preserves and a past board member of INPAWS will lead us through this fascinating wetland, a site that is chock-full of rare plants and unusual physical features. Among the more unusual plants we may see are false asphodel *(Tofieldia glutinosa)*, tufted hairgrass *(Deschampsia cespitosa)*, and fringed gentian *(Gentiana procera)*.

Following our trip to Lime Lake we will head south to Gene Stratton Porter State Historic Site near Rome City in Noble County. Please pack a bag lunch as we will eat there and later be joined by Naturalist Pat Bolman who will guide us around the grounds of the former home of famed Hoosier naturalist and author Gene Stratton Porter. A special highlight of this portion of our trip will be a tour of the exquisite gardens that are maintained on the grounds.

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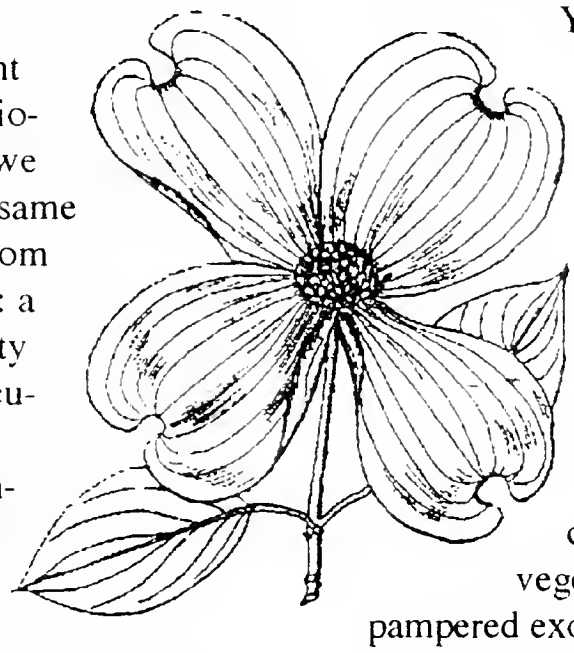
Volume 9 Number 3 • Autumn 2002

NEWS

Gardens for the 21st Century

by Janet Marinelli

Used to be, gardeners bragged about their green thumbs. Today, brandishing mulching mowers and compost bins, we consider ourselves green to the core. But our gardens are ecological wastelands.



Across a continent of breathtaking biological diversity we have planted the same 20 to 30 plants from around the world: a golf-course-quality lawn, some meticulously clipped yews, a rhododendron or two and a handful of specimen trees ringed by begonias and other annuals.

As wilderness shrinks and backyard acreage increases, the ecological impact of home gardeners grows ever greater. The U.S. Census Bureau calculates that the nation's inner suburbs have almost doubled in the past two decades and 400 square miles are added every year. It's no wonder that the Missouri-based Center for Plant Conservation is concerned about the long-term survival of 4,279 of America's 23,000 native plant species–plants that are critical habitat for countless other creatures.

According to conventional gardening wisdom, importing plants from around the globe increases an area's biological diversity. Yet biodiversity isn't a simple matter of numbers of species. Free of the checks and balances that controlled their reproduction in their original lands, scores of introduced plants have jumped the garden gate and choked out indigenous vegetation. Conversely, pampered exotics fail to flourish beyond the backyard because they can't forge the kinds of ecological relationships that enable them to prosper and evolve in their native habitats.

Home gardens have a potential as ecological sanctuaries that is just beginning to be explored. In ever-increasing numbers, gardeners are viewing their properties as potential habitats, not simply collections of pretty plants. They're restoring native plant communities, learning how to put back the pieces so that nature can heal itself and get on with evolution.

Northeast gardeners are re-creating the dense layers of North America's deciduous forest. Under towering canopy trees spared by the bulldozer they're replacing lawn with understory species such as the flowering dogwood, with exquisite wild azaleas and other native shrubs, with woodland wildflowers and ferns. Gardeners in the Midwest are re-creating native prairie. Arizonans are designing their gardens with such distinctive Sonoran Desert natives as the giant saguaro, the multi-stemmed ocotillo and the sculptural prickly pear.

Gardens continued on page 2

Inside . . .

Gardens continued from page 1

Typically, these zones of natural landscape are planted toward the edges of the property; natives and well-behaved exotics mingle in more traditional plantings in the immediate vicinity of the house. Without exception, as gardeners restore native plant communities, they discover to their delight that wildlife find their way back and make themselves at home.

Imagine the possibilities: a new suburban landscape in which natural gardens link up to provide living space for beleaguered wildlife, forming a network of corridors that crisscross the continent. Imagine a new definition of rare and unusual plants (the kinds sophisticated gardeners covet) based on native species that require human help to thrive or even survive. Virtually everywhere there are species that have lost so much ground that they can no longer repopulate former habitat. Planting them can be a gardener's great gift to the planet.

For millions of years, birds and bees have been agents of biodiversity, scattering pollen an seed across the land. Now humans must play a similar role. Biologically, restored habitat is defective. But as ecologists struggle to heal the land, nature acquires, in author William Jordan's words, "an alternative mode of reproduction, one that is capable, if not of handling it to perfection, at least of making it compatible with the speeded-up pace of cultural evolution." He calls this a radical evolutionary metamorphosis.

Home gardeners are struggling to make this same evolutionary leap.

Janet Marinelli is an editor at the Brooklyn Botanic Garden and author of The Naturally Elegant Home, *published by Little, Brown in 1992, and* Stalking the Wild Amaranth: Gardening in the Age of Extinction *(Henry Holt, 1998).*

For more information about the book, see http://209.25.129.28/acb/showdetl.cfm?&DID=8&CATID=7&Product_ID=72&count=3&Pcount=5&DETAIL=1

The Newsletter of the Indiana Native Plant and Wildflower Society

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.

www.inpaws.org

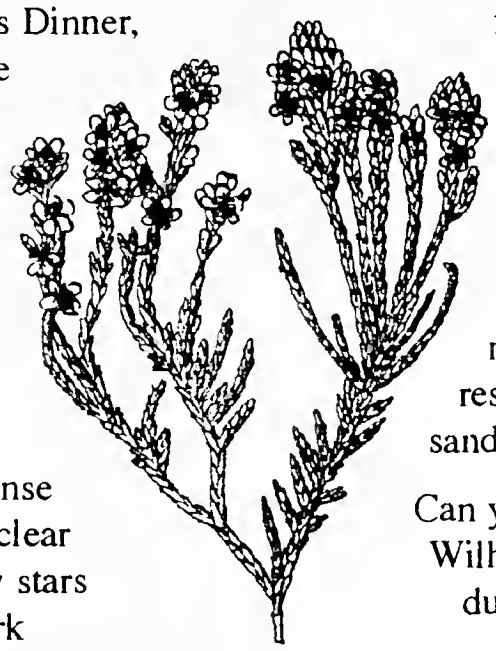
The mission of the Indiana Native Plant and Wildflower Society is to promote the appreciation, preservation, conservation, utilization and scientific study of the flora native to Indiana and to educate the public about the values, beauty, diversity and environmental importance of indigenous vegetation.

Plant detectives . . .

Quadruple Mystery

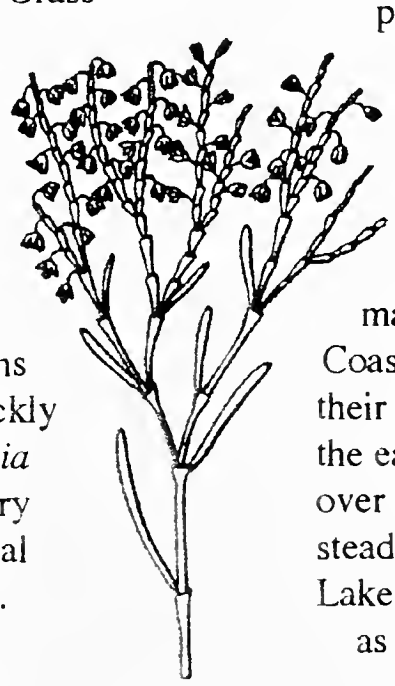
by Barbara Plampin

Dog's Dinner is a Cinderella! Most of the year, this twiggy sand-hugger looks gray and dying, even dead. Come late May or early June though, Dog's Dinner, which is more graciously and commonly designated False (Sand) Heather *(Hudsonia tomentosa)*, bursts into dense mats of tiny, clear lemon-yellow stars resting on dark green leaves. The setting, disturbed sand, adds to the beholders delight. Associates of this state-threatened plant include False White-haired Panic Grass *(Panicum villosissimum pseudopubescens)*, and state-threatened Jointweed *(Polygonella articulata)*. Less common companions include Eastern Prickly Pear Cactus *(Opuntia humifusa)*, and Starry False Solomon's Seal *(Smilacina stellata)*.



False (Sand) Heather
(Hudsonia tomentosa)

Indiana populations occur in Lake, Porter, Kosciusko, and Tippecanoe Counties. Dunes plants flourish a mile or more south of the Lake.



Jointweed
(Polygonella articulata)

False Heather poses several mysteries. First, why "Heather?" when its dense hairs would seem to place it in the Rockrose *(Cistaceae)* family? Appearance and growth habit explain. Another mystery is how it can survive its harsh environment? Minute, scale-like leaves lying like roof tiles flat against stems help conserve moisture. Dense leaf hairs resist sharp grains of blowing sand and desiccating winds.

Can you grow it? Swink and Wilhelm report the plant's introduction into an Illinois nature preserve, whether permanently or not, I don't know. I do know that a friend and I, although supervised by Indiana Dunes National Lakeshore botanists, failed twice to re-introduce it into a former site presumably containing the necessary mycorrhizal fungus.

Perhaps the biggest mystery though is: how did False Heather get here? False Heather is one of approximately seventy "CPs" or Atlantic Coastal Plain disjuncts, plants with their major populations on or near the east and south coasts. CPs leapt over hundreds of miles to homestead along the southern Great Lakes and occasionally inland as far as the Nebraska Sand Hills and even western Canada. Did CPs travel up the Mississippi valley or follow the shore of such now-vanished post-glacial waters as the Champlain Sea which once covered the sites of Quebec, Ottawa, and Lake Champlain? Floyd Swink believed birds carried the seeds, and some believe birds plus post-glacial waterways are the answer.

Starry False Solomon's Seal
(Smilacina stellata)

Some books:

Britton and Brown, An Illustrated Flora of the Northern United States and Canada, 1913, 1970;

Greenberg, *Natural History of the Chicago Region*, 2002;

Pielou, *After the Ice Age: The Return of Life to Glaciated North America, 1991;*

Swink and Wilhelm, *Plants of the Chicago Region, Fourth Edition*, 1994;

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

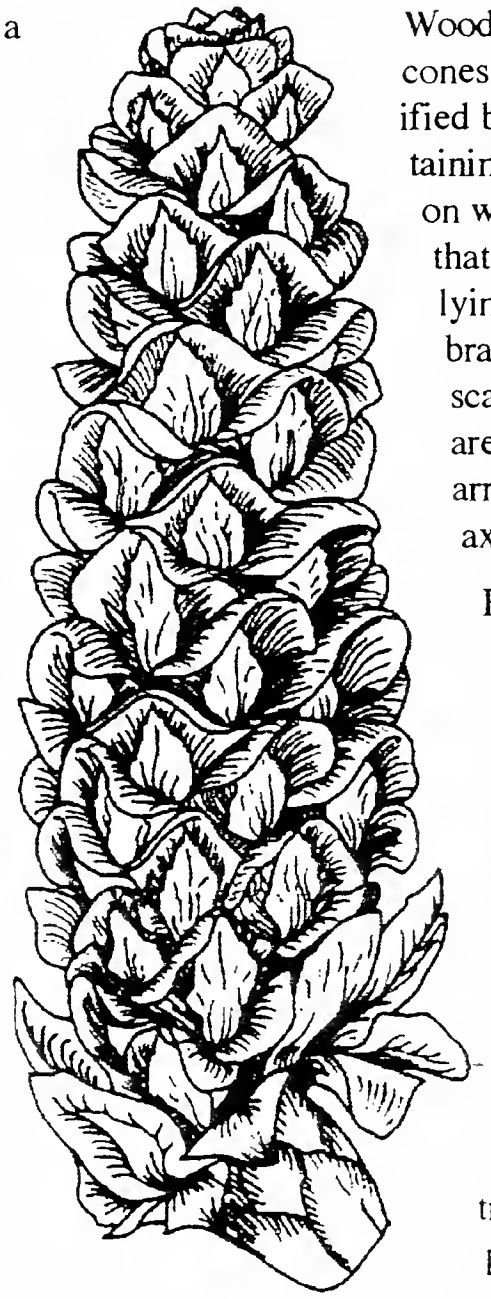
Barbara Plampin is a member of INPAWS, a trustee of the Shirley Heinze Environmental Fund, and a member of Save the Dunes Council. She has a Ph.D. in English literature from the University of Michigan. Botany has been her avocation all her life.

Botany 101 – fourteenth in a series

Reproduction in Gymnosperms

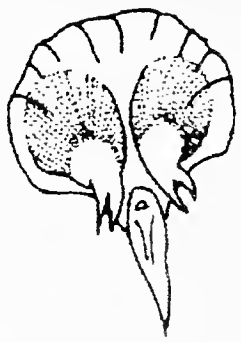
by Dr. Rebecca Dolan

Have you ever seen a flower on a pine tree? Remember that flowers are composed of whorls of parts (sepals, petals, stamens and carpels) and that fertilization occurs in ovules found in the ovaries of the carpels. You know that pine trees and other conifers bear their seeds in cones, not flowers. How are cones different and how does fertilization occur in conifers and other gymnosperms? I'll use pine as an example.



Female Pine Cone

Woody pinecones are female cones. They are actually modified branches. Ovules containing eggs are produced on woody cone scales that have an underlying sterile papery bract. These scale/bract units are spirally arranged along the axis of each cone.



