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inpaws journal

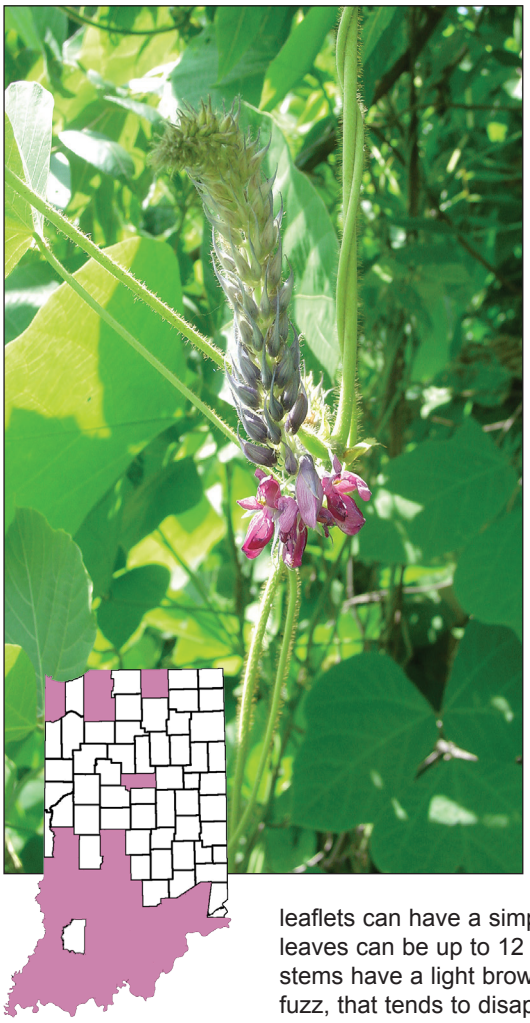
Indiana Native Plant and Wildflower Society

Fall 2014

Kudzu in Indiana? You bet!

By Ken Cote

Yes, believe it or not, kudzu is well-established in Indiana. The Indiana Department of Natural Resources has documented 159 sites in 39 counties, totaling 153.98 acres. Most sites are south of Interstate 70, but there are sites as far north as La Porte County. Sixty-seven percent of the sites are less than one acre, but some are as large as eight acres.



The kudzu in Indiana is adapted to cold weather. Some sites have been here for 50 years and survived the snowy winters of 1977 and 1978. The recent severe winter had little effect on kudzu sites in the state. Spring inspection of a site in Greene County revealed that the large vines above the snow cover were unharmed by the cold.

Identification

Kudzu is a woody perennial vine with a compound, trifoliate leaf similar to soybean. The leaflets can have a simple margin or be lobed; leaves can be up to 12 inches across. Young stems have a light brown pubescence, or downy fuzz, that tends to disappear with age. Older stems can be up to five inches in diameter, light brown with small lenticels (pore-like openings that allow exchange of gases between the air and inner plant tissues). Kudzu does not really have a fall color and leaves remain green until temperatures drop to 28^{o} F. Brown leaves tend to hang on the plant until January.

Kudzu can look similar to greenbrier, wild grape, hog peanut, moonseed and bur cucumber. Bur cucumber, greenbrier, moonseed and wild grape have a simple leaf. Hog peanut looks very similar to young kudzu. However, hog peanut leaves are smaller and the pubescence white instead of brown. The flowers of hog peanut are white to light pink, while kudzu flowers are purple to magenta.

Inside

The Threat

Kudzu out-competes native vegetation, causing serious damage to native plant communities, and reduces the recreational use of forest lands. Kudzu may also be a threat to soybean crops because it is closely related and has the ability to harbor soybean pests and diseases.

Two soybean pests of concern that can reside in kudzu are soybean rust and the bean plataspid or “kudzu bug” (*Megacopta cribraria*). Soybean rust *(Phakopsora pachyrhizi*), a fungal disease, cannot overwinter in Indiana, but could reside in kudzu during the growing season. The kudzu bug is a tiny brown pill-shaped bug that feeds heavily on kudzu, but can also feed on

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Report IN!

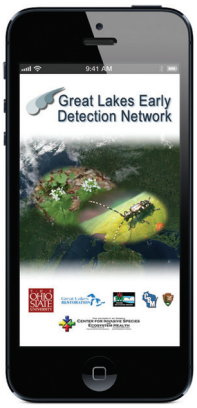
Invasives app launched

By Ellen Jacquart

I found it. Three words you don't like to say when searching for non-native invasive species.

That was the message communicated by Nate Simons, executive director of Blue Heron Ministries, Angola, when he discovered invasive black swallowwort (*Cynanchum louiseae*, also known as dog-strangling vine) in the Pigeon River area of northeastern Indiana. But this time Nate was able to input his discovery into an app on his smartphone, where it was added to a database that will help conservation professionals react quickly and effectively to eradicate the invader.

*Invasive black swallowwort (*Cynanchum louiseae*) is also known as dog-strangling vine.*



The new system is called Report IN, and conservation groups are hopeful that it will help land managers fight invasive species in Indiana.

Got Asian bush honeysuckle in your back yard? Report IN! See a patch of garlic mustard at a state park? Report IN! The more reports received, the better handle groups will have on which invasives are where - and where they are not. This will help The Nature Conservancy and other groups focus resources where they are needed most.

For an invasive species such as black swallowwort – only spotted in two other sites in the entire state – being able to eradicate it before it has a chance to become established is the most efficient way of combatting it. So with a quick input on his phone, Nate helped prevent black swallowwort from getting a stranglehold in Indiana.

