



The Harbinger

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Newsletter of the
Illinois Native Plant Society

“...dedicated to the study, appreciation, and conservation of the native flora and natural communities of Illinois.”



Test your knowledge with this tree bark quiz! All trees are in the Bald Knob Wilderness so they are all common in upland woods in southern Illinois. See page 15 for answers. Photos: Chris Benda.

It's that time of year when we ask that you renew your memberships. It helps us greatly if you renew online at <https://illinoisplants.org/about-membership/>. We had to find a new printing and mailing service so I apologize to those of you who are receiving this newsletter late via postal mail. However you receive your newsletter, I hope you enjoy it! ☺ Chris Benda, Editor

In This Issue

- President's Message
- Welcome New Members
- INPS News
- Mad-Dog & Number 300
- *Carex* Corner: *Carex crawfordii*
- Vernal Pool Soil Seed Banks
- Floristic Survey of JJC Main Campus
- Other News & Web Links
- Botany Humor

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Message from the President



It's hard to believe my term as President is already up. It's been a wild and crazy time. And a really good time, too. I look forward to seeing what this amazing group of people will accomplish next. In the last decade, I have watched us bring on a new generation of young board members, chock full of energy and enthusiasm, while our seasoned members have risen to the occasion. Together, we have made sweeping improvements in services provided and organizational efficiency, freeing up time and energy to better serve our members, the

public, and the plants of Illinois.

We have embraced technology, with Jeff Nelson, our wonderful webmaster, bringing us into the modern era with more and different information being posted. Our bookkeeping has been brought up to a new level of professionalism by Courtney Cartney (Treasurer) and, thanks to our membership, we are on a sound financial footing.

Illinois is losing rare plant species, sometimes without even recognizing how severe the threat was until they are gone. The INPS has taken the lead in developing a watchlist of rare plants that have not made the State Endangered/Threatened Species list, sometimes because not enough is known about their populations. Working with the Illinois Department of Natural Resources, Chris Benda and fellow board members Paul Marcum, John Taft, and Emily Dangremond have developed this watchlist. Susanne Masi, along with Connie Cunningham and Emily Dangremond have expanded the Grants Program to include Survey Grants of up to \$5,000 to assess populations of State E/T and watchlist species and develop recovery recommendations.

The publication of *The Harbinger*, led by Chris Benda, continues to inform our members of events in Illinois, and John Taft is working on our peer-reviewed journal *Erigenia*. Lack of article submissions has been a challenge for *Erigenia*. I encourage members to submit articles and to encourage others to do the same.

Like any successful organization, it's not all work and no play. Current Northeast Chapter President cassi saari implemented the first (and subsequent) Botany Big Year anywhere to encourage Illinois botanizing by certifying annual plant species counts, which has led to the discovery of new species here. Other states are now copying us and it seems we have started a movement. For the first time in my memory, INPS did not have an Annual Gathering of members to socialize and see natural Illinois in 2020. We hope the epidemic will allow this fine, fun tradition to resume in 2021.

Our chapters contribute so much to our organization. From hosting symposia (Kankakee Torrent and Southern) to posting videos of meeting presentations (Central and Southern) to hosting and advertising plant sales and field trips, our chapters bring INPS to the local level.

There is not enough space here to mention all those who have labored to make INPS into the effective organization it is today. Each and every one of you has helped by being a member, even if you have not participated in our events. Why not come and join the party? It will help make the memories of a lifetime.

Floyd Catchpole, President INPS

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Check out the [Illinois Native Plant Society Events Calendar](#) for Chapter meetings and workshops.