Female Cone Scale

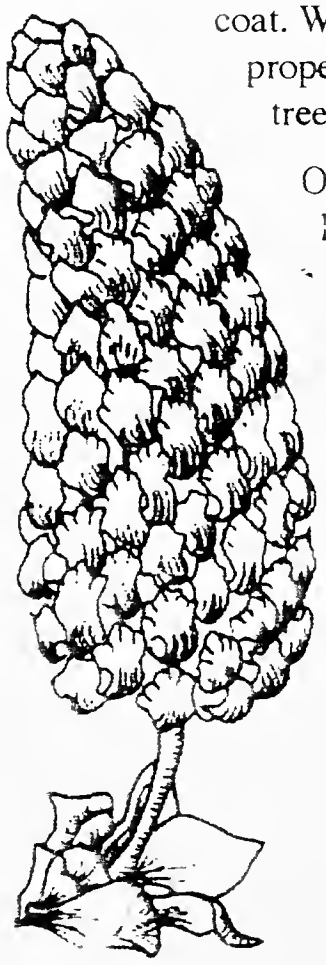
Female cones take two years to mature and produce seed. The first year, the cones are green and closed. In the spring, they open slightly and a drop of sticky fluid on the outside of each scale/bract unit traps pollen and pulls it inside the closed cone as it evaporates. This is pollination.

Most pines have separate male and female cones. The male cones are usually borne on lower branches, female on higher branches, presumably to lower the chances of self-fertilization. Male cones are small and non-woody. They function to produce winged pollen grains that are released into the air in spring. If you park your car under a pine releasing pollen, you will need your windshield wipers!

Male Cone Scale

Fertilization occurs in the ovules of the still closed cones. It may take as long at 15 months after pollination for it to occur. During this time, pollen tubes have been growing and the egg has been formed. Each pollen grain produces two sperm, as in flowering plants. One sperm joins with the egg during fertilization. The other disintegrates. Do you remember what happens to the second sperm in flowering plants? Recall it fuses with the polar nuclei to form endosperm that feeds the developing embryo. Gymnosperms do not have this double fertilization, and do not produce endosperm.

Mature cones release seeds in the second fall following pollination. A pine seed contains an embryo, nutritive tissue formed from structures inside the ovule without double fertilization, and a seed coat. Wings on the seeds help propel them away from the tree.



Male Pine Cone

Other gymnosperms have greater or lesser variations on this theme.

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

Panel Discussion on Native and Invasive Plants

by Art Hopkins

Native and Invasive Plants were discussed at a program on Tuesday, September 24, at the library in Columbus, Indiana. Speakers were Rob McGriff, District Forester with the Indiana Department of Natural Resources (IDNR); Cliff Chapman, Regional Ecologist with the Department of Natural Resources, Division of Nature Preserves; Nick Rush, Columbus City Parks and Recreation Department, Director of Park Operations and City Arborist; and INPAWS member Art Hopkins, registered Landscape Architect.

The speakers' varied backgrounds made for an interesting and informative discussion. Rob McGriff admitted frankly that he has only recently come to appreciate the threat that invasive species pose to Indiana forests. He mentioned Japanese honeysuckles, tree of heaven, paulownia, and mimosa trees invading southern Indiana, and kudzu among plants that are causing harm to forest resources in south-central Indiana.

Cliff Chapman helps manage about thirty nature preserves and twenty other high-quality natural areas scattered through twenty counties of southeastern Indiana. He discussed his work restoring plant communities, and said that using local genotype is very important in natural area restoration which may be as small as eight square miles.

Indiana's presettlement condition of frequent fires (whether wild or set by indigenous peoples) favored oaks, but with 200 years of fire suppression, Sugar Maple *(Acer Saccharum)*,a common native of Indi na's mesic forests, has invaded open oak woodlands and is a strong competitor in the absence of fire, becoming more common in that environment. Of course, this invasion of the Sugar Maple is benign, even trivial, compared to the threat posed by many more-aggressive, exotic species." Japanese barberry, which is widely used as an ornamental shrub, has been noted to be escaping freely and spreading quickly in other states near Indiana. Cliff reported he has seen it frequently in woodlands in southern Indiana, but was never concerned until recently. He commented that invasives often behave themselves for years, then suddenly start taking over forest understories at a rapid pace.

One could speculate that if nothing is done to control bush honeysuckle in central Indiana woodlands, it will be very difficult for trees to reproduce and when the canopy trees die, or are removed, we may be left with shrublots instead of woodlots. Today's big trees reached a survivable size before Japanese honeysuckle species and garlic mustard became widely established here, but those and other exotic invaders are now spreading rapidly, snuffing out tree saplings and sprouts so effectively,that 100 years from now, there may be no forests at all in central Indiana. Of course this is only speculation.

However, on a positive note, Cliff assured listeners that Indiana's native flora is still diverse and beautiful and commented, "We are fortunate to have an array of plant communities from bald cypress swamps to tamarack bogs, and tallgrass prairie as well as beech-maple forest."

Art Hopkins opened the discussion with some basic tips on landscape design, recommending that people "think of designing flowing spaces, not of collecting objects." He presented a working definition of "native," as well as some examples of the fascinating interdependencies of native plant and animal communities, but warned that native plants sometimes have very particular requirements as to soil acidity, drainage, or exposure to sun or shade. Even though a particular species may be native to your region of Indiana, it may not survive on your property. Unfortunately several wonderful native plants that were popular landscaping choices in the past are no longer practical to use because of their vulnerability to imported diseases or insects.

Nick Rush distributed a list of twenty-eight species of trees and shrubs which the Columbus Parks department uses, with detailed observations of their strengths and weaknesses in urban street and park conditions. Nick's list detailed which species are native to southern Indiana, and which are not. Of the twenty-eight species, ten are exotics. They are all "good citizen" exotics, such as Kousa Dogwood, which have shown no tendency to spread aggressively across the land–yet. But as Cliff quietly reminded us, some of the worst exotic pests of today, such as multiflora rose and garlic mustard, lived as "good citizens" for decades before they exploded out of control.

The panel discussion was ably organized by Judy Cecil and Kay Dunn, Master Gardener Interns, as a service project for the community.

Native Plants in Your Garden? Why?

by Carolyn Harstad

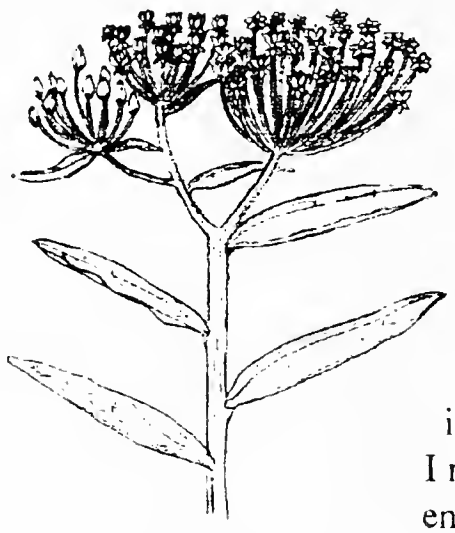
It was the best of times, it was the worst of times . . .

Many have quoted these words of Charles Dickens to describe the last century . . . words that are also applicable to our fragile environment. Modern man has the scientific knowledge and technological capability to accomplish great things. Yet, it is so easy to compromise the natural environment in favor of the almighty dollar. There are times to work with and through environmental organizations on issues of national, hemispheric, and international importance.

There are also things to do with your own hands on your own property.

One way to begin is to plant a few natives in your own garden. Use of native plants is one of the hottest topics in current books and magazines.

Why? Because these low-maintenance plants know how to deal with weather patterns, how to survive the feast and famine of moisture, and how to put down deep roots to gather the last vestiges of food hidden in those tiny particles of soil. You can go on a vacation during a drought and return home to find your natives happily blooming their heads off, while the non-natives sulk on the ground–or worse. With natives, there is no need to poison the earth with expensive chemicals and fertilizers.

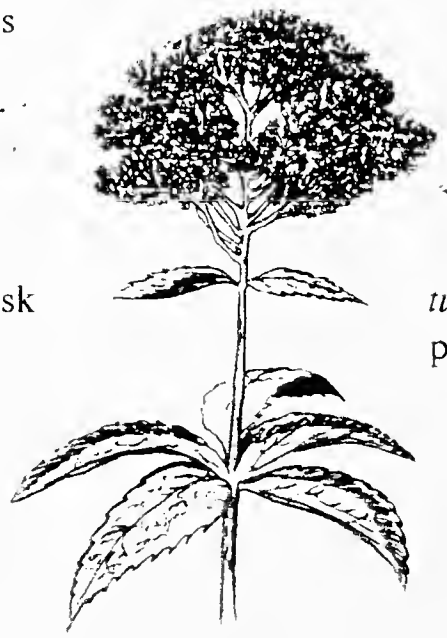


Butterfly Weed
(Asclepias tuberosa)

Planting natives can restore lost ecosystems and create habitats for furred and feathered friends. Enjoy myriads of butterflies that will live and multiply on your property. Master the fascinating lore of native plants and impart it to your family and friends.

"But I am only one individual. How can I make any difference?"

A few years ago, I read an article in *Wildflower* that detailed the disappearance of Celandine Poppy *(Stylophorum diphyllum)* in parts of Canada because of habitat disturbance. This plant germinates easily and seeds readily, as any Midwestern gardener can attest. Incorporating it into private landscapes in areas where it is at risk may help prevent extirpation. Celandine or Wood Poppy puts on a spectacular spring floral display and then blooms on and off all summer long, repeatedly surprising observers with yet another glistening golden gem. The oak-like leaves look handsome as long as they are shaded from the heat of the afternoon sun. If the foliage becomes yellowed or tattered, simply cut the plant to the ground and it will soon send up fresh, green leaves.



Joe Pye Weed
(Eupatorium purpureum)

Royal Catchfly *(Silene regia)* is a threatened species in the Midwest, primarily due to habitat destruction. It, too, successfully germinates and grows in conventional perennial borders. Hummingbirds delight in this tall, bright red, upright flower. Mass plantings of these strikingly brilliant flowers bring universal admiration. Give Royal Catchfly the sunny "location" it needs, and it will multiply. And just imagine how thrilled your hummers will be!

Monarch butterflies depend on milkweed species as their larval food source. As fencelines and wild spaces diminish, there are fewer and fewer milkweed plants. You may not want to incorporate the species, *Asclepias syriaca*, into your perennial border, but what about soft pink Swamp or Marsh Milkweed *(A. incarnata)* or bright orange Butterfly Weed *(A. tuberosa)*? Just be sure to provide well-drained soil for the latter so the long carrot-like taproot doesn't rot. Varieties for clay soil have been hybridized and are available. [e.g. Prairie Nursery, Westfield, WI] Milkweeds thrive in sunny locations.

Swallowtail butterflies dance and flit over Joe Pye Weed, one of their favorite larval food sources. In addition to the native species *(Eupatorium purpureum, E.*

maculatum, E. fistulosum) several handsome cultivars, shorter in stature and with more intensely colored flowers, are now available.

'Gateway' has large rosy-mauve flower heads, 'Atropurpureum' has purple flowers, stems and dark leaves. And who knows? Someday someone may find that Eupatoriums really are medically valuable, as was believed by the early Indian medicine man named Jopi or Joe Pye. Early writings suggest that "jopi" was a Native American word for typhoid fever, and that "jopiweed" could effectively treat or even cure this disease.

Royal Catchfly
(Silene regia)

A sibling plant, Boneset *(E. perfoliatum)* was so called because a tea made from its leaves helped to still the terrible shaking of bonebreak fever (likely malaria), of the early settlers. Boneset has large flat white flower clusters and unique perfoliated leaves that collect water for small insects. Eupatorium species will flourish either in sun or partial shade.

We know how important the South American rainforest is for future medical discoveries. The same may be true of North American native plants.

Echinacea, an herbal remedy derived from Purple Coneflower, is sold to boost the immune system. Yew *(Taxus canadensis)* provides Taxol, one of the most powerful drugs available for treating cancer. Pawpaw *(Asimina triloba)*, and Mayapple *(Podophyllum peltatum)* are two other natives with promising cancer-fighting abilities.

"Does it really matter what I plant on my private property??" You bet it does! Exotic Norway Maples are displacing native Sugar Maples. The "big three" groundcovers—Myrtle *(Vinca minor)*, Purple Wintercreeper *(Euonymus coloratus)* and Ivy *(Hedera spp)* have each been found carpeting woodlands. Commonly used Burning Bush *(Euonymus alatus)*, Japanese Barberry *(Berberis thunbergii)*, and Japanese Spiraea *(Spiraea japonica)* have escaped to the wild, displacing native species and destroying habitat. These are only a few examples of problems our landscaping choices have caused for our fragile environment.

"But I live in the middle of town. My plants can't escape to the wild over concrete, lawns and blacktop." True. But what of the birds that visit your property? Do you control their flight? Or where they deposit the seeds they collected from your plants?

As gardeners, we have choices. We can nurture endangered species in our landscape as well as in wilderness areas. We can choose plants that will benefit butterflies, birds and wildlife. We can avoid planting those exotic plants that are known "escape artists." Wouldn't you like to get your hands on the individuals who brought dandelions and garlic mustard to the western hemisphere?

Native plants are part of our legacy. Our descendants deserve the full range of plant species that have been available to us. Now is the time for the "return of the native." As Indiana naturalist Gene Stratton-Porter wrote in 1922, "It is the time for all of us to get together and in unison make a test of our strength. All together, Heave!"

Carolyn Harstad is the author of Go Native! Gardening With Native Plants and Wildflowers in the Lower Midwest. *Indiana University Press. September 1999.*

She is co-founder and past president of the Indiana Native Plant and Wildflower Society (INPAWS), and Editor of the INPAWS newsletter.

Currently she is completing a second book: Take it Easy! Low Maintenance Shade Gardening *(to be published by IU Press in 2002).*

Jeanette Ming (1936-2002) did the line drawings for Go Native! *She was Art Editor at Worrall Community Newspapers in Union County, New Jersey and just before her death was employed by the Metropolitan Museum of Art in New York City.*

Reprinted with permission from Wildflower, North America's Magazine of Wild Flora. *Summer, 2002.*

INPAWS Chapter Reports

Central Chapter News

Christmas Party

December 15, 2002 (date change) from 5 to 8 PM at Betsy and George Wilson's house, 6345 Brixton Lane (call 255-3304 for directions)

Bring a smile and food item to pitch-in and join us for some holiday camaraderie.