Folks can get started by visiting www.EDDMapS.org/indiana. Once an account is created (it's free), Hoosiers can start mapping the invasive plants they see.

To make reports from your smartphone, download the Great Lakes Early Detection Network app (just search in your app store for 'GLEDN') and you'll have an easy way to report invasives in the field. All information is shared between the Report IN website and the GLEDN app, so you can use the same EDDMaps profile for both.

... with a quick input on his phone, Nate helped prevent black swallowwort from getting a stranglehold in Indiana.

A Web Ex training on using the system will be held in January. E-mail ejacquart@tnc.org to sign up for training.

Ellen Jacquart is director of northern Indiana stewardship for The Nature Conservancy and chair of the INPAWS invasives education committee.

Brown County invasives effort seeks volunteers

A cooperative effort to rid Brown County State Park and other large properties in the county of invasive species is inviting volunteers to join the fight.

The collaboration includes Brown County Native Woodlands Project (bcnwp.org), DNR's Parks and Reservoirs Division (in.gov/dnr), and The Nature Conservancy (tnc.org). Friends of Brown County State Park, Habitat Solutions, Hoosier Mountain Bike Association, and other volunteers have participated in the campaign.

2014 is the fifth year of the coalition's struggle to eliminate Japanese stilt grass, multiflora rose, Japanese barberry, autumn olive, privet, vinca and bush honeysuckle. Herbicide sprayers and pruners are used, and terrain varies from roadsides to rugged trails and creek beds.

Small groups of six or fewer are usually scheduled to work on weekday mornings, but sessions can be arranged on evenings or Saturday mornings. Those who wish to volunteer may send an e-mail to CR91LJL@ aol.com to find out about scheduled work sessions.

Kudzu!

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soybeans and cause significant crop damage.

The kudzu bug was first discovered in Georgia, but continues to spread north and westward. In early 2014, it was located in southeastern Kentucky. There is a high probability that we will see this pest in Indiana soon. The exact effect it will have on Indiana soybeans is not 100% clear. Unfortunately, this insect pest causes little damage to the kudzu plant. The Indiana DNR Division of Entomology and Plant Pathology (DEPP) was watching for this insect while working at kudzu locations this summer.

Site Treatments

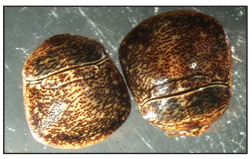
The DEPP is working to control kudzu in Indiana. We are working with landowners to treat kudzu on their properties in order to reduce population levels to a more easily manageable size. Sites are being treated in a north to south manner in an effort to push kudzu populations back towards the Ohio River. Small sites are treated first to prevent them spreading and becoming costly to control. Other factors for site selection include equipment accessibility and proximity to water.

Currently, 57% of the kudzu acreage in Indiana is being treated. Ten percent of the total kudzu acreage is being treated by private landowners, one percent by other DNR divisions on state properties. In the last eight years, Indiana DNR DEPP has treated 71.5 acres of kudzu. This is 46% of the acreage in the state.

Herbicide treatments are the primary tool utilized by DNR to suppress kudzu. Clopyralid, glyphosate, triclopyr and metsulfuron methyl are the active ingredients currently used in the suppression program.

Unfortunately, many biological control options have a high potential for negative impact on soybeans; therefore, they cannot be used. Research is being conducted on biological control of kudzu, but biological products are not readily available on the market. Mechanical control such as crown removal and frequent mowing can work for small sites, but these methods are not practical for large sites.

Eradication of kudzu is extremely difficult and in some cases may not be possible. Seventy-two percent of the sites treated by DEPP have been 90% suppressed. This typically occurs after three consecutive years of treatment. In some cases it may take five years. After five years, sites are allowed to fallow for two years, and spot treatments are conducted to make sure the kudzu does not regrow. Kudzu can develop an herbicide-induced dormancy that can last for years. Therefore, it is essential that sites be monitored even after it appears that all the kudzu has been eliminated. One missed plant can become a 50-foot vine in just a few years.



The kudzu bug (Megacopta cribraria) *is a tiny brown pill-shaped bug that feeds heavily on kudzu (leaves at left), but can also feed on soybeans and cause significant crop damage.*

Kudzu is a serious problem in Indiana. We continue to treat as many sites as we can with the financial resources available. If you see a kudzu site, please report it to me at DNR DEPP, *kcote@dnr.in.gov.* You can also call 1-866-NO EXOTIC to report kudzu as well as exotic, invasive insect pests. If you are interested in helping monitor treated kudzu sites, please contact the DNR.

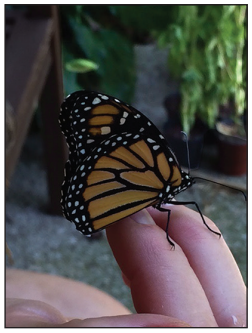
Ken Cote is nursery inspector for DNR's Division of Entomology and Plant Pathology.

Butterfly host workshop

Inviting life into our spaces

By Amanda Smith

On July 19 INPAWS members were among 35 people who visited Strawtown Koteewi Park in Hamilton County for a butterfly host plant workshop.



Common ragweed (top) supports 46 species of moths and butterflies including the gorgone checkerspot (middle), explained Amanda Smith, shown here with a freshly emerged monarch butterfly.

The group began inside Taylor Center of Natural History, where I gave them a brief overview of the property. At 750 acres, Strawtown Koteewi Park is the largest park in Hamilton County, with 300+ acres of restored tall-grass prairie. I explained the park's interesting natural history and my personal motivation in studying Lepidoptera host plants.