Welcome New Members

Grand Prairie Chapter

Randall Carriger

Lauren Howell

Sylvia McDermott

Linda Owens

Jesse Smith

Southern Chapter

Samantha Childerson

Marji Gibbs

Laura Regular

Breanna Whitley

Quad Cities Chapter

Phil Rezin

Gregory Wahl

Central Chapter

Tim & Jean Bollinger

Jenni Dahl

Rachel Helmich

Natalie Long

Kathy Soath

Northeast Chapter

Mary Ashley

Christos Economou

Cooper Forsman

Barbara Graue

Breanne Heath

Tessa Murray

Gladys Reyes

Erin Rhodes

Nancy Shevel

Karen Taira

Dolph Williams

INPS News

INPS 2021 Grant Opportunities Available: Application Deadline January 31, 2021

Students, citizen scientists, conservation groups and institutions are alerted to consider applying for an INPS [Research Grant](#) for up to \$2,500 to fund one-year projects. The grant is for research-focused studies on Illinois native plants such as life history, reproductive biology, demography, genetics, comparative site inventories, and community ecology, as well as research on threats to native plants and communities, such as invasive species. Laboratory research as well as projects focused on research relating to education about or restoration of native plants and plant communities will be considered. Projects involving student research or volunteers will be given special consideration. **All projects must demonstrate how they support the mission of the Illinois Native Plant Society.**

INPS is also excited to continue its new second grant for 2021: the [Survey Grant](#). This grant for up to \$5,000 will fund searches for Illinois Endangered, Threatened, or some rare species for which current data is inadequate to assess their status and for which field surveys and recovery recommendations are needed. INPS worked with the Illinois Department of Natural Resources to develop a priority list of species for the surveys. Experienced botanical field surveyors, either independent or associated with an institution, are invited to apply for this grant. Partnerships are encouraged.

Full application details and forms for the [Research Grant](#) and the [Survey Grant](#) are available online.

Applications must be received by January 31, 2021. Awards will be announced by March 31, 2021.

INPS is grateful to be able to increase its grant award amounts this year, thanks to contributions from membership fees, generous donations to the Grant Program, proceeds from the 2019 Annual Gathering, and support from the Central Chapter for one grant conducting studies within the Central Illinois counties.

CHAPTER NEWS

Central Chapter News

Check out the many programs we have recorded and put on our webpage at <https://illinoisplants.org/central-chapter-videos/>

Dr. Eric Grimm is well known by many people in Illinois and his contributions to science are innumerable. A palynologist (study of fossilized pollen), he began his career at the Illinois State Museum as the Curator of Botany, rising to become the Director of Sciences in 2013. He passed away suddenly at age 69 on November 15, 2020. Read his obituary at <https://www.koberfuneralhome.com/obituaries/Dr-Eric-C-Grimm?obId=18962012#/celebrationWall>

Southern Chapter News

Check out the recent programs we have recorded and put on our webpage at:

<https://www.youtube.com/channel/UCM2oqNzKy7fjDisqrxaiAw>.

Researching Invasive Plants Webinar, January 19, 6:30PM. Register at <https://tinyurl.com/y29wt6fr>.

Quad Cities Chapter News

Like all state groups the Quad City Chapter has felt the constraints of pandemic restrictions. We still have plans to view and discuss two prairies under our purview. The long-delayed field trips to the newly planted, one-acre St. Patrick's Prairie in Andalusia, and to the Tim and Debbie Toal Prairie in nearby Milan, IL, have been postponed till spring (or at least better weather) and possible clarification of group size for outdoor trips. The St. Pats Prairie, planted in spring of this year with a 60-pound mixture of native plant materials from the 3,000-acre TNC Nachusa Grasslands in Lee County, displayed considerable germination and flowering of big bluestem and Indian grass plus forbs such as brown-eyed Susan and some asters. However, a very heavy flush of crabgrass and other weeds came in all season, so we had to have a "hair cut" mowing (at nine inches height) several times during the summer. We look forward to how the native species will respond after winter stratification. We will compare this behavior with the three-decades-old prairie restoration of the Toal Plot which has a fine growth of native tall grasses and showy forbs. Regular controlled burning by the Toals has had positive results on this one-acre plot across the years, but weedy invaders still persist. We plan comparison of these two units in the years ahead.