October Chapter meeting news: After a brief meeting in which the charter and by-laws for the chapter were ratified and officers were elected, slides and delicious food and good conversation were enjoyed by those who attended.

The new officers are: Betsy Wilson, President, Carol Mavity and Virginia Harmon, co-VP,s and Dawn Stelts, secretary/treasurer.

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

Mark Outcalt
317-257-3574
maryhel@earthlink.net

West Central Chapter News

Starting in August and ending in November we are holding our fall public education meetings on 4th Mondays at 7:00 PM at the West Lafayette Public Library. The August presentation was by David Krohne, biology dept. chair of Wabash College on "Disturbance–Its Role in Prairie Ecology, Management and Restoration." In September, Don Bickel, owner of Edge of the Prairie Nursery, discussed and demonstrated how he raised prairie wildflowers from seed. The October meeting will be Purdue botany professor Carole Lembi's specialty: wetland invasives. In November, Mike Homoya, author of *Orchids of Indiana* will give a slide lecture on *Wild Orchids of Indiana.*

Several members helped the TNC to remove purple coneflowers from northern preserves and these were planted at our highway Adopt-a-Spot on US 52 ByPass in West Lafayette. Future plans for the spot include tree and vetch removal.

We continue to help plan and co-sponsor *Wednesdays-in-the-Wild* programs with the Sycamore Audubon Society and the West Lafayette and Tippecanoe County Parks Depts. So far, topics include growing wildflowers indoors from seed, identifying various members of the aster family, and fall colors in woods and prairies.

Chris Brewster
jim.chris.brewster@worldnet.att.net

For fall foliage reports

Call the IDNR's 24-hour
Fall Foliage Line
(317) **232-4002**

Or visit the **Indiana Tourism Leaf Cam.** Just log onto the Internet and point your browser to **http://www.enjoyindiana.com** and click on the Leaf Cam logo.

New Land Trust for Southeastern Indiana

A new land trust, Oak Heritage Conservancy (OHC), has formed in cooperation with Historic Hoosier Hills RC&D, and will operate in southeastern Indiana. In fact, the OHC hopes to be active as far west as Washington County.

The Conservancy's mission is to preserve, protect and conserve land and water resources that have special natural, agricultural, scenic or cultural significance. OHC will strive to educate the public about the critical importance of honoring land, water and local culture. OHC will help landowners permanently protect their land through donations, purchases, and conservation easements so that future generations can enjoy rural landscapes in southeastern Indiana. The Oak Heritage Conservancy is currently looking for interested members.

For more information, write to:

Oak Heritage Conservancy
P.O. Box 335
Hanover, IN 47243

or call (812) 689-6410 ext. 5
or contact

Cliff Chapman at
chappymo@msn.com
or at (812) 522-5707

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.

Indiana Native Plant and Wildflower Society (INPAWS)

Small Grants Program Guidelines

INPAWS has a small grants program to support projects that are in line with the mission of the society. Toward that end, the Board voted in 1998 to allocate $10,000 from the general fund to an endowment account. Interest from this account will be available for grants. The Awards Committee anticipates funding two grants of up to $500 each this year.

We hope that these small grants will be used in conjunction with other sources of funding for project enhancement such as signage and brochures, special plantings or purchase of native seed stock.

The mission of INPAWS 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.

Applications are requested from groups or individuals and must be post-marked by **December 1, 2002**. They will be reviewed by the committee.

Application Procedures for the INPAWS Small Grants Program

Please submit the following:

1. Cover sheet including

- Name of project
- Amount requested
- Location
- Applicant/contact person name, address, telephone
- New or existing project
- Category that best describes the project: research, training, education, conservation and habitat, demonstration garden, etc.

2. Text of proposal

(not to exceed 2 pages)

a) A summary of the project, not to exceed fifty words

b) A clear, concise description of the project which includes the following:

- How does the project further the INPAWS mission?
- Why is the project needed?
- Specific objectives to be achieved
- Specific information on how INPAWS grant funds would be used
- Who benefits from the project? How many? How do they benefit?
- Names of organizations involved, if any, with a brief description of each, including number of members
- Financial resources committed to the project from other sources, if any
- Anticipated starting and completion date of the project

3. Budget sheet showing:

a) Labor, material and program costs

b) Sources and amounts of funds already raised, if any

c) Total cost of project

Successful awardees must prepare a poster or other presentation to share with the membership at the Annual Conference subsequent to completion of the project.

Mail four copies of the grant proposal, post-marked by **December 1, 2002,** to Elizabeth Mueller

Larger Grant Awards

At the discretion of the Board and membership, larger awards may be made from time to time from the assets of the operating budget. Requests for funds for special projects may be made at any time to the Executive Committee. All requests must be made in writing with a clear statement of how the award would further the mission of INPAWS and benefit our membership.

Elizabeth Mueller
~~6726 Dorchester Drive~~ 1416 S. 900
Zionsville, IN
46077-~~9162~~ 9534
317-769-2412

INPAWS Annual Conference

Saturday and Sunday, November 2 and 3, 2002

Plan now to attend the INPAWS Annual Conference! This year the event will be held at **Canyon Inn** in beautiful **McCormick's Creek State Park**, Spencer, Indiana! As in the past, conference meetings will be held on Saturday.

However, we hope many of you will wish to make it a weekend by staying at the inn on Saturday evening (Those coming from a distance may want to stay Friday as well). The conference committee is busy planning exciting events for Friday evening and Sunday, including a naturalist-led hike in the park.

A block of rooms has been reserved at a cost of $59.00 for a single and $69.00 for a double. Attendees are responsible for booking their own rooms.

Reservations can be made daily from 8 AM until 10 PM by calling 1-812-829-4881 or toll-free 1-877-9CANYON.

You may also check availability and make online reservations at www.placestostay.com.

The inn is being remodeled and is always popular, so to insure availability make those reservations as soon as possible.

For more information contact Annual Conference Chairwoman Eleanor Bookwalter

bookedbook@aol.com

INDIANA NATIVE PLANT
and Wildflower Society

7740 West 88th Street
Indianapolis, IN 46278-1110

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INDIANA NATIVE PLANT *and Wildflower Society*

Volume 9 Number 4 • Winter 2002

NEWS

Biodiversity Matters

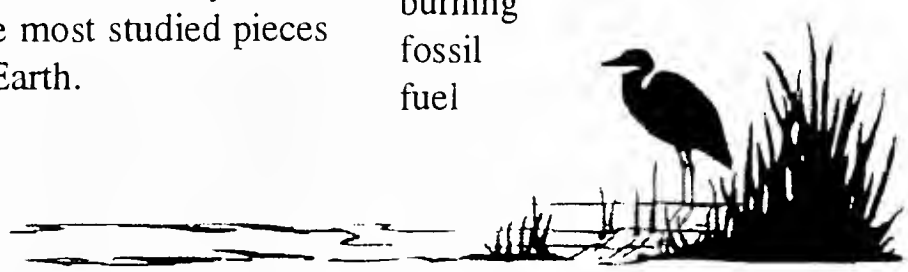
by Carolyn Harstad

"The idea of biodiversity has been in ecology for a while, but nobody had an idea of how much it mattered–that it had so many effects," said David Tilman, University of Minnesota ecologist who directs the Cedar Creek Natural History Area, now one of the most studied pieces of ground on Earth.

This nine-square-mile research area, deeded to the University of Minnesota in 1942, is located 30 miles north of Minneapolis/St. Paul. It includes forests of spruce and pine, a rare oak savannah, wetlands, a bog, a lake and fallow farm fields. Ongoing experiments produce a steady stream of papers in prominent scientific journals, addressing such issues as the effects of forest fires, nitrogen pollution, and biological diversity.

Even though Cedar Creek is located in northern Minnesota, experiments resulting from studies conducted there have global implications. We all tout the value of native plants in the landscape, but did you know that broad mixes of natives can "absorb more carbon dioxide, make better use of nutrients, are more resistant to disease and resist invading species better" than a single species on its own?

It is well known that too much phosphorus damages ponds and lakes. Intensified in part from burning fossil fuel



and the addition of fertilizers, a similar phenomenon can be observed in air and soil. Nitrogen, like phosphorus, promotes rapid growth causing some species to choke out others.

Peter Reich of the University of Minnesota began an experiment in 1998 which he entitled BioCon (biodiversity, carbon dioxide and nitrogen). By carefully regulating amounts of nitrogen and carbon dioxide available in a number of test plots, Reich is able to simulate future conditions of our nation's air and soil. He reports that "plots with the most diverse group of plants absorb more carbon dioxide, which is harmful to people, than plots with fewer plants," and theorizes that highly diverse ecosystems can change carbon dioxide into oxygen more efficiently than those less-diverse ecosystems typically produced by industrial sprawl and population growth.

In another experiment, researchers at the site used different combinations of wild plants planted in a checkerboard pattern. The experiment proved that "plots with more kinds of plants were vastly more productive and hardier than plots with smaller combinations."

Biodiversity continued on page 2

Inside . . .

Biodiversity continued from page 1

Yes, biodiversity matters. But as Laura Huenneke, chairwoman of the Biology Department at New Mexico State warns. "We've been shockingly remiss in supplying any hard experimental data to demonstrate the environmental impact." The careful experimentation of men like Dave Tilman and his colleagues provides that necessary hard evidence. Unfortunately, funding for ongoing research is tenuous. "It's a continuing struggle to convince funding agencies to fund this sort of work," said Peter Reich. "We could have hundreds of these [experiments] for the cost of one fighter plane," he said ruefully.

Protecting the health of our planet is crucial. If we each take time to promote biodiversity, encourage legislators to support funding for scientific research, and continue to sound the alarm, our fragile world will be the winner.

Cedar Creek is one of 24 research areas in the Western Hemisphere from Alaska to Antarctica that comprise the Long Term Ecological Research Network created by the National Science Foundation in 1980.

"An Ecological Treasure." Bethel (AP),The Free Press, Mankato, Minnesota, November 20, 2002, pages 1C, 4 C.

Carolyn Harstad is the author of Go Native! Gardening With Native Plants and Wildflowers in the Lower Midwest, *Indiana University Press, September 1999.*

She is co-founder and past president of the Indiana Native Plant and Wildflower Society (INPAWS), and Editor of the INPAWS newsletter.

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The Newsletter of the
Indiana Native Plant and Wildflower Society

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.

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

Happy New Year!! As we finish up the holiday season and begin a New Year, it's hard not to get the resolution urge. On New Year's Eve there's that sense of renewal and rebirth that energizes and invigorates the soul. Although you may be thinking of New Year's Resolutions in personal terms only, with nine years behind INPAWS, it's a good time to reassess our organizational goals as well.

I recently came across an article by Dr. Stanwyn Shelter, botanist emeritus of the Smithsonian's Natural History Museum that provided much food for thought along these lines. In his article entitled *Role of Native Plant Societies in Grassland Conservation*, Dr. Shelter traces the history of the native plant society movement in the United States beginning in 1900 when the New England Wild Flower Society was born out of concern for our native plants. The Audubon movement was just getting under way about this time also and caught on nationally much more quickly than the native plant movement which did not really gain momentum until the last 25-35 years when many state societies were established. Today there are numerous native plant societies under one name or another in all but a few states. Dr. Shelter contends that "nothing is more central to their existence than the conservation of the native flora."

We have witnessed the rampant development across the country during the last 40 years or so which has destroyed or fragmented habitat at an alarming rate and scale. This issue along with the growing threat of invasive alien plants in the natural landscape has served to energize native plant societies across the country who have led the way in providing public information, guiding local eradication efforts and rescuing native plants from doomed habitats.

Important as this focus is however, Dr. Shelter cautions that it must be kept in balance. He contends that the business of our societies should be to save wild places, not to add to or promote planted landscapes. "Civilization is busily turning natural landscape into planted landscape at an ever faster pace, and native plant societies should be trying to slow down that process, not fuel it." Are we contributing to the demand for planted landscapes? Should we be focusing more of our attention on conservation before even more of our native flora is lost? The mission of the Indiana Native Plant and Wildflower Society is to promote the appreciation, preservation, conservation, utilization and scientific study of the flora of Indiana and to educate the public about the values, beauty, diversity and environmental importance of indigenous vegetation. As I contemplate this charge, I believe we are doing an admirable job meeting most of these goals, but are we doing enough to support the conservation component of our mission statement? As a conservation organization shouldn't this be our driving goal, not gardening with native plants or plant sales or even plant rescues?

Dr Shelter's refrain is to "save habitat" and to do so we need to be aware of what we have and what we're losing. In this New Year, I encourage you all to join a local chapter and learn about the threats to our native vegetation. Roger Hedge has once again scheduled an outstanding field trip itinerary for this year. Please note these dates on your calendar and plan to attend. It will heighten your appreciation for the splendor of our flora. And, above all, become an advocate for the protection of our remaining threatened native plants. As we enter our 10th year as advocates for native plants and their habitats, your support is appreciated. Your membership and your personal commitment and actions on behalf of all our plants, especially our rare, threatened and endangered species are needed now more that ever.

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.

Botany 101 – fifteenth in a series

Plant Hormones

by Dr. Rebecca Dolan

A lot of people are surprised to learn that, just like animals, plants have hormones. Hormones are substances made in one tissue that have an action on another tissue. Hormones influence the size, shape, and flowering of plants.

Auxins are plant hormones that have a wide variety of functions that vary from time to time, species to species, and tissue to tissue. One of the most obvious actions involving auxin is known to every gardener who trims a plant to make it bushy. Recall that the permanently embryonic tissue in terminal or apical buds, those at the ends of twigs, is called **apical meristem** (apex referring to the tip). Cells in the meristem divide and enlarge as twigs grow in length. Auxins produced by cells of the apical meristem diffuse through twig tissue to lateral buds. Auxins inhibit cell division and elongation in lateral buds, thus providing apical dominance. Once the apical bud is removed, say, when you trim a hedge or pinch back an aster, lateral buds are released from inhibition and cells of lateral meristems divide and grow.

This phenomenon can be demonstrated with a classic plant physiology lab experiment. Control plants with apical dominance are allowed to grow as usual. Experimental treatment plants have their apical buds, containing apical meristem cells, removed. One set of plants gets an application of auxin (commercially available) mixed with lanolin dabbed on. Lanolin is a carrier for the auxin. A second set of plants just gets plain lanolin. The drawings provided by Jan Glimn-Lacy from her book *Botany Illustrated* demonstrate what happens when the plants have been allowed some time to grow. Can you explain the results?