I've come to appreciate native plants not just for their charming beauty and low-maintenance needs, but also for their historical uses and for the life they support. When we plant natives, we are taking an ecosystem approach to gardening. We are investing in the food chain and inviting life into our spaces.

With that pep talk behind them, the group headed outside. They barely covered the eight miles of trails in the park because at every glance there were native plants to discuss. Participants found themselves in the midst of visually impressive plants like prairie dock which reaches 10 feet tall, as I crouched down to point out more common species like common ragweed, little bluestem, and Canada goldenrod.

When discussing what life native plants support, you must consider more than beauty, stature, and rarity. Common ragweed supports 46 native species of moth and butterflies, including the gorgone checkerspot. Little bluestem supports six species of moths and butterflies.

Goldenrod truly takes the gold for prairie host species. This genus hosts over 100 species of Lepidoptera! These are only the moth and butterfly species these plants support. Goldenrod, like the other plants mentioned, are depended upon by spiders, wasps, flies, beetles, birds, and more throughout the year.

> *The challenge is to look at our plants more holistically and say, "YES! Something is eating my plants!"*

Other notable species we encountered in the prairie include white wild indigo, which supports 17 species, and black-eyed Susan, which supports 16 Lepidoptera.

The group made their way toward the park forests and continued tallying host species. Trees are often overlooked in their importance as hosts for moths and butterflies. The showy and beloved silkworm family of moths, which includes polyphemus, cercopia, and luna, host on oaks, maples, hackberry and walnut, to name a few. Collectively, those trees host over 1,000 species of moth and butterflies!

Pokeweed hosts seven species, poison ivy 15, and stinging nettle 35, proving that even less desirable natives have value.

When we understand how critical native plants are to insects and how crucial insects are to birds, amphibians, and up the food chain, we start to see the larger benefits of planting natives. All too often gardeners say, "OH, NO! Something is eating my plants!" The challenge is to look at our plants more holistically and say, "YES! Something is eating my plants!"

Amanda Smith is superintendent of natural resources and education for Hamilton County Parks and Recreation.

Former sand mine now home to rare plants

By Katharine Hadow Ploense

The sheen on the standing water at the Liverpool Nature Preserve isn't pollution from the nearby steel mills. Nor is it leakage from ATVs in the adjacent right-of-way under the power lines. It's a by-product of decomposing vegetation.

The preserve lies in an urban area four miles south of Lake Michigan, eleven miles from northwest Indiana's refineries. At some point in the 20th century it was a sand mine. Since then the moist acidic sand has begun to re-vegetate with a number of rare plants including orchids, sundews, and carpets of club mosses.

Feet got wet at INPAWS's August 23 nature hike at Liverpool; there are no trails through the preserve's marsh. Without galoshes, 11 hikers picked their way from tussock to tussock to see meadow beauties (*Rhexia virginica*), black-fruited spikerush (*Eleocharis melanocarpa*), and endangered globe beakrush (*Rhynchospora recognita*).

In rubber boots, Division of Nature Preserves coastal regional ecologist Derek Nimetz described the preserve's 18 acres: sand savanna along the western edge, grading into open prairie, then moist sedge meadow and marsh to the east.

Also sensibly shod, Nimetz's 12-year-old son Dylan looked for salamanders. Finding none, he spotted weevils in the pod of a cream wild-indigo (*Baptisia leucophaea*) and a praying mantis. The group photographed viceroy butterflies, eastern tailed blues and a sphinx moth.

Two aggressive invaders threaten the preserve: phragmites and ATVs.

Nimetz manages common reed (*Phragmites australis*) by the "snip and drip" method, cutting open the reeds and dripping herbicide into their cut stems. This method protects the nearby plants such as a threatened sand-heather (*Hudsonia tomentosa*) and the rare shining ladies' tresses (*Spiranthes lucida*).

Yet the preserve lies right next to an ATV trail. In only a few hours, joyriders who want to "get muddy" can lay waste to days of selective "snipping and dripping" and years of protection. The public is welcome to visit – on foot – year-round.

To find Liverpool Nature Preserve, take I-65 to exit 258 in Lake Station. Turn right (east) onto 37th Ave., north (left) onto Liverpool Rd., right (east) on Engelhart St. Follow Engelhart to Arizona St. and turn left (north). Park on Arizona and leave a note on your dashboard so the neighbors know you're enjoying the wildlife.

Meadow-beauty has an urn-shaped fruit that Thoreau compared to a tiny cream pitcher. At left, Derek Nimetz shows the runner of phragmites.

If you forget your boots, your feet may get wet. You'll be glad to know that the water's clean.

Katharine Hadow Ploense is an INPAWS member, a freelance writer and former public information director at Reeves-Reed Arboretum in Summit, NJ.

Dogged Botanizing

Is that your final answer?

By Patricia Happel Cornwell

The summer 2011 issue of the *INPAWS Journal* carried an article I wrote called "Native Silverberry – or Evil Twin?" It described my research into the Elaeagnus family as I tried to identify a big, fragrant flowering shrub in my front field. It was eight feet tall, with crinkled leaves that were green above, silvery below. In May it bore creamy tubular blooms that smelled like my grandmother's perfume.

Speckled red berries and straight thorns are clues that this is the invasive autumn olive.

I hoped I had native silverberry, *Elaeagnus commutata*, not one of its invasive "evil twins", *E. umbellata* (autumn olive) or *E. angustifolia* (Russian olive). Those Asian species provide nesting sites and food for birds and mammals, but also propagate extravagantly via their berries, the seeds of which birds obligingly distribute far and wide. I ruled out Russian olive because its leaves are narrower and willow-like. That left two possibilities, one good, one "evil."

I could not come to a definite conclusion because the berries would not appear until after the journal came out that summer. I needed to know if the berries would be silver or red. Silver was good. Red was bad.

I missed the berries that year and the next because we travel a lot. Every year, by the time I remembered to look, the birds had picked the bush clean. Another puzzling factor was that I found no thorns on my bush, which would suggest native silverberry. I remained hopeful.

Fast-forward to 2014. Because we did not mow last year, a second identical bush appeared in the top of the field 700 feet from the original. It had the same leaves and growth habit. I didn't catch either bush in bloom in May, but in early August I discovered the smaller bush full of small, ovoid *silver* berries. This was promising.

A week later I crossed my fingers and checked the smaller bush again. Now the fruits were juicy, speckled and … red. Because I was able to wade into the middle of this bush, I finally saw … thorns.

The thorns were not what I expected. They were 1 ½ inches long and few and far between, only two or three to a branch. There were none near the leaves and berries, only on bare wood.

In trepidation, I went down the hill to examine the parent bush, which was even larger now and laden with the vines of Japanese honeysuckle and wild grape. It was not, however, laden with berries. I searched several minutes before I found three half-shriveled, speckled red berries. I examined one branch after another, but again did not find anything that looked like a thorn. There was a lot of dead wood, which may explain the dearth of berries and the absence of identifiable thorns.

Nevertheless, those three red berries are the damning evidence: both bushes are autumn olive. So we will cut them to the ground, spray the stumps with herbicide, and watch for suspicious sprouts next year. This case is closed.

Patricia Happel Cornwell is an Indiana Master Naturalist, freelance writer and editor of the INPAWS Journal. She lives in Harrison County.

One host tree not to plant

By Patricia Happel Cornwell

We need to provide host plants for all pollinators, right? Well, not so fast.

Every summer I see brightly patterned, red-black-and-white "beetles" on blooms of ironweed, goldenrod and thistle. These "mosaic" insects are actually ailanthus webworm moths. In flight, they reveal dull brown/black hindwings. They are of the ermine moth family, Yponomeutidae.

This moth (*Atteva aurea*, formerly *Atteva punctella*) is considered native from Florida south to Costa Rica, which is habitat to its original larval hosts, paradise trees (*Simarouba species*). However, once tree-of-heaven (*Ailanthus altissima*) became widely introduced into the US from China, the moth made the "leap" to it as a new host, hence "ailanthus" in the insect's common name.

Tree-of-heaven, though invasive, is still sold in nurseries because of its tolerance of poor soils. It is the inspiration for Betty Smith's novel *A Tree Grows in Brooklyn* because of its ability

Host not to plant – continued on page 11

Columbus high-schoolers study biodiversity hands-on

By Troy Gayman, Jessica Caldwell, Andrew Larson, et al

The Haw Creek Corridor at Lincoln Park is an outdoor learning laboratory that has been used in numerous scientific explorations for Columbus Signature Academy New Tech High School students. During the 2013-2014 school year, Biology I students conducted a study in the forested area around the "people trail" and creek bank. Students used multiple methods of managing invasive plant species to determine the most efficient method of killing the plants.

The most abundant and damaging invasive species in this area are bush honeysuckle, euonymus, and Japanese honeysuckle. Biology I students at CSA New Tech experimented with three different bush honeysuckle control methods; in the first, glyphosate was applied shortly after leaves and stems were cut. In a second, the plant was dug up (mechanical removal). In a third, the plant was cut to the stump and covered with garbage bags. According to our results, the most effective methods were cutting the leaves and stem of the plant before the application of the herbicide or digging up the entire plant.

Touch the earth, love the earth, honour the earth, her plains, her valleys, her hills, and her seas; rest your spirit in her solitary places.
– Henry Beston

The students tested three different methods to control euonymus. In one, glyphosate was applied directly to cut stems. In a second, vinegar was applied directly to the leaves. Other plants were dug up. All methods were effective as long as the method was applied to every invasive organism in the area. When any method was used in an area next to more euonymus, the neighboring plants would begin to spread in the area where the methods were used.

In other experiments, students applied glyphosate to Japanese honeysuckle vines and got mixed results. Some students who used the method were successful; others killed the organism but neighboring organisms crept into the vacant area left behind. Others found that the organism was unaffected by the herbicide.

Additionally, the 2013- 2014 AP (Advanced Placement) Biology class conducted biodiversity surveys of the area. As tree diversity plays an important role in the long-term stability of an ecosystem, a census of the trees in the Haw Creek corridor along Lincoln Park was conducted. The dominant common native species that we found were hackberry (*Celtis occidentalis*), white ash (*Fraxinus americana*), boxelder (*Acer negundo*), silver maple (*Acer saccharinum*), slippery elm (*Ulmus rubra*), and sycamore (*Platanus occidentalis*).

Native trees found in less abundance were buckeye (*Aesculus glabra*), cottonwood (*Populus deltoides*), honey locust (*Gleditsia triacanthos*), bur oak (*Quercus macrocarpa*),

Hands-on – continued on page 13

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Students experimented with three different methods to control invasive bush honeysuckle (above) as well as testing ways to attack euonymus and Japanese honeysuckle (top). Students also conducted biodiversity surveys.