In naturally growing plants, apical dominance is also influenced by a second hormone, cytokinin, that is produced in the roots. As plants grow in length, that is, as the apical bud grows more distant from the earliest lateral buds on a twig, those lateral buds are released from dominance by the apical bud, and the plant grows laterally. Cytokinins trigger this cell division when the ratio of auxin to cytokinin is reduced, that is, there is less auxin with its inhibitory effect, lateral growth occurs.

Auxins are also involved with leaf drop in the fall.A special layer of cells in leaf petioles dies, allowing leaves to be shed from stems.

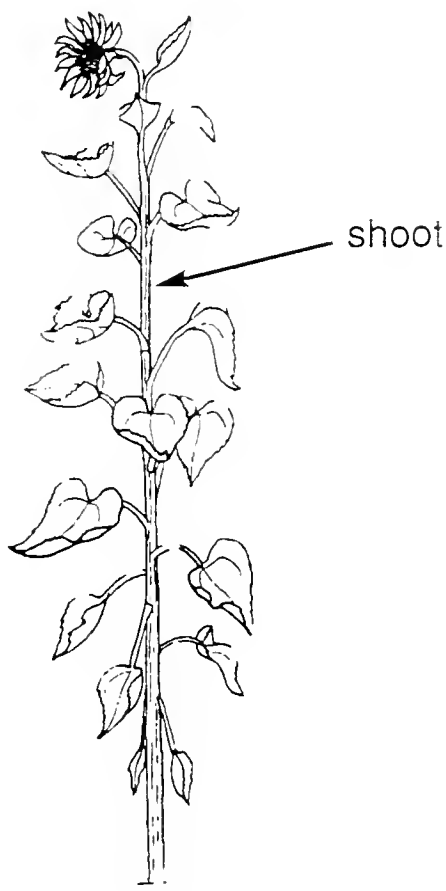
This abscission is related to a drop in auxin production in leaf tissue.

Auxins have two very important commercial applications. Rootone, the powder used to promote root growth in cuttings contains an auxin. It promotes the growth of adventitious roots, especially in woody plants.

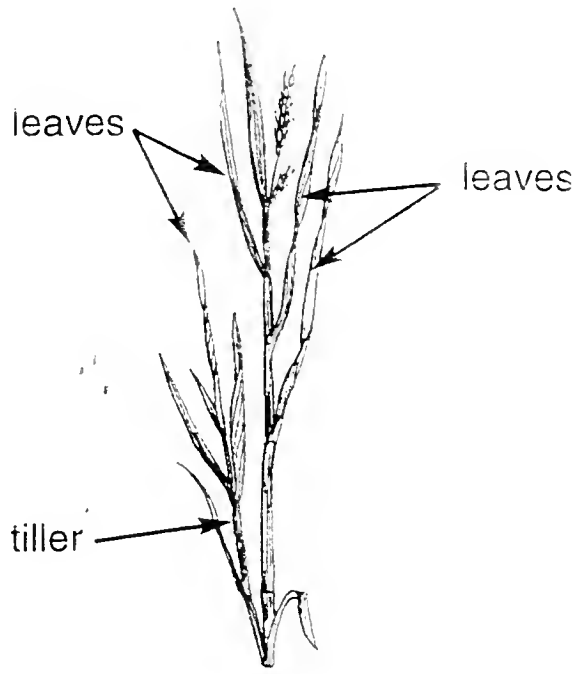
The weed killer 2,4-D is an auxin. It triggers imbalances in cell metabolism that literally cause plants to grow themselves to death!

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

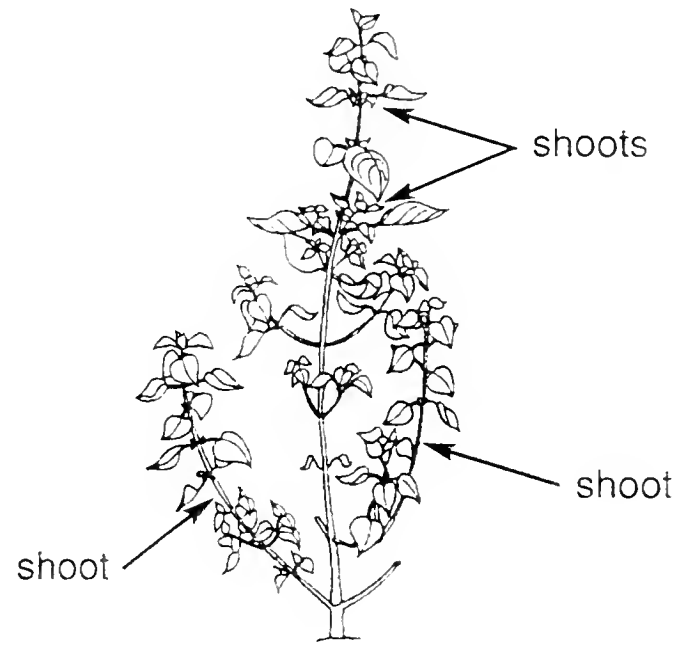
Illustrations by Jan Glimn Lacy, INPAWS charter member and botanical illustrator, from her book Botany Illustrated.



Sunflower (*Helianthus*) has strong apical dominance

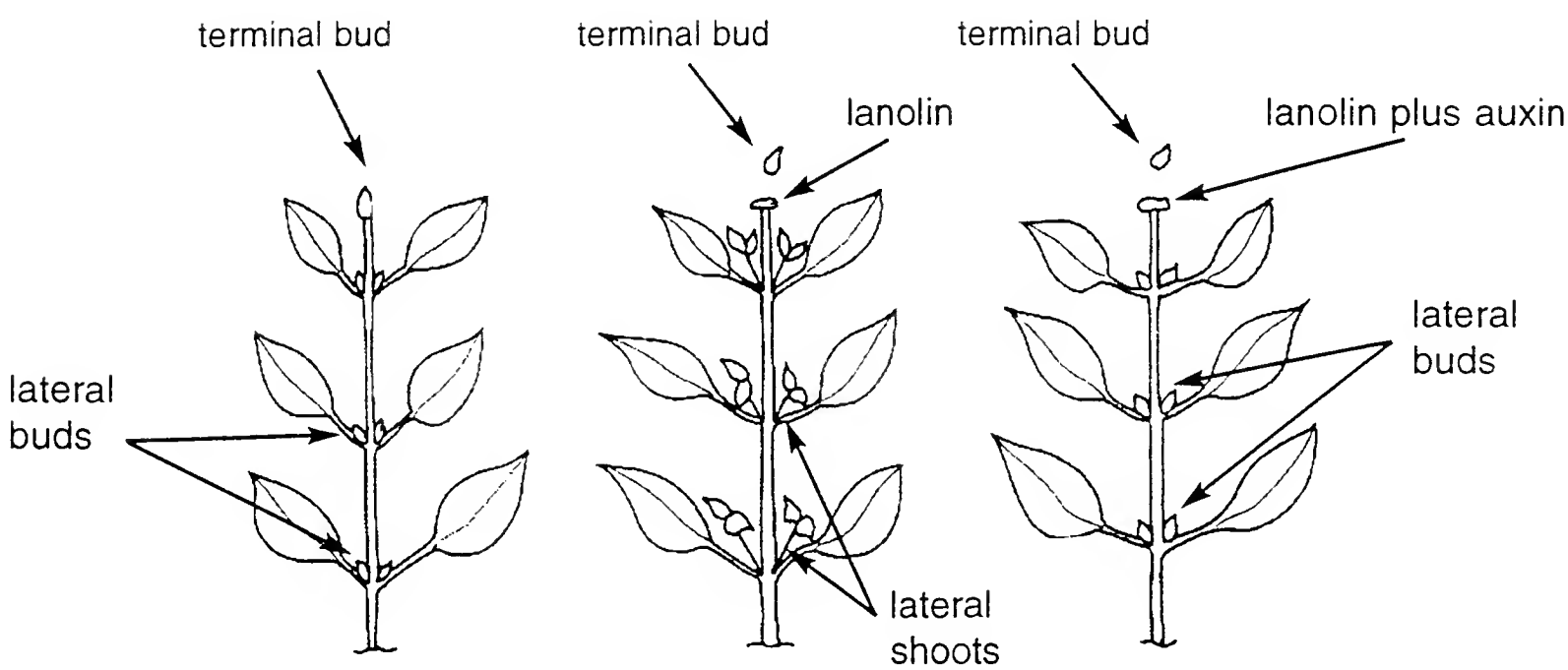


Rice *(Oryza)*
has weak apical
dominance



Coleus
has weak apical
dominance

• CONTROL • • LANOLIN • • LANOLIN PLUS AUXIN •



APICAL DOMINANCE EXPERIMENT RESULTS

Indiana Native Plant and Wildflower Society Ninth Annual Conference McCormick's Creek State Park - November 2, 2002

by David Gorden

Fall color was at its peak in Owen County on November 2nd. The leaves glowed in the morning sunlight as nearly 100 members and friends of INPAWS gathered for its Ninth Annual Conference at the Canyon Inn in McCormick's Creek State Park. "The most beautiful week of the year!" exclaimed Marquita Manley, interpretive naturalist at the park as she opened the conference. An early-arriving crowd had already been enjoying coffee, pastries, and socializing in anticipation of Marquita's presentation as well as the entire day's schedule of diverse speakers.

Dedicated in 1916, McCormick's Creek was Indiana's first state park, and is today one of its most popular. As Marquita described the park's history and scenic beauty, she also shared the challenges faced in protecting and preserving its natural habitats while providing the access and facilities required for the enjoyment of its many visitors. Appreciating "the rhythm of nature and the uplifting beauty found in all seasons" is a message she preaches to all who visit the park and especially to youngsters, tomorrow's protectors of our environment.

Many in attendance had been privileged, during earlier college days at Purdue, to learn from Professor Emeritus Dr. Harrison Flint. To them and countless others, his book, *Landscape Plants of Eastern North America* is an invaluable resource. It was thus with great pleasure and respect that his words were received as he shared his knowledge and insights in discussing some of his favorite native trees and shrubs and their use in the landscape.

The morning ended with the Society's Annual Business Meeting led by INPAWS President Linda Oxenrider. Committee Chairs and Chapter representatives reported on their activities as the past year was reviewed and future plans shared.

The afternoon's slate of speakers during three concurrent sessions presented a variety of options for attendees to choose from.

Creating a backyard wildlife habitat is something Greg Oskay has done at his own home, as he described in his informative presentation. He no doubt inspired many in attendance to do the same, using the necessary ingredients for wildlife attraction he discussed, including water, food and shelter. Modestly hoping to attract 30 bird species to his habitat, Greg has to date observed over 90 species, plus rabbits, amphibians and other small creatures. Breaking the mold of the traditional backyard lawn can by rewarding in many ways.

Alyssa Solomon described her daunting task of growing the plants required to provide much of the seed needed for The Nature Conservancy's 7000 acre Kankakee Sands Prairie Restoration project in Newton County. She oversees the growth of 108 species on a 120-acre nursery, as well as the management of the restoration. Over 3000 pounds of seed were harvested last year, about half of what was needed to seed 500 acres. With 2000 acres completed, the restoration and hence the nursery's importance will continue for several more years. It is a challenging and exciting project.

Equally challenging and exciting is the establishment of native plants in a different environment–wetlands. As assistant nursery director for J.F. New and Associates in Walkerton, Mark O'Brien is called upon frequently to assist in such endeavors. He discussed the plants and effort necessary for success.

Dr. George Parker, Professor of Forest Ecology at Purdue University shared his research on the changing plant diversity of central hardwood forests as influenced by different methods of timber harvesting and other types of human disturbance. Analyzing how forest management affects species dynamics is part of his effort to promote harvesting techniques that lead to greater diversity in the forests.

Michael Homoya, Plant Ecologist with the Indiana Department of Natural Resources knows the native flora of our state like few others and is a frequent writer and speaker on botanical matters. His topic of pleasure on this day was the ferns of Indiana. Though he did not discuss all 78 of the species calling our state home, he did describe a number of the most common, including fragile, bracken, royal, Christmas, ostrich, sensitive, and climbing. Their diversity is surprising and their subtle beauty and charm make ferns natural "musts" for all shade gardens.

Following the concluding remarks of the final speakers, the day ended much as it had begun–with enthusiastic socializing and grazing on the selection of snacks set out for the group. For those who were making a weekend of the conference and spent the night at the park, Marquita Manley led a Sunday morning walk. Enjoy this poetic description from Janice Gustaferro and Mary Gorrell:

About forty members
decided to stay,
Their evening plans
they did delay,
To indulge in a tasty
substantial buffet,
While comparing notes
on the informative day.

After a leisurely breakfast
on Sunday,
Marquita Manley, the naturalist,
did say,
"A hike to the quarry
starts this way",
Thirty-four hikers
responded, "Okay!"

Landmarks of the park
she did display,
As they traveled along
their nature foray.
At the quarry she recounted
its heyday,
Then they adjourned for
observation and play.

With golden beauty and quiet,
their troubles did allay,
Hoping to return for a wildflower
hike just before May.

Several generous benefactors lent their financial support to the conference. Making the Ninth Annual Conference possible were the following sponsors:

- **Earth-Source, Inc.**
- **Indiana Chapter of the American Society of Landscape Architects**
- **J.F. New & Associates**
- **Spence Restoration Nursery, Inc.**

Special recognition and thanks go to the conference's primary sponsor, **National City Bank of Indiana.**

Also to be thanked for their efforts in planning and conducting the day's proceedings are Conference Chair Eleanor D. Bookwalter and INPAWS President Linda Oxenrider.

Check your mailing label!

Has your membership lapsed?

Greetings!

My name is Dawn Stelts and I am your new Membership Chair. Check the mailing label on this newsletter. Next to your address you will find a year printed. That year is the last year through which your dues have been paid. If the membership date listed is prior to 2003, that means your dues have lapsed.

To renew and make sure your name will be included in the new member directory, fill out the enclosed membership form and mail it with your check to Carolyn Bryson–now!

My goal is to be able to mail the new INPAWS Membership Directory by March. Help me out–send in your dues today!

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

INPAWS Chapter News

Central Chapter Meetings for 2003

February 13, 2003
7 PM at the Brownsburg Library, Mike Homoya will present a program on the rare plants of Indiana.

Directions to the library from the Route 267 and I 74 exit: Exit I 74 and turn right or south on 267. Go one or two miles to Tilden (there's a traffic light there). Turn left or east on Tilden and drive three blocks through a residential area to Jefferson. Turn left on Jefferson. The library is at 450 South Jefferson. Hope to see you there.

May 3, 2003
Saturday afternoon, 11AM to 1 PM
A tour of Coletta Kosiba's garden to see spring blooms.
Bring a picnic lunch.

July 13, 2003
Sunday afternoon, 2 to 4 PM
Visit Virginia Harmon's garden to see summer blooms.

October 5, 2003
Sunday afternoon, 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, 2003
Sunday afternoon, 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

West Central Chapter Report

Mike Homoya, author of *Orchids of Indiana,* gave a well-attended and outstanding slide-lecture on Indiana's native orchids at our November meeting. He has inspired us to start looking for orchids in Tippecanoe Co. and surrounding counties. Most of those attending were surprised to learn that we have some orchids since they are not that obvious.

All of our educational meetings are open to the general public and INPAWS has enrolled a number of new members as a result. The credit goes to our vice president and program chair, Joan Mohr Samuels. She has lined up an excellent list of interesting and informative speakers for our programs this year.

Chris Brewster
jim.chris.brewster@worldnet.att.net

East Central Chapter upcoming meetings

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

Thursday, February 6
Dr. Kem Badger BSU will present on "Ferns and Their Allies"

Thursday, March 6
Dan and Sophia Anderson will be presenting "Indiana Native Species Edibles." Edible native species snacks and tea will be provided by the Andersons. There is no cost for this meeting but we would welcome notification of your expected attendance so the Andersons know how many to expect.

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.

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.

Plant detectives . . .

A Duneland Carnivore

by Barbara Plampin

Nature celebrated July 4, 1976, by providing a spectacular and, apparently, never-repeated display: a broad river or ribbon of tiny, orchid-like Purple Bladderwort *(Utricularia purpurea)* which bisected the waterlilies and other wetland plants in a certain Porter County lake. Monet couldn't have done better.

Whether aquatic, terrestrial, or amphibious, Bladderworts *(Lentibulariaceae)* fascinate me. Seven of the ten Indiana species state-listed Atlantic coastal plain disjuncts grow in the Dunes. Bladderworts, with their prominent lower lips and sometimes smaller upper lips and spurs or sacs atop stiff stalks resemble small purple or yellow orchids. Plants lack roots, may lie dormant for years, and are carnivorous. Fresh water crustaceans furnish the main part of their prey. ***Bladder*** designates the bubble-or bag-like trips growing amid the leaves; ***wort*** is Middle English for root or plant. Once, under my microscope, I saw a minute trap ingesting a minuscule pink shrimp!

Assertions that one can hear the trips operating appear to be incorrect.

When a friend and I lifted a floating yellow Great Bladderwort *(U. vulgaris)* from still water and listened intently, we heard–nothing.

The leaves suffice to float the aquatics and anchor the terrestrials. To reproduce vegetatively, some leaves bunch themselves into tight little winter buds (turions) that may lie dormant for years until the right amount of moisture occurs. No one had ever noted Great Bladderwort in certain Lakeshore Blue Joint Grass meadows until the vigorous rains of 1991. Then we saw new lakes of sunshine yellow. Look for Bladderworts also in **pannes** (intradunal ponds formed where wind scoops out sand down to the water table), ponds, roadside ditches, and bogs).

Purple-white scraps of blossom characterize the extremely inconspicuous, self-pollinating form of Hair Bladderwort *(U. subulata).* Perhaps this species is the most challenging because its inch-tall, zig-zag, moss-fine stalks hide among much taller plants, including *Rhynchospora* species.

A possible accompaniment is the Toad Bug, a harmless insect which both looks like and hops like a toad. Be prepared to crawl about on hands and knees looking comical.

Books: Deam, *Flora of Indiana;* Gleason, *New Britton & Brown Illustrated Flora*; Swink and Wilhelm, *Plants of the Chicago Region, Fourth Edition*; and Yatskievych, *Field Guide to Indiana Wildflowers*. Agnes Arber's *Water Plants*, a 1972 reprint of her 1920 book (ISBN 3 76820157 0) reports Central and South American Bladderworts growing in water collected by Bromeliads. One species boasts violet flowers atop yard-long stems. J. and P. Pietropaolo's *Carnivorous Plants of the World* discusses cultivation.

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.

Note from Barbara Plampin:

Alas, some of the pictures accompanying *Seeds for Ceramists* [Volume 9, Number 2, Summer 2002] were troublesome. *Eleocharis melanocarpa* is shown as *E. tricostata* see Britton and Brown, I, 317); *Rynchospora axillaris* wasn't in the article and doesn't grow in the Dunes (Ibid., 344); and *Psilocarya scirpoides* is upside-down (Ibid., 347).

Success Story

by Marissa Codey

When human inflicted disasters occur such as the recent oil spill off the coast of Spain or the massive 1999 fish kill in the White River, it can be difficult if not impossible to imagine that there can be a light at the end of the seemingly endless tunnel of ecological damage. However, for almost every environmental disaster there is also an environmental success story. Surprisingly, the fish kill of 1999 caused by the Guide Corporation seems to be helping create such a success story. For one, there are signs that the river is coming back--fish are slowly returning to habitat destroyed by the spill. But there is even more good news! Not only are aquatic ecosystems slowly recovering, but some of the funds set aside from the Guide Settlement are actually being used to provide permanent protection and restoration of the River's watershed. The importance of this type of protection cannot be overstated. As the National Research Council (1992) declared in reference to the importance of land use to the health of a river,

Rivers are products of their drainage basins, and the biological integrity of stream and river systems is dependent to a large extent on watershed management practices...In some cases, restoration of the predisturbance flood and sediment regime will reestablish the physical characteristics of the river-riparian system.

The Central Indiana Land Trust Incorporated (CILTI), a nonprofit land conservation organization, is doing exactly that. When it learned that Guide Settlement funds could be used for land acquisition and restoration along the river, CILTI decided that acquiring and restoring farmland in the River's floodplain would be beneficial not only to the health of the river but also to farmers owning fields with declining crop yields and frequent floodwater inundation. This past summer CILTI was given approval from the settlement Trustees to use Guide funds for the purchase and restoration of 52 acres of land along the White River in Hamilton County.

CILTI named this site Burr Oak Bend, after the Bur Oak Tree (often spelled Burr Oak in the writings of Charles Deam and others) and after the big bend of the White River in which it is situated. The restoration plan, scheduled to begin this fall, will create a 31.5 acre mixed hardwood forest and a 12.5 acre prairie. Design of both systems will use analyses of vegetation in surrounding intact ecosystems to infer what species likely existed on the site prior to its conversion into farmland. Dominant tree species scheduled to be planted include Black Walnut, Bur Oak, Green Ash, and White Oak. The prairie will consist of a mixture of local grasses and forbs, and in several years will offer a beautiful combination of form and color. The restored forest and prairie will not only offer visitors a unique and pleasant visual experience, but will also provide a diverse habitat for the numerous terrestrial animals native to the area.

Clearly, a light of renewal is beginning to shine from the dark days of the 1999 fish kill. CILTI is excited about the Burr Oak Bend project, and is looking forward to using it as a demonstration of what a successful ecological restoration project can look like. For more information about this project or about the organization in general, please contact Marissa Codey at 317-631-5263 or email mcodey@cilti.org. CILTI also has a website (www.cilti.org) that contains a downloadable membership/contribution form as well as information about current volunteer opportunities.

Marissa Codey is Executive Director of Central Indiana Land Trust Incorporated (CILTI).

Jump into Action!

Help monitor Indiana frog and toad populations

Speculation of a nationwide decline in frogs and toads has prompted the Indiana Department of Natural Resources to ask Hoosiers to leap into action.

The DNR is looking for volunteers to participate in the Indiana Amphibian Monitoring Program. Volunteers are needed to listen for frogs and toads from late February through July, the breeding seasons of Indiana's amphibians. Surveys are conducted at night, usually after rainy days, or on misty nights, when frogs and toads give their breeding calls. Information collected by volunteers will help DNR biologists better understand the distribution and abundance of amphibians in Indiana.

Volunteers must attend a training workshop in order to participate in the survey. Registration is not required to attend a training workshop. Attendees are asked to bring pen and paper to the workshop. Participants must be 18 or older.

The Indiana Amphibian Monitoring Program is part of the North American Amphibian Monitoring Program (NAAMP) by the U.S. Geological Survey. Two survey methods will be utilized starting this spring: national routes and stationary sites. National routes are driving routes that take one to two hours to complete, not including drive time to the survey area. Stationary sites are completed at frog and toad breeding sites. Surveys are repeated three times during the breeding season. Internet access is required to participate in the program.

This would be great for a school project, scouting badge, conservation club project, or just an individual interest and reason to "Get Outdoors" in the coming months. Just a little bit of your time could go a long way. The data collected could assist in justifying conservation efforts in Indiana-especially wetlands, which are critically disappearing.

This program is funded by donations to the Endangered Wildlife Fund on the Indiana state income tax form. Look for the eagle and donate all or a portion of your state tax refund to keep frogs and toads hopping in Indiana.

Paula Yeager
Executive Director
Indiana Wildlife Federation

Indianapolis residents were trained January 18. Other statewide training workshops include:

North Judson
Saturday, Feb. 22 11 a.m. - 1 p.m.
Kankakee Fish & Wildlife Area
4320 W. Toto Rd.
574-896-3522
http://www.IN.gov/dnr/fishwild/publications/kank.htm

West Lafayette
Saturday, Feb. 15 2 - 4 p.m.
Morton Community Center
222 N. Chauncey
765-775-5110

www.mp2-pwrc.usgs.gov/FrogWatch/
http://www.nwf.org/keepthewildalive/frogwatch-app/index.htm

Information on Indiana's Amphibian Monitoring Program is available online at:
http://www.IN.gov/dnr/fishwild/endangered/naamp/nindex.htm

DNR Division of Fish and Wildlife Web site:
http://wildlife.IN.gov

New from the DNR: *Hoosier Wetlands Newsletter*

Fellow conservationists:

The future of Indiana's wetlands is one of the most important natural resources and environmental issues that the Indiana General Assembly will debate this year.

This is the first in a series of e-mail newsletters focused on Hoosier wetlands. I encourage you to get informed, stay involved and share this newsletter with friends, family, customers and members of organizations to which you belong.

The text only version of Volume 1, Issue 1 of Hoosier Wetlands is below.

For a more attractive version of the newsletter with graphics and photos, please click on this link: http://www.in.gov/wetlands/newsletter/hswetlands/index.html

Also, a wetlands Web site with more important information is being developed (www.wetlands.IN.gov) and should be online soon.

John Goss, DNR Director

Hoosier Wetlands

Helping Hoosiers protect, preserve and restore natural resources

Ripple Effect

Welcome to the first edition of Hoosier Wetlands–a newsletter created to spread the word that 1.) Indiana's wetlands are in jeopardy and 2.) that every Hoosier has a voice in deciding how–or if–we protect these rapidly disappearing areas.

The debut of this publication comes as our lawmakers prepare to convene for the 2003 General Assembly where they will discuss legislation that could dramatically affect the future of our wetlands - and in some cases decide whether we even have certain wetlands in the future.

Why is this happening now? A U.S. Supreme Court decision in 2001 took away the authority that the federal government has exercised for years to protect wetlands that are not directly associated with rivers and lakes.

Some people think this court case is reason to change existing Indiana law concerning all wetlands. In some states, unprotected wetlands have already been destroyed. In others, protective legislation has already been enacted.

Most likely, Indiana legislators will be dealing with separate and competing bills–one or more that would strengthen wetlands protection, and one or more bills that would weaken wetland protection. We need your help to convince lawmakers that our wetlands need protection.

As you know, wetlands are important to a wide variety of wildlife. For example, wetlands provide habitat for more than a third of Indiana's endangered species, including the Blanding's turtle, the short-eared owl and copperbelly water snake. They also provide an essential food and water source for deer, ducks, and other animals. This also makes them excellent locations to view, hunt, trap and photograph wildlife. Wetlands also are important for people, too. None of us can live without a supply of safe drinking water. Wetlands are natural purifiers and help to recharge aquifers that supply drinking water. They also are a natural sponge, retaining water that could otherwise flood homes and property.

While some people may think of wetlands as swamps, bogs, and breeding ground for mosquitoes that harbor the West Nile virus, that's not really the case. In their most ecologically balanced state, wetlands actually control mosquitoes. Dragonflies, damselflies, water striders, backswimmers and predacious diving beetles thrive in wetlands, and they consider mosquitoes a staple of their lunch supply.The bigger West Nile threat is from mosquitoes that live in shallow pools of stagnant water such as those found in abandoned tires–a very different but also important environmental issue.

Governor Frank O'Bannon has asked the Indiana Department of Natural Resources, the Department of Environmental Management and the Office of the Commissioner of Agriculture to work with organizations to develop a consensus on legislation to protect wetlands. We'll be talking with wildlife lovers, hunters, environmentalists, conservationists, farmers, developers and anglers. By sharing news and working together, we hope to build consensus that saves wetlands while allowing necessary development and appropriate land use.

We will send you this newsletter every other week or so and post other information on a Web site – www.wetlands.IN.gov – to keep everyone in the loop about the ongoing legislation and other actions concerning Indiana's wetlands. And we'll help you make the contacts you want to make to ensure every Hoosier understands how very important wetlands are to each of us. Now, and in the future.

Did you know?

Which Indiana region once supported a wetland that stretched from the Ohio border to the Illinois border? How large was it, and what has become of it? Check out the next edition of *Hoosier Wetlands* for the answer.

Why are wetlands important?

Because they:

- Provide habitat for fish and wildlife;
- Improve water quality;
- Interrupt and filter surface runoff;
- Retain excess nutrients and some pollutants;
- Reduce sediment that would clog waterways and affect aquatic life;
- Provide flood protection; and
- Provide shoreline erosion control.