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Eco-blitz bliss in state forests

By Steve Dunbar

It's finally raining so I am happy, and so are all the plants I have been listing this summer. The wildflowers now have the needed rain to continue growing to produce seed for future generations, and I have an excuse to stay inside to write this article.

I am a wildflower lister, as a birder may keep a life list of birds (which I also list). In June I had the privilege of helping to identify plants in the back country area of Morgan-Monroe/Yellowwood State Forests for an eco-blitz undertaken by the Indiana Forest Alliance with the aid of other organizations and volunteers. The goal of the project was to inventory the flora and fauna of the area which, for the most part, has not been logged recently and hopefully will not be.

The area includes 800 acres of these south central Indiana state forests, east of Low Gap Road in Monroe and Brown counties. It also includes the 320-acre Low Gap Nature Preserve, which boasts some very large trees, rare plants, and animals of special concern.

One such rare plant which we came across in the preserve was *Gaultheria procumbens* - wintergreen! I had just added this plant to my life list this summer, as I had seen it in bloom at Fall Creek Falls State Park in Tennessee. It is more common in northern Indiana, but this was the first time I had seen it in this region of the state. The plants were only a few inches tall, much smaller than the small shrubs I saw in Tennessee.

I wondered if deer find wintergreen tasty, as the leaf has a wonderful scent. As I crushed a leaf it reminded me of wintergreen gum. We also crushed leaves of dittany, *Cunila origanoides*, whose leaves emit a spicy aroma.

A plant we were hoping to find was large whorled-pogonia, *Isotria verticillata,* an orchid that is rare in this neck of the woods. One leaf we came across was a possibility, but insufficient evidence for a positive ID. Maybe I'll get to add it to my life list some day.

It was great fun to learn and share the names of plants and their niches in the ecosystem. We came across a pipevine swallowtail larva on its host plant, Virginia snakeroot, *Aristolochia serpentaria*, that had a bloom nestled in the leaves at the base of the plant. A harvester butterfly gracefully landed on me as I walked along the beautiful creek bottom. A gray petal-tail dragonfly landed on a log, posing for a picture as I zoomed in on it. We saw fluorescent orange mushrooms and cool-looking earth star fungus.

Steve Dunbar

Steve Dunbar thought to turn his camera upward in the Low Gap Nature Preserve during the ecoblitz.

An oak beauty moth landed on a nearby tree and posed for a photo. It is one of the 500+ moths I have seen at my porch light at the back of my house, which faces a section of Morgan-Monroe State Forest, but this one had more contrast in its black and white mottled markings.

These are just a few highlights of our scouting amidst the grandeur of huge trees and glimpses of warblers, tanagers and flycatchers. If you have never been to this part of Morgan-Monroe/Yellowwood State Forests I encourage you to hike this back country area. It has a lot to offer.

The rain has stopped, so it's time to take a walk with the dog and try to add something to my life and/or yard list. Yesterday it was a blooming round-leaved tick-trefoil, *Desmodium rotundifolium*, on my septic field and a eupatorium borer (*Carmenta bassiformis*) on the black-eyed Susans. What is waiting for me today?

Steve Dunbar is president of the South Central Chapter of INPAWS.

What's the story

on understory?

By Patricia Happel Cornwell

I live in the boondocks in south central Indiana, and I've been noticing an increase in a landscaping practice that bugs me. As I drive through the countryside, I see patches of woods adjacent to lawns that are being methodically cleared, all but the trees. This creates a park-like effect, but more like an inner-city park than a state park. The underbrush, vines, saplings, wildflowers, brambles, dead wood, all are piled up and burned, leaving open space under the trees. It looks so neat, so cared-for. It invites a park bench or a gazing ball.

Steve Dunbar

During his "eco-blitz" in the back country area of Morgan-Monroe/Yellowwood State Forests (previous page), Steve Dunbar encountered interesting fungi in the understory and spent quality time with this harvester butterfly.

So what's the problem? Understory.

Understory is the level of plant life that grows beneath the forest canopy. It includes seedlings and saplings of canopy trees, "specialist" understory shrubs such as spicebush and beautyberry, small trees like dogwood, and many smaller herbs, wildflowers, ferns, mosses, lichens, and microorganisms.

Understory plants receive less light than canopy trees so must be shade-tolerant. This habitat allows for higher humidity and cooler temperatures, allowing fungi and other entities to create a nutrient cycle that feeds the soil and enables life for many animals and plants.

Animals rely on the understory of woods and forests for "home, restaurant, shopping districts and highways" (*Encyclopaedia Britannica online*). These species include insects and spiders, snakes, lizards and frogs, field mice, moles, rabbits, raccoons, opossums, skunks, squirrels, birds and - depending on where you live – maybe jaguars, tigers, rhinos or elephants.

The understory produces berries, seeds and nuts to feed birds and animals and provides safe nesting sites and shelter. It sustains a healthy mulch on the forest floor, prevents surface water runoff and erosion, and breaks down to create a deep layer of rich topsoil.

What looks tidy to us humans is inhospitable to other species. Forest habitat is increasingly fragmented across the country, thanks to residential and industrial development. One might expect that less of this destruction would happen in rural areas, but farmers continue to clear the woody edges of their fields to plant more corn or soy beans, and city folks moving to the country buy a couple of acres and work diligently to replicate a city lot with perfectly edged borders and no messy wild undergrowth.

In my area (I hesitate to say "neighborhood" since I can't actually see any neighbors), the owner of the woods adjoining our woods allows relatives to cut mature trees and clear underbrush every summer. I wince when I hear chain saws. These well-meaning men, just looking for some free income, have no idea of the complex society of species underfoot.

The clearest way into the universe is through a forest wilderness. –John Muir

"The shrubby layer and density is disappearing from forests around the country," according to a blog called "Garden Walk Garden Talk." "Why? The shrubs and thickets are a detriment to forest timber cutting and are often cleared."

It's not all human interference. Whitetail deer, too, are destroying understory by over-browsing. Deer are unlikely to change their habits, but humans are capable of understanding our impact on the life around us.

Often I hear remarks like "When I was a kid there were a lot more rabbits in the woods" or "I can't remember the last time I heard a whip-poorwill."

Gee, I wonder why?

Why Tree Ordinances?

By Tiffany Arp

Communities are beginning to recognize the many tangible benefits that trees provide in the urban environment. Healthy trees reduce air and noise pollution, provide energy-saving shade and cooling, are habitat for urban wildlife, enhance aesthetics and property values, encourage economic development, and are an important contributor to community image, pride, and quality of life. This has led many communities to realize the importance of protecting their urban trees.

Tree ordinances are among the tools used by communities to attain and maintain a healthy, vibrant, well-managed community forest.

Tree ordinances fit into one of three basic categories (ISA Tree Ordinance Guidelines, 2014):

Street tree ordinances primarily cover the planting and removal of trees within public rights-of-way. They often contain provisions governing maintenance or removal of private trees which pose a hazard to the traveling public. Also in this category are ordinances with tree planting requirements, such as those along streets and in new development areas.

Tree protection ordinances are primarily directed at providing protection for native trees or those with historical significance. They usually require a permit before protected trees can be removed, encroached upon, or in some cases, pruned.

View ordinances are designed to help resolve conflicts between property owners that result when trees block views or sunlight.

Ordinances provide an opportunity to set good policy and back it with the force of law when necessary. A tree ordinance should designate an individual or group within the community to look after and manage the urban forest. This person or group would be responsible for writing and implementing an annual community forestry work plan. Ideally, the plan will provide guidance for planting, maintaining and removing trees from streets, parks, and other public places (Arbor Day Foundation, Tree City USA Standard #2). However, the ordinance should be flexible enough to fit the needs of the community.

One section every ordinance should contain is a "do not plant" list of tree species identified by the community as inappropriate and that shall not be used for planting along streets and other public areas. This is the place to list tree species that should never be planted.

Trees that should be on every community's "do not plant" list include ash, ailanthus (tree of heaven) and pear (Pyrus species). Many communities also ban cottonwood, box elder, silver maple, Siberian elm and female gingko as trees not to be planted along urban streets.

The ultimate goal of a tree ordinance is to prevent a net loss of trees in the community and to protect existing trees. To discuss creating a tree ordinance for your community, contact DNR Community and Urban Forestry at (317) 234-4386 or *urbanforestry@dnr.in.gov.*

Tiffany Arp is community and urban forestry coordinator with the DNR Division of Forestry.

Host not to plant

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to persevere and thrive even in harsh conditions. Inspirational or not, it is destructive of any habitat, urban or natural. In cities, it breaks up foundations and sidewalks. In natural areas, it outcompetes native species. Tree-of-heaven is present in 83 of Indiana's 92 counties.

Ailanthus webworm moths cannot survive cold winters. They migrate north every summer throughout the continental US and eastern Canada. Its larvae pull a few leaflets around a mesh of loose webbing (hence, "webworm"), then eat the leaves. The caterpillars have white and green stripes. The adult moth feeds on and pollinates flowers.

Why are these moths so numerous in my fallow field when the nearest tree-of-heaven is five miles away along a state highway? These trees bear large clusters of flowers and winged fruits, whose seeds are dispersed far and wide by wind in late winter.

So while we native plant lovers strive earnestly to provide host plants for insects and other creatures in the chain of life, this is one insect whose host is unwelcome. Unfortunately, we need not fear that the ailanthus webworm moth will disappear from our summer landscape any time soon, as long as nurseries continue to sell invasive tree-of-heaven and the winter wind continues to blow.

Collaboration creates a rain garden

INPAWS In Action

A July 12 workshop at the Mulberry Community Library in Clinton County capped a two-year endeavor that combined the resources and expertise of numerous public and private entities to create a demonstration rain garden. A $1,000 INPAWS grant, along with gifts from nearly a dozen organizations and several individuals, helped turn a water detention basin into an ecological and educational boon.

Volunteers planted this rain garden at an Indianapolis condominium in 2011 (top) and recently celebrated its third birthday

Kevin Tungesvick, restoration ecologist with Spence Restoration Nursery, Muncie, and Ben Reinhart, resource conservation specialist with Clinton County Soil and Water Conservation District (SWCD), Frankfort, spoke at the free event.

Starting in 2012, library staff consulted the county surveyor's office, area plan commission and Town of Mulberry authorities to ensure that the project would not run into weed or mowing ordinances.

The clay soil was amended and a broken tile discovered and repaired. An underground drain and new standpipe were added so the pond would drain within 24 to 48 hours. A landscape cloth cover was constructed to prevent mulch from obstructing the drain.

Community volunteers and four Sheriff's Department inmate volunteers added 20 yards of leaf compost, which was incorporated into the soil with a tiller, and then topped the amended soil with 20 yards of mulch.

In August, 2013, native plants, purchased with funds from INPAWS and Clinton County Community Foundation, were planted on a grid laid out by members of Clinton County Soil and Water Drainage Board. Twenty volunteers planted 1,300 plugs in two and one-half hours. Later, library staff planted turf grass seed and watered through the fall.