Creature Feature

Tens of thousands of sandhill cranes migrate from the northern United States to Gulf Coast waters every fall and spring, making a stopover at the shallow wetlands of Jasper-Pulaski Fish and Wildlife Area near Medaryville, Indiana. Wetlands provide food and safe resting areas for the giant birds, which have wing spans of about 6 feet, and stand about 3-4 feet tall. On the wing and on the ground the sandhill crane often seems to be a tangle of legs, neck, beak and wings. Wetlands are great places to see the birds, and thousands of tourists each year visit the Jasper-Pulaski FWA, which has become a significant eco-tourism locale throughout the region. To learn more about the sandhill cranes in Indiana, visit the DNR Web site.

Wet Facts

In the 1700s, about 25 percent of Indiana was swamp, bog or marsh–what today are called wetlands. These areas filtered and stored water. They also provided both food and shelter to water fowl and other animals.

On the Web

Have you heard? The frogs are taking over the net! Indiana wetlands resources now have a new home on the Web at www.Wetlands.IN.gov [available in mid January]. You can use this great new tool to find out information about wetlands, permiting, current legislation and even subscribe to special wetlands e-mails. Check in often for added features and information. You can also follow links here in the Hoosier Wetlands to find out even more about a story online.

Plant Profile

The pitcher plant *(Sarracenia purpurea)* is a strange-looking denizen of wetlands in the north half of the state. Few plants are as fascinating or mysterious as those that actually "turn-the-food-chain-tables" by consuming animals! The pitcher plant is a carnivorous species that has pitcher-shaped leaves, which it uses to offer a soupy cauldron to unsuspecting insect prey. A steady diet of insects provides an important supplemental food source to the pitcher plant in one of its favored habitats, a nutrient-poor sphagnum bog.

Hoosier Wetlands is produced under a joint effort by IDEM, DNR, OCA and agency wetlands protection partners.

For more information about becoming a subscriber, visit the Indiana Wetlands Website at **www.wetlands.in.gov** or call us at (800) 451-6027 ext. 2-8596.

Photos by DNR photographers.

INPAWS Coming Events

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

Saturday, March 8, 2003
11:30 AM to 4 PM
Holliday Park Nature Center
6363 Spring Mill Road
Indianapolis

INPAWS Pitch-In Lunch and Slidefest

Here's a cure for cabin fever and the winter doldrums! Pull together a few of your favorite slides and a dish you'd like to share with members and join us for a pitch-in at Holiday Park. There should be shots of many of Indiana's beautiful spring ephemerals that will whet our appetites for the approaching Spring. INPAWS will provide beverages. You will be responsible for your own table setting.

Please feel free to bring a guest.

Saturday, April 5, 2003
Mark your calendar for a day of planting fun

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. Mark your calendar, 5 April 2003, for a day of planting fun. **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.

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INDIANA NATIVE PLANT *and Wildflower Society*

Volume 9 Number 4 • Winter 2002

NEWS

Biodiversity Matters

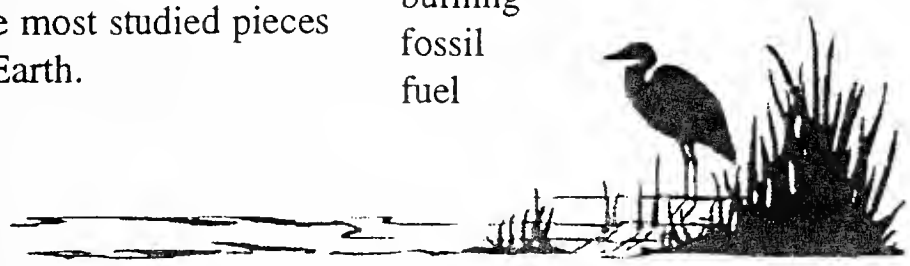
by Carolyn Harstad

"The idea of biodiversity has been in ecology for a while, but nobody had an idea of how much it mattered–that it had so many effects," said David Tilman, University of Minnesota ecologist who directs the Cedar Creek Natural History Area, now one of the most studied pieces of ground on Earth.

This nine-square-mile research area, deeded to the University of Minnesota in 1942, is located 30 miles north of Minneapolis/St. Paul. It includes forests of spruce and pine, a rare oak savannah, wetlands, a bog, a lake and fallow farm fields. Ongoing experiments produce a steady stream of papers in prominent scientific journals, addressing such issues as the effects of forest fires, nitrogen pollution, and biological diversity.

Even though Cedar Creek is located in northern Minnesota, experiments resulting from studies conducted there have global implications. We all tout the value of native plants in the landscape, but did you know that broad mixes of natives can "absorb more carbon dioxide, make better use of nutrients, are more resistant to disease and resist invading species better" than a single species on its own?

It is well known that too much phosphorus damages ponds and lakes. Intensified in part from burning fossil fuel and the addition of fertilizers, a similar phenomenon can be observed in air and soil. Nitrogen, like phosphorus, promotes rapid growth causing some species to choke out others.



Peter Reich of the University of Minnesota began an experiment in 1998 which he entitled BioCon (biodiversity, carbon dioxide and nitrogen). By carefully regulating amounts of nitrogen and carbon dioxide available in a number of test plots, Reich is able to simulate future conditions of our nation's air and soil. He reports that "plots with the most diverse group of plants absorb more carbon dioxide, which is harmful to people, than plots with fewer plants," and theorizes that highly diverse ecosystems can change carbon dioxide into oxygen more efficiently than those less-diverse ecosystems typically produced by industrial sprawl and population growth.

In another experiment, researchers at the site used different combinations of wild plants planted in a checkerboard pattern. The experiment proved that "plots with more kinds of plants were vastly more productive and hardier than plots with smaller combinations."

Biodiversity continued on page 2

Inside . . .

Biodiversity continued from page 1

Yes, biodiversity matters. But as Laura Huenneke, chairwoman of the Biology Department at New Mexico State warns, "We've been shockingly remiss in supplying any hard experimental data to demonstrate the environmental impact." The careful experimentation of men like Dave Tilman and his colleagues provides that necessary hard evidence. Unfortunately, funding for ongoing research is tenuous. "It's a continuing struggle to convince funding agencies to fund this sort of work," said Peter Reich. "We could have hundreds of these [experiments] for the cost of one fighter plane," he said ruefully.

Protecting the health of our planet is crucial. If we each take time to promote biodiversity, encourage legislators to support funding for scientific research, and continue to sound the alarm, our fragile world will be the winner.

Cedar Creek is one of 24 research areas in the Western Hemisphere from Alaska to Antarctica that comprise the Long Term Ecological Research Network created by the National Science Foundation in 1980.

"An Ecological Treasure." Bethel (AP),The Free Press, Mankato, Minnesota, November 20, 2002, pages 1C, 4 C.

Carolyn Harstad is the author of Go Native! Gardening With Native Plants and Wildflowers in the Lower Midwest, *Indiana University Press, September 1999.*

She is co-founder and past president of the Indiana Native Plant and Wildflower Society (INPAWS), and Editor of the INPAWS newsletter.

Currently she is completing a second book: Take it Easy! Low Maintenance Shade Gardening *(to be published soon by IU Press.*

The Newsletter of the Indiana Native Plant and Wildflower Society

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.

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

Happy New Year!! As we finish up the holiday season and begin a New Year, it's hard not to get the resolution urge. On New Year's Eve there's that sense of renewal and rebirth that energizes and invigorates the soul. Although you may be thinking of New Year's Resolutions in personal terms only, with nine years behind INPAWS, it's a good time to reassess our organizational goals as well.

I recently came across an article by Dr. Stanwyn Shelter, botanist emeritus of the Smithsonian's Natural History Museum that provided much food for thought along these lines. In his article entitled *Role of Native Plant Societies in Grassland Conservation*, Dr. Shelter traces the history of the native plant society movement in the United States beginning in 1900 when the New England Wild Flower Society was born out of concern for our native plants. The Audubon movement was just getting under way about this time also and caught on nationally much more quickly than the native plant movement which did not really gain momentum until the last 25-35 years when many state societies were established. Today there are numerous native plant societies under one name or another in all but a few states. Dr. Shelter contends that "nothing is more central to their existence than the conservation of the native flora."

We have witnessed the rampant development across the country during the last 40 years or so which has destroyed or fragmented habitat at an alarming rate and scale. This issue along with the growing threat of invasive alien plants in the natural landscape has served to energize native plant societies across the country who have led the way in providing public information, guiding local eradication efforts and rescuing native plants from doomed habitats.

Important as this focus is however, Dr. Shelter cautions that it must be kept in balance. He contends that the business of our societies should be to save wild places, not to add to or promote planted landscapes. "Civilization is busily turning natural landscape into planted landscape at an ever faster pace, and native plant societies should be trying to slow down that process, not fuel it." Are we contributing to the demand for planted landscapes? Should we be focusing more of our attention on conservation before even more of our native flora is lost? The mission of the Indiana Native Plant and Wildflower Society is to promote the appreciation, preservation, conservation, utilization and scientific study of the flora of Indiana and to educate the public about the values, beauty, diversity and environmental importance of indigenous vegetation. As I contemplate this charge, I believe we are doing an admirable job meeting most of these goals, but are we doing enough to support the conservation component of our mission statement? As a conservation organization shouldn't this be our driving goal, not gardening with native plants or plant sales or even plant rescues?

Dr Shelter's refrain is to "save habitat" and to do so we need to be aware of what we have and what we're losing. In this New Year, I encourage you all to join a local chapter and learn about the threats to our native vegetation. Roger Hedge has once again scheduled an outstanding field trip itinerary for this year. Please note these dates on your calendar and plan to attend. It will heighten your appreciation for the splendor of our flora. And, above all, become an advocate for the protection of our remaining threatened native plants. As we enter our 10th year as advocates for native plants and their habitats, your support is appreciated. Your membership and your personal commitment and actions on behalf of all our plants, especially our rare, threatened and endangered species are needed now more that ever.

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.

Botany 101 – fifteenth in a series

Plant Hormones

by Dr. Rebecca Dolan

A lot of people are surprised to learn that, just like animals, plants have hormones. Hormones are substances made in one tissue that have an action on another tissue. Hormones influence the size, shape, and flowering of plants.

Auxins are plant hormones that have a wide variety of functions that vary from time to time, species to species, and tissue to tissue. One of the most obvious actions involving auxin is known to every gardener who trims a plant to make it bushy. Recall that the permanently embryonic tissue in terminal or apical buds, those at the ends of twigs, is called **apical meristem** (apex referring to the tip). Cells in the meristem divide and enlarge as twigs grow in length. Auxins produced by cells of the apical meristem diffuse through twig tissue to lateral buds. Auxins inhibit cell division and elongation in lateral buds, thus providing apical dominance. Once the apical bud is removed, say, when you trim a hedge or pinch back an aster, lateral buds are released from inhibition and cells of lateral meristems divide and grow.

This phenomenon can be demonstrated with a classic plant physiology lab experiment. Control plants with apical dominance are allowed to grow as usual. Experimental treatment plants have their apical buds, containing apical meristem cells, removed. One set of plants gets an application of auxin (commercially available) mixed with lanolin dabbed on. Lanolin is a carrier for the auxin. A second set of plants just gets plain lanolin. The drawings provided by Jan Glimn-Lacy from her book *Botany Illustrated* demonstrate what happens when the plants have been allowed some time to grow. Can you explain the results?

In naturally growing plants, apical dominance is also influenced by a second hormone, cytokinin, that is produced in the roots. As plants grow in length, that is, as the apical bud grows more distant from the earliest lateral buds on a twig, those lateral buds are released from dominance by the apical bud, and the plant grows laterally. Cytokinins trigger this cell division when the ratio of auxin to cytokinin is reduced, that is, there is less auxin with its inhibitory effect, lateral growth occurs.

Auxins are also involved with leaf drop in the fall.A special layer of cells in leaf petioles dies, allowing leaves to be shed from stems.

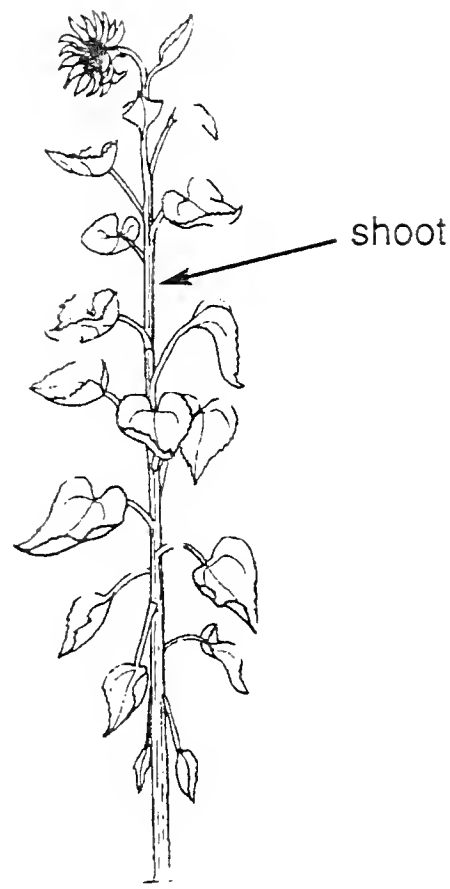
This abscission is related to a drop in auxin production in leaf tissue.

Auxins have two very important commercial applications. Rootone, the powder used to promote root growth in cuttings contains an auxin. It promotes the growth of adventitious roots, especially in woody plants.