The rain garden has successfully drained within 24 to 48 hours after major rains, and the native plants had a successful survival rate for their first year. Plantings continue to be maintained by SWCD and library staff. A brochure and educational signs have been developed to explain to the public how a rain garden works and to identify the native species used.

Indy rain garden comes of age

A rain garden got a party for its third birthday when 30 people gathered Aug. 21 at Timbers condominiums in Indianapolis for a cook-out, complete with birthday cake.

The rain garden (left) was developed in 2011 by the Timbers of Indianapolis condominiums and the Central Indiana Watershed Foundation, in part with a $500 grant from INPAWS.

Daryn Fair, president of Fall Creek Land Design, provided guidance and donated plants and design work. The volunteer labor was done by Timbers residents and maintenance crew, with help from University of Indianapolis ecology students (top left).

A few plants were lost last winter so some replanting will need to be done next spring, but the garden is considered mature at age three.

Hendricks gardeners to host Oct. 4 event

Hendricks County Master Gardeners will host "Adventures in Gardening" Oct. 4 rfrom 9 a.m. to 4 p.m. at Hendricks County 4-H Fairgrounds.

The $45 registration fee includes continental breakfast and lunch.

The featured speaker will be Stephanie Cohen, QVC-TV's "Perennial Diva" and founder and director of the Landscape Arboretum at Temple University. She is a contributing editor to HGTV Newsletter's "Fine Gardening" column.

Other speakers include Jerod Chew of Marion County Soil and Water Conservation District and Bill Fielding, roadside services coordinator for Indiana Dept. of Transportation.

For further information, see *http://hendricksgardeners.com* or contact Chase Stanley at 317-745-9260.

Hands-on

Continued from page 7

and black walnut (*Juglans nigra*).

Other woody invasive species, in addition to those mentioned earlier, were catalogued, including white mulberry (*Morus alba*) and tree-of-heaven (*Ailanthus altissima*). By far, bush honeysuckle and euonymus are the woody species that seem to pose the greatest threat to this area.

The long-term goal for this area is the reestablishment of a native plant community by using a variety of control methods, gradually and consistently, to eradicate invasive plants. Doing so will benefit the natural ecosystem and the community of Columbus as a whole.

Troy Gayman (Class of 2017) and Jessica Caldwell (Class of 2014) are students at Columbus Signature Academy New Tech High School where Andrew Larson is the Biology Facilitator.

Hikes

Oct. 11 Hike

The Indiana Division of Nature Preserves is co-sponsoring a hike in Blossom Hollow Nature Preserve in Johnson County. The hike is cosponsored by the Central Ind. Land Trust. Participation is free, but registration is required at *www.in.gov/dnr/naturepreserve*.

*During an INPAWS hike at at the Liverpool Nature Preserve, Derek Nimetz's son Dylan, 12, spotted weevils in the pod of a cream wild-indigo (*Baptisia leucophaea*).*

Forbidden Fen

By Amy Perry

Twenty-some people gathered in a Mounds State Park parking lot at woods' edge on the hot afternoon of June 8. The Central Indiana INPAWS Chapter e-mail had promised an education about sedges (which I confess I was hoping would become less intimidating to me) and la foray into the Mounds Fen Nature Preserve.

newenglandwild.org

*Wetland sedges (*Carex spp.*) including porcupine sedge (above), are important food sources for a variety of creatures including sedge grasshoppers, semi-aquatic leaf beetles, billbugs, seed bugs, plant bugs, various aphids, leafhoppers and the larvae of various butterflies and moths. Caryx seeds and seedheads are an important source of food to waterfowl, rails, and some songbirds. Muskrats occasionally eat the rhizomes, culms, and young shoots.*

I was looking forward to seeing the preserve. It is not open to the public; in fact, on the park map it is a blank area. The entire preserve and most of the park are in danger of being flooded to create a proposed reservoir. [Editor's note: See "Dam Poor Idea" by Lee Casebere in the Spring 2014 issue of *INPAWS Journal*.]

Our leader was Paul Rothrock, recently retired botany professor at Taylor University. We had an escort, too—a park naturalist who explained that her role was to make sure we stayed on the paths and did not stray into the nature preserve! She seemed surprised when Paul produced his permit to enter the preserve. After a quick cell phone call, she became comfortable with his permit and accompanied us just like another hiker. Because of Paul's permit, she got to see areas from which even she normally is prohibited. Paul did detour us away from certain sections that were too fragile for foot traffic.

Sedges have edges,
Rushes are round,
Grasses are hollow
Clear up from the ground.

Sedges have a three-sided stem (hence "edges" in the mnemonic); leaves are arranged in three ranks along the stem. Their small wind-pollinated flowers, which are unisexual, are found in the axial of a single scale. The male and female flowers may be in the same spike or in different spikes.

Seventy percent of sedges live in wet areas. (In contrast, 70% of grasses live in dry areas.) A fen is a wetland with alkaline, neutral, or only slightly acid peaty soil.

Although sedges have no colorful blossoms, Paul's practiced eye caught them easily as we walked on the paths through the woods. He showed us the gracefully drooping slender woodland sedge *(Carex digitalis*) and the lily-like Short's sedge (*C. shortiana*, named for the same Short of Short's aster).

We descended past the point that White River will reach if the park is flooded and turned off the path. We kept in single file so as to minimize disturbance to the tall stalks we were pushing aside from our faces and the vegetation we were stepping on. We passed through the fen, a sunny marsh. Now we were using that permit.