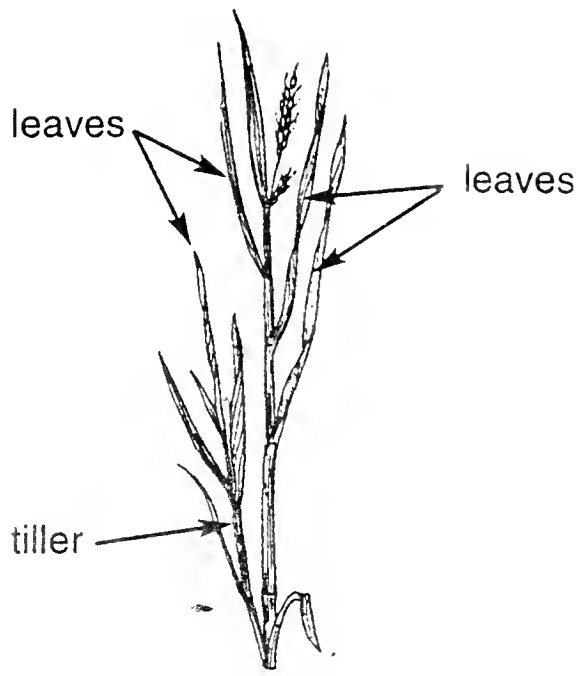
The weed killer 2,4-D is an auxin. It triggers imbalances in cell metabolism that literally cause plants to grow themselves to death!

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

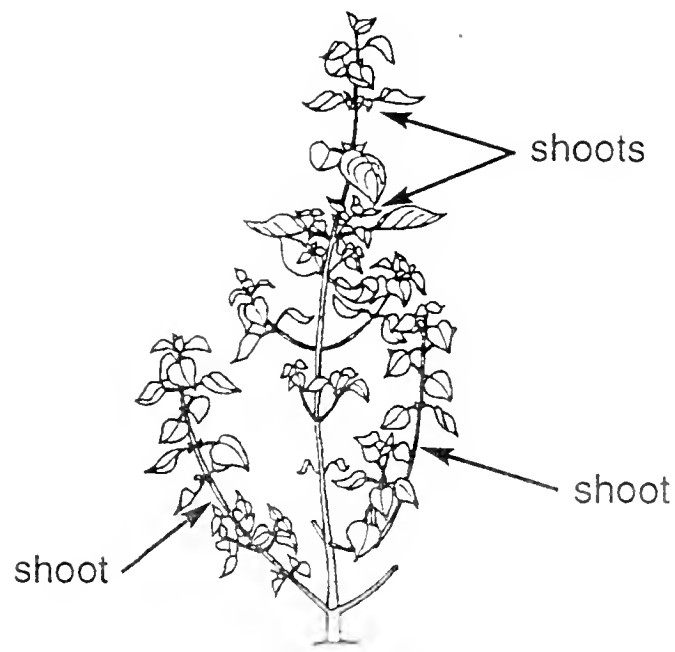
Illustrations by Jan Glimn Lacy, INPAWS charter member and botanical illustrator, from her book Botany Illustrated.



Sunflower (*Helianthus*) has strong apical dominance

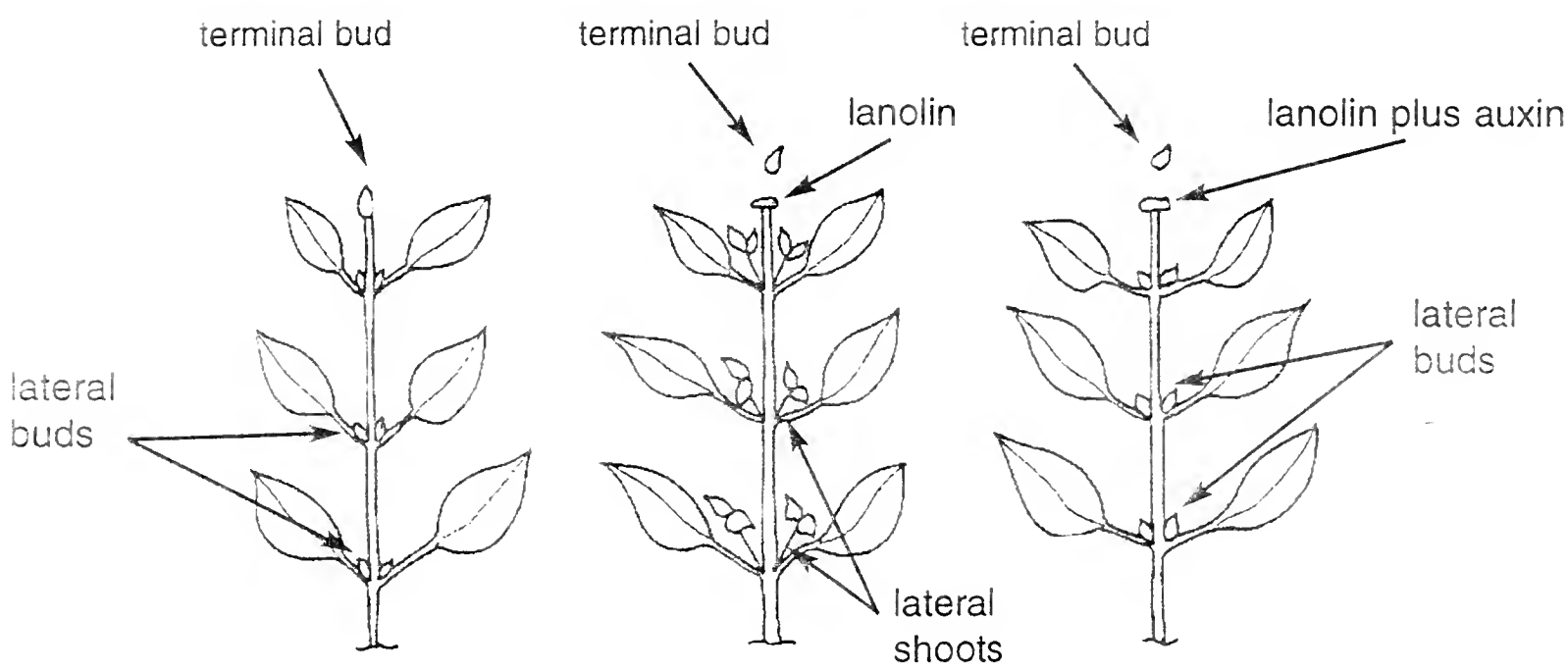


Rice *(Oryza)*
has weak apical
dominance



Coleus
has weak apical
dominance

• CONTROL • • LANOLIN • • LANOLIN PLUS AUXIN •



APICAL DOMINANCE EXPERIMENT RESULTS

Indiana Native Plant and Wildflower Society Ninth Annual Conference
McCormick's Creek State Park - November 2, 2002

by David Gorden

Fall color was at its peak in Owen County on November 2nd. The leaves glowed in the morning sunlight as nearly 100 members and friends of INPAWS gathered for its Ninth Annual Conference at the Canyon Inn in McCormick's Creek State Park. "The most beautiful week of the year!" exclaimed Marquita Manley, interpretive naturalist at the park as she opened the conference. An early-arriving crowd had already been enjoying coffee, pastries, and socializing in anticipation of Marquita's presentation as well as the entire day's schedule of diverse speakers.

Dedicated in 1916, McCormick's Creek was Indiana's first state park, and is today one of its most popular. As Marquita described the park's history and scenic beauty, she also shared the challenges faced in protecting and preserving its natural habitats while providing the access and facilities required for the enjoyment of its many visitors. Appreciating "the rhythm of nature and the uplifting beauty found in all seasons" is a message she preaches to all who visit the park and especially to youngsters, tomorrow's protectors of our environment.

Many in attendance had been privileged, during earlier college days at Purdue, to learn from Professor Emeritus Dr. Harrison Flint. To them and countless others, his book, *Landscape Plants of Eastern North America* is an invaluable resource. It was thus with great pleasure and respect that his words were received as he shared his knowledge and insights in discussing some of his favorite native trees and shrubs and their use in the landscape.

The morning ended with the Society's Annual Business Meeting led by INPAWS President Linda Oxenrider. Committee Chairs and Chapter representatives reported on their activities as the past year was reviewed and future plans shared.

The afternoon's slate of speakers during three concurrent sessions presented a variety of options for attendees to choose from.

Creating a backyard wildlife habitat is something Greg Oskay has done at his own home, as he described in his informative presentation. He no doubt inspired many in attendance to do the same, using the necessary ingredients for wildlife attraction he discussed, including water, food and shelter. Modestly hoping to attract 30 bird species to his habitat, Greg has to date observed over 90 species, plus rabbits, amphibians and other small creatures. Breaking the mold of the traditional backyard lawn can by rewarding in many ways.

Alyssa Solomon described her daunting task of growing the plants required to provide much of the seed needed for The Nature Conservancy's 7000 acre Kankakee Sands Prairie Restoration project in Newton County. She oversees the growth of 108 species on a 120-acre nursery, as well as the management of the restoration. Over 3000 pounds of seed were harvested last year, about half of what was needed to seed 500 acres. With 2000 acres completed, the restoration and hence the nursery's importance will continue for several more years. It is a challenging and exciting project.

Equally challenging and exciting is the establishment of native plants in a different environment–wetlands. As assistant nursery director for J.F. New and Associates in Walkerton, Mark O'Brien is called upon frequently to assist in such endeavors. He discussed the plants and effort necessary for success.

Dr. George Parker, Professor of Forest Ecology at Purdue University shared his research on the changing plant diversity of central hardwood forests as influenced by different methods of timber harvesting and other types of human disturbance. Analyzing how forest management affects species dynamics is part of his effort to promote harvesting techniques that lead to greater diversity in the forests.

Michael Homoya, Plant Ecologist with the Indiana Department of Natural Resources knows the native flora of our state like few others and is a frequent writer and speaker on botanical matters. His topic of pleasure on this day was the ferns of Indiana. Though he did not discuss all 78 of the species calling our state home, he did describe a number of the most common, including fragile, bracken, royal, Christmas, ostrich, sensitive, and climbing. Their diversity is surprising and their subtle beauty and charm make ferns natural "musts" for all shade gardens.

Following the concluding remarks of the final speakers, the day ended much as it had begun–with enthusiastic socializing and grazing on the selection of snacks set out for the group. For those who were making a weekend of the conference and spent the night at the park, Marquita Manley led a Sunday morning walk. Enjoy this poetic description from Janice Gustaferro and Mary Gorrell:

About forty members
decided to stay,
Their evening plans
they did delay,
To indulge in a tasty
substantial buffet,
While comparing notes
on the informative day.

After a leisurely breakfast
on Sunday,
Marquita Manley, the naturalist,
did say,
"A hike to the quarry
starts this way",
Thirty-four hikers
responded, "Okay!"

Landmarks of the park
she did display,
As they traveled along
their nature foray.
At the quarry she recounted
its heyday,
Then they adjourned for
observation and play.

With golden beauty and quiet,
their troubles did allay,
Hoping to return for a wildflower
hike just before May.

Several generous benefactors lent their financial support to the conference. Making the Ninth Annual Conference possible were the following sponsors:

- **Earth-Source, Inc.**
- **Indiana Chapter of the American Society of Landscape Architects**
- **J.F. New & Associates**
- **Spence Restoration Nursery, Inc.**

Special recognition and thanks go to the conference's primary sponsor, **National City Bank of Indiana.**

Also to be thanked for their efforts in planning and conducting the day's proceedings are Conference Chair Eleanor D. Bookwalter and INPAWS President Linda Oxenrider.

Check your mailing label!

Has your membership lapsed?

Greetings!

My name is Dawn Stelts and I am your new Membership Chair. Check the mailing label on this newsletter. Next to your address you will find a year printed. That year is the last year through which your dues have been paid. If the membership date listed is prior to 2003, that means your dues have lapsed.

To renew and make sure your name will be included in the new member directory, fill out the enclosed membership form and mail it with your check to Carolyn Bryson–now!

My goal is to be able to mail the new INPAWS Membership Directory by March. Help me out–send in your dues today!

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

INPAWS Chapter News

Central Chapter Meetings for 2003

February 13, 2003
7 PM at the Brownsburg Library, Mike Homoya will present a program on the rare plants of Indiana.

Directions to the library from the Route 267 and I 74 exit: Exit I 74 and turn right or south on 267. Go one or two miles to Tilden (there's a traffic light there). Turn left or east on Tilden and drive three blocks through a residential area to Jefferson. Turn left on Jefferson. The library is at 450 South Jefferson. Hope to see you there.

May 3, 2003
Saturday afternoon, 11AM to 1 PM
A tour of Coletta Kosiba's garden to see spring blooms.
Bring a picnic lunch.

July 13, 2003
Sunday afternoon, 2 to 4 PM
Visit Virginia Harmon's garden to see summer blooms.

October 5, 2003
Sunday afternoon, 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, 2003
Sunday afternoon, 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

West Central Chapter Report

Mike Homoya, author of *Orchids of Indiana,* gave a well-attended and outstanding slide-lecture on Indiana's native orchids at our November meeting. He has inspired us to start looking for orchids in Tippecanoe Co. and surrounding counties. Most of those attending were surprised to learn that we have some orchids since they are not that obvious.

All of our educational meetings are open to the general public and INPAWS has enrolled a number of new members as a result. The credit goes to our vice president and program chair, Joan Mohr Samuels. She has lined up an excellent list of interesting and informative speakers for our programs this year.

Chris Brewster
jim.chris.brewster@worldnet.att.net

East Central Chapter upcoming meetings

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

Thursday, February 6
Dr. Kem Badger BSU will present on "Ferns and Their Allies"

Thursday, March 6
Dan and Sophia Anderson will be presenting "Indiana Native Species Edibles." Edible native species snacks and tea will be provided by the Andersons. There is no cost for this meeting but we would welcome notification of your expected attendance so the Andersons know how many to expect.

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.

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.

Plant detectives . . .

A Duneland Carnivore

by Barbara Plampin

Nature celebrated July 4, 1976, by providing a spectacular and, apparently, never-repeated display: a broad river or ribbon of tiny, orchid-like Purple Bladderwort *(Utricularia purpurea)* which bisected the waterlilies and other wetland plants in a certain Porter County lake. Monet couldn't have done better.

Whether aquatic, terrestrial, or amphibious, Bladderworts *(Lentibulariaceae)* fascinate me. Seven of the ten Indiana species state-listed Atlantic coastal plain disjuncts grow in the Dunes. Bladderworts, with their prominent lower lips and sometimes smaller upper lips and spurs or sacs atop stiff stalks resemble small purple or yellow orchids. Plants lack roots, may lie dormant for years, and are carnivorous. Fresh water crustaceans furnish the main part of their prey. ***Bladder*** designates the bubble-or bag-like trips growing amid the leaves; ***wort*** is Middle English for root or plant. Once, under my microscope, I saw a minute trap ingesting a minuscule pink shrimp!

Assertions that one can hear the trips operating appear to be incorrect.

When a friend and I lifted a floating yellow Great Bladderwort *(U. vulgaris)* from still water and listened intently, we heard–nothing.

The leaves suffice to float the aquatics and anchor the terrestrials. To reproduce vegetatively, some leaves bunch themselves into tight little winter buds (turions) that may lie dormant for years until the right amount of moisture occurs. No one had ever noted Great Bladderwort in certain Lakeshore Blue Joint Grass meadows until the vigorous rains of 1991. Then we saw new lakes of sunshine yellow. Look for Bladderworts also in **pannes** (intradunal ponds formed where wind scoops out sand down to the water table), ponds, roadside ditches, and bogs).

Purple-white scraps of blossom characterize the extremely inconspicuous, self-pollinating form of Hair Bladderwort *(U. subulata).* Perhaps this species is the most challenging because its inch-tall, zig-zag, moss-fine stalks hide among much taller plants, including *Rhynchospora* species.

A possible accompaniment is the Toad Bug, a harmless insect which both looks like and hops like a toad. Be prepared to crawl about on hands and knees looking comical.

Books: Deam, *Flora of Indiana;* Gleason, *New Britton & Brown Illustrated Flora*; Swink and Wilhelm, *Plants of the Chicago Region, Fourth Edition*; and Yatskievych, *Field Guide to Indiana Wildflowers*. Agnes Arber's *Water Plants*, a 1972 reprint of her 1920 book (ISBN 3 76820157 0) reports Central and South American Bladderworts growing in water collected by Bromeliads. One species boasts violet flowers atop yard-long stems. J. and P. Pietropaolo's *Carnivorous Plants of the World* discusses cultivation.

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.

Note from Barbara Plampin:

Alas, some of the pictures accompanying *Seeds for Ceramists* [Volume 9, Number 2, Summer 2002] were troublesome. *Eleocharis melanocarpa* is shown as *E. tricostata* see Britton and Brown, I, 317); *Rynchospora axillaris* wasn't in the article and doesn't grow in the Dunes (Ibid., 344); and *Psilocarya scirpoides* is upside-down (Ibid., 347).

Success Story

by Marissa Codey

When human inflicted disasters occur such as the recent oil spill off the coast of Spain or the massive 1999 fish kill in the White River, it can be difficult if not impossible to imagine that there can be a light at the end of the seemingly endless tunnel of ecological damage. However, for almost every environmental disaster there is also an environmental success story. Surprisingly, the fish kill of 1999 caused by the Guide Corporation seems to be helping create such a success story. For one, there are signs that the river is coming back--fish are slowly returning to habitat destroyed by the spill. But there is even more good news! Not only are aquatic ecosystems slowly recovering, but some of the funds set aside from the Guide Settlement are actually being used to provide permanent protection and restoration of the River's watershed. The importance of this type of protection cannot be overstated. As the National Research Council (1992) declared in reference to the importance of land use to the health of a river,

Rivers are products of their drainage basins, and the biological integrity of stream and river systems is dependent to a large extent on watershed management practices...In some cases, restoration of the predisturbance flood and sediment regime will reestablish the physical characteristics of the river-riparian system.

The Central Indiana Land Trust Incorporated (CILTI), a nonprofit land conservation organization, is doing exactly that. When it learned that Guide Settlement funds could be used for land acquisition and restoration along the river, CILTI decided that acquiring and restoring farmland in the River's floodplain would be beneficial not only to the health of the river but also to farmers owning fields with declining crop yields and frequent floodwater inundation. This past summer CILTI was given approval from the settlement Trustees to use Guide funds for the purchase and restoration of 52 acres of land along the White River in Hamilton County.

CILTI named this site Burr Oak Bend, after the Bur Oak Tree (often spelled Burr Oak in the writings of Charles Deam and others) and after the big bend of the White River in which it is situated. The restoration plan, scheduled to begin this fall, will create a 31.5 acre mixed hardwood forest and a 12.5 acre prairie. Design of both systems will use analyses of vegetation in surrounding intact ecosystems to infer what species likely existed on the site prior to its conversion into farmland. Dominant tree species scheduled to be planted include Black Walnut, Bur Oak, Green Ash, and White Oak. The prairie will consist of a mixture of local grasses and forbs, and in several years will offer a beautiful combination of form and color. The restored forest and prairie will not only offer visitors a unique and pleasant visual experience, but will also provide a diverse habitat for the numerous terrestrial animals native to the area.

Clearly, a light of renewal is beginning to shine from the dark days of the 1999 fish kill. CILTI is excited about the Burr Oak Bend project, and is looking forward to using it as a demonstration of what a successful ecological restoration project can look like. For more information about this project or about the organization in general, please contact Marissa Codey at 317-631-5263 or email mcodey@cilti.org. CILTI also has a website (www.cilti.org) that contains a downloadable membership/contribution form as well as information about current volunteer opportunities.

Marissa Codey is Executive Director of Central Indiana Land Trust Incorporated (CILTI).

Jump into Action!

Help monitor Indiana frog and toad populations

Speculation of a nationwide decline in frogs and toads has prompted the Indiana Department of Natural Resources to ask Hoosiers to leap into action.

The DNR is looking for volunteers to participate in the Indiana Amphibian Monitoring Program. Volunteers are needed to listen for frogs and toads from late February through July, the breeding seasons of Indiana's amphibians. Surveys are conducted at night, usually after rainy days, or on misty nights, when frogs and toads give their breeding calls. Information collected by volunteers will help DNR biologists better understand the distribution and abundance of amphibians in Indiana.

Volunteers must attend a training workshop in order to participate in the survey. Registration is not required to attend a training workshop. Attendees are asked to bring pen and paper to the workshop. Participants must be 18 or older.

The Indiana Amphibian Monitoring Program is part of the North American Amphibian Monitoring Program (NAAMP) by the U.S. Geological Survey. Two survey methods will be utilized starting this spring: national routes and stationary sites. National routes are driving routes that take one to two hours to complete, not including drive time to the survey area. Stationary sites are completed at frog and toad breeding sites. Surveys are repeated three times during the breeding season. Internet access is required to participate in the program.

This would be great for a school project, scouting badge, conservation club project, or just an individual interest and reason to "Get Outdoors" in the coming months. Just a little bit of your time could go a long way. The data collected could assist in justifying conservation efforts in Indiana-especially wetlands, which are critically disappearing.

This program is funded by donations to the Endangered Wildlife Fund on the Indiana state income tax form. Look for the eagle and donate all or a portion of your state tax refund to keep frogs and toads hopping in Indiana.

Paula Yeager
Executive Director
Indiana Wildlife Federation

Indianapolis residents were trained January 18. Other statewide training workshops include:

North Judson
Saturday, Feb. 22 11 a.m. - 1 p.m.
Kankakee Fish & Wildlife Area
4320 W. Toto Rd.
574-896-3522
http://www.IN.gov/dnr/fishwild/publications/kank.htm

West Lafayette
Saturday, Feb. 15 2 - 4 p.m.
Morton Community Center
222 N. Chauncey
765-775-5110

www.mp2-pwrc.usgs.gov/FrogWatch/
http://www.nwf.org/keepthewildalive/frogwatch-app/index.htm

Information on Indiana's Amphibian Monitoring Program is available online at:
http://www.IN.gov/dnr/fishwild/endangered/naamp/nindex.htm

DNR Division of Fish and Wildlife Web site:
http://wildlife.IN.gov

New from the DNR: *Hoosier Wetlands Newsletter*

Fellow conservationists:

The future of Indiana's wetlands is one of the most important natural resources and environmental issues that the Indiana General Assembly will debate this year.

This is the first in a series of e-mail newsletters focused on Hoosier wetlands. I encourage you to get informed, stay involved and share this newsletter with friends, family, customers and members of organizations to which you belong.

The text only version of Volume 1, Issue 1 of Hoosier Wetlands is below.

For a more attractive version of the newsletter with graphics and photos, please click on this link: http://www.in.gov/wetlands/newsletter/hswetlands/index.html

Also, a wetlands Web site with more important information is being developed (www.wetlands.IN.gov) and should be online soon.

John Goss, DNR Director

Hoosier Wetlands

Helping Hoosiers protect, preserve and restore natural resources

Ripple Effect

Welcome to the first edition of Hoosier Wetlands–a newsletter created to spread the word that 1.) Indiana's wetlands are in jeopardy and 2.) that every Hoosier has a voice in deciding how–or if–we protect these rapidly disappearing areas.

The debut of this publication comes as our lawmakers prepare to convene for the 2003 General Assembly where they will discuss legislation that could dramatically affect the future of our wetlands - and in some cases decide whether we even have certain wetlands in the future.

Why is this happening now? A U.S. Supreme Court decision in 2001 took away the authority that the federal government has exercised for years to protect wetlands that are not directly associated with rivers and lakes.

Some people think this court case is reason to change existing Indiana law concerning all wetlands. In some states, unprotected wetlands have already been destroyed. In others, protective legislation has already been enacted.

Most likely, Indiana legislators will be dealing with separate and competing bills–one or more that would strengthen wetlands protection, and one or more bills that would weaken wetland protection. We need your help to convince lawmakers that our wetlands need protection.

As you know, wetlands are important to a wide variety of wildlife. For example, wetlands provide habitat for more than a third of Indiana's endangered species, including the Blanding's turtle, the short-eared owl and copperbelly water snake. They also provide an essential food and water source for deer, ducks, and other animals. This also makes them excellent locations to view, hunt, trap and photograph wildlife. Wetlands also are important for people, too. None of us can live without a supply of safe drinking water. Wetlands are natural purifiers and help to recharge aquifers that supply drinking water. They also are a natural sponge, retaining water that could otherwise flood homes and property.

While some people may think of wetlands as swamps, bogs, and breeding ground for mosquitoes that harbor the West Nile virus, that's not really the case. In their most ecologically balanced state, wetlands actually control mosquitoes. Dragonflies, damselflies, water striders, backswimmers and predacious diving beetles thrive in wetlands, and they consider mosquitoes a staple of their lunch supply. The bigger West Nile threat is from mosquitoes that live in shallow pools of stagnant water such as those found in abandoned tires–a very different but also important environmental issue.

Governor Frank O'Bannon has asked the Indiana Department of Natural Resources, the Department of Environmental Management and the Office of the Commissioner of Agriculture to work with organizations to develop a consensus on legislation to protect wetlands. We'll be talking with wildlife lovers, hunters, environmentalists, conservationists, farmers, developers and anglers. By sharing news and working together, we hope to build consensus that saves wetlands while allowing necessary development and appropriate land use.

We will send you this newsletter every other week or so and post other information on a Web site – www.wetlands.IN.gov – to keep everyone in the loop about the ongoing legislation and other actions concerning Indiana's wetlands. And we'll help you make the contacts you want to make to ensure every Hoosier understands how very important wetlands are to each of us. Now, and in the future.

Did you know?

Which Indiana region once supported a wetland that stretched from the Ohio border to the Illinois border? How large was it, and what has become of it? Check out the next edition of *Hoosier Wetlands* for the answer.

Why are wetlands important?

Because they:

- Provide habitat for fish and wildlife;
- Improve water quality;
- Interrupt and filter surface runoff;
- Retain excess nutrients and some pollutants;
- Reduce sediment that would clog waterways and affect aquatic life;
- Provide flood protection; and
- Provide shoreline erosion control.

Creature Feature

Tens of thousands of sandhill cranes migrate from the northern United States to Gulf Coast waters every fall and spring, making a stopover at the shallow wetlands of Jasper-Pulaski Fish and Wildlife Area near Medaryville, Indiana. Wetlands provide food and safe resting areas for the giant birds, which have wing spans of about 6 feet, and stand about 3-4 feet tall. On the wing and on the ground the sandhill crane often seems to be a tangle of legs, neck, beak and wings. Wetlands are great places to see the birds, and thousands of tourists each year visit the Jasper-Pulaski FWA, which has become a significant eco-tourism locale throughout the region. To learn more about the sandhill cranes in Indiana, visit the DNR Web site.

Wet Facts

In the 1700s, about 25 percent of Indiana was swamp, bog or marsh–what today are called wetlands. These areas filtered and stored water. They also provided both food and shelter to water fowl and other animals.

On the Web

Have you heard? The frogs are taking over the net! Indiana wetlands resources now have a new home on the Web at www.Wetlands.IN.gov [available in mid January]. You can use this great new tool to find out information about wetlands, permiting, current legislation and even subscribe to special wetlands e-mails. Check in often for added features and information. You can also follow links here in the Hoosier Wetlands to find out even more about a story online.

Plant Profile

The pitcher plant *(Sarracenia purpurea)* is a strange-looking denizen of wetlands in the north half of the state. Few plants are as fascinating or mysterious as those that actually "turn-the-food-chain-tables" by consuming animals! The pitcher plant is a carnivorous species that has pitcher-shaped leaves, which it uses to offer a soupy cauldron to unsuspecting insect prey. A steady diet of insects provides an important supplemental food source to the pitcher plant in one of its favored habitats, a nutrient-poor sphagnum bog.

Hoosier Wetlands is produced under a joint effort by IDEM, DNR, OCA and agency wetlands protection partners.

For more information about becoming a subscriber, visit the Indiana Wetlands Website at **www.wetlands.in.gov** or call us at (800) 451-6027 ext. 2-8596.

Photos by DNR photographers.

INPAWS Coming Events

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

Saturday, March 8, 2003
11:30 AM to 4 PM

Holliday Park Nature Center
6363 Spring Mill Road
Indianapolis

INPAWS Pitch-In Lunch and Slidefest

Here's a cure for cabin fever and the winter doldrums! Pull together a few of your favorite slides and a dish you'd like to share with members and join us for a pitch-in at Holiday Park. There should be shots of many of Indiana's beautiful spring ephemerals that will whet our appetites for the approaching Spring. INPAWS will provide beverages. You will be responsible for your own table setting.

Please feel free to bring a guest.

Saturday, April 5, 2003

Mark your calendar for a day of planting fun

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. Mark your calendar, 5 April 2003, for a day of planting fun. **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.

INDIANA NATIVE PLANT
and Wildflower Society

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