A few species seen only in the fen were lake sedge (*C. lacustris*), porcupine sedge (*C. hystricina*), and the dense stools of tussock sedge (*C. stricta*). Wildflowers included great Angelica (*Angelica atropurpurea*), queen of the prairie (*Filipendula rubra*), and marsh thistle (*Cirsium muticum*). We also saw the shrub ninebark (*Physocarpus opulifolus)*.

As we started descending to the right, we were unable to avoid squishing into the narrow streams of dark water trickling across our path. I understood then why the e-mail had recommended wearing boots. We reached a flat bottom below the fen — a swamp. The tree canopy was thick, but enough sunlight filtered through that it seemed not gloomy, but pleasantly mysterious and prehistoric. After inspecting a highly poisonous water hemlock from a safe distance, we headed back up toward the public path.

All in all, Paul pointed out 16 different sedges, 12 of which I may never see again. (At least, they are not available from my usual commercial source of native plants). We also saw at least 42 wildflowers and woody plants. About one-third of these were in bloom, like the fire pink with its red petals standing out against the green wildness of the forest.

Before the hike, Paul had distributed two hand-

Forbidden – continued on next page

Annual Conference

Continued from page 16

Eric Knox – "Designing the Interface for a Digital Flora of Indiana"

Eric will report on efforts to make the 150,000 specimens of the Indiana University Herbarium available online. He will seek input from attendees about what online resources they currently use and how this new database could meet their needs.

Heather Reynolds – "Fruits of the Forest: Restoring Urban Woodlands for Wildlife and People"

The Bloomington Urban Woodlands Project brings campus, community and business together to restore plants that support native wildlife and human well-being. Heather will talk about the successes, challenges and mysteries of urban woodlands and how you can get involved.

Bill Weeks – "The Shaping Intelligence of Nature"

Scott Russell Sanders has written that native plants "give us a chance to glimpse the shaping intelligence of nature, to sense the ultimate mystery from which all things rise, and to align ourselves with that power." Bill will explore the meaning of those words for this place and time.

Hotel Rates

A block of rooms has been reserved at a special conference rate of $99 at TownePlace Suites by Marriott (105 S. Franklin Road, near SR 37/45 and 3rd St.) Originally, the rooms were to be provided at this rate only until Oct. 3. However, if rooms are still available after that date, INPAWS will attempt to get the special rate extended. If you have not yet booked a room, call TownePlace Suites at 812-334-1234 and mention "INPAWS" to find out if rooms are still available at the conference rate.

Friday Reception

If you are arriving for the Saturday conference on Friday night, or if you live in the Bloomington area, don't forget the Friday evening reception at 7:30 p.m. at Crazy Horse Food and Drink Emporium, 214 W. Kirkwood Ave., Bloomington, 47404. Everyone is welcome to come and meet the conference speakers and socialize with other attendees.

Tom Hohman is 2014 INPAWS conference chair, a past president (2010-2011), and head of the Central Chapter's invasives SWAT team.

Professor Lincoln Brower, an expert on the monarch butterfly will recount some of his experiences doing research in Mexico and his discoveries and insights into the monarchs' behavior and conservation needs.

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outs he has written, which were very helpful in preparation of the notes for this article: "Some Carex Species of Central Indiana" and "Key to Some Common Indiana Species of Carex." During the walk he circulated printouts of the "Rapid Color Guide to Sedges (Carex)", which is also available free at *http://fm2.fieldmuseum.org/plantguides/guideimages.asp?ID=340*.

I'm grateful for the opportunity to experience a fen, especially one normally forbidden to lay people like me. My degree of intimidation by sedges has diminished greatly. Sedges have great variety and interest and are definitely worth a close look.

Amy Perry is a retired editor, recording secretary of INPAWS, and a member of Central Chapter. Her garden was featured on the INPAWS 2013 Garden Tour. She thanks Norma Wallman and Paul Rothrock for help with this article.

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November 1

INPAWS conference: facing challenges

During one of two keynote talks at this year's annual conferenc win Blooomington, Gerould Wilhelm will explain why we must accommodate "the way" of our land as strictly as a pilot must obey the laws of flight.

By Tom Hohman

Time is growing short for those who have not yet signed up for the Nov. 1 INPAWS annual conference. Our 2014 theme is "Embracing Indiana's Conservation Challenges."

The all-day event will take place at Bloomington-Monroe County Convention Center, 302 S. College Ave., Bloomington, 47403. Deadline for early registration is Oct. 15, but it's still a bargain after that. Fees before/after Oct. 15 are: member $50/$60, non-member $65/$75, student $30/$35.

Speakers and Topics

Lincoln Brower – "The Grand Saga of the Monarch Butterfly"

For over 50 years, Professor Brower has been a leading researcher of the monarch butterfly, traveling many times to their overwintering site in Mexico. He will provide accounts of some of these trips and his discoveries and insights into their behavior and conservation needs.

Gerould Wilhelm – "Consilience, Concinnity, and the Way of the Land"

Jerry Wilhelm will use native prairie, woodland, and riverbank landscapes to illustrate consilience, when all elements of an ecosystem are working in harmony, and concinnity, the harmony between people and place when humans understand their role in that ecosystem. He will explain why we must learn "the way" of our land and accommodate it as strictly as a pilot must obey the laws of flight.

Ellen Jacquart – "Report Those Invasive Plants! What's New with Invasive Species in Indiana"

Ellen will report on the new digital reporting system for invasive species in Indiana, and how everyone can get involved. She will also describe the status of efforts to take invasive plants out of the nursery trade.

Conference – continued on page 15