Northeast Chapter News

The Northeast Chapter is pleased to share the newly elected slate of board members for the 2021-2022 term. Returning to the team are: President: cassi saari, Vice President: Mark Kluge, Membership Chair: Kathleen Garness, Treasurer: Jason Zylka, and At-large Board Member: Sheri Moor. NEW to the team are Field Trips Coordinator: Ingrid Felsl, Newsletter Editor: Katie Kucera, and At-large Board Member: Eriko Kojima. View the latest edition of *The Nodding Onion* newsletter on our chapter webpage at <https://illinoisplants.org/northeast-chapter/newsletters/>, and, as always, check our social media for upcoming chapter events and native plant content: [Facebook](#), [Instagram](#), [Twitter](#).



Mad-Dog and Number 300

Article & Photos by Jack Shouba

“This is more fun than chemical engineering,” exclaimed retired chemical engineer Lance Herning, as we moved through the prairie, eyes down, looking at plants. Lance had a new career as a volunteer steward at Belmont Prairie in Downers Grove, Illinois. He was visiting the prairie every few days throughout the growing season recording the names of plants, when they begin to bloom and when they finish, and noting the numbers and locations of rare plants.



← Belmont Prairie, *Hesperostipa spartea*, porcupine grass (foreground) and *Echinacea pallida*, pale purple coneflower, 2016.

Lance, a former student of mine in Local Flora classes at the Morton Arboretum, had enlisted my help in 2002 in doing an update of the plant list at the prairie. Now, as our species count was gradually creeping up past 295, to 296, 297, 298, and now 299, his goal was to find 300 plants, which would be about 12% of the total number of plants ever recorded in the Chicago region up to 1994—quite remarkable for a site that is only 10.4

acres in size. But the season was rapidly drawing to a close. We had searched the prairie numerous times, and had found nearly 150 more plants than had been recorded from the site in 1981 by Bob Betz, Ray Schulenberg, Al Dupree, and Jerry Wilhelm. So it was going to be tough to add even one new plant to our list.

“There is no significance to the number 300,” I argued. “It is the 225 *native* plants that we have found that is so remarkable. This place is an absolute gem. To have this many native species in an area this small is fantastic. It would be better if our *total* count were also 225, indicating the complete absence of foreign weeds.” But non-native plants make up most of our present-day flora, so we both knew that was impossible.

Since he still wanted to hit 300 (and so did I), I walked head-down along the edge of the preserve near the parking lot, searching. I spied a small weed with inconspicuous flowers, the kind of thing you would not even notice if you did not need number 300. “This must be a common weed,” I figured. “It is in the goosefoot family, and it looks like an *Atriplex*, or orach.” But a search of the genus *Atriplex* in *Plants of the Chicago Region*, by Floyd Swink and Gerould Wilhelm, did not give us an obvious answer.

According to the book, only five kinds of orach had ever been collected in the 22-county Chicago region. One, *Atriplex patula*, the common orach, occurs in 21 of the 22 counties, but we had already identified that one in the preserve, and our new plant had much smaller leaves. The other four are all very rare, and three had never been collected in DuPage County. We keyed it out to *Atriplex glabriuscula*, smooth orach, but doubted our answer when the book said, “In our area, known only from Kane County, where it was collected by Dick Young in 1976 in roadside gravel, at Gilberts.”

“I’ll take it to the herbarium at the Arboretum, along with a couple of other plants we are not sure of,” I volunteered. As luck would have it, Jerry Wilhelm and fellow botanist Laura Rericha were in the herbarium doing some research. Jerry instantly confirmed my *Elymus villosus* (silky rye) and Laura confirmed our *Hackelia virginiana* (stickseed) leaves as being from a first-year plant, but she was more interested in finding out what insect had eaten holes in the leaves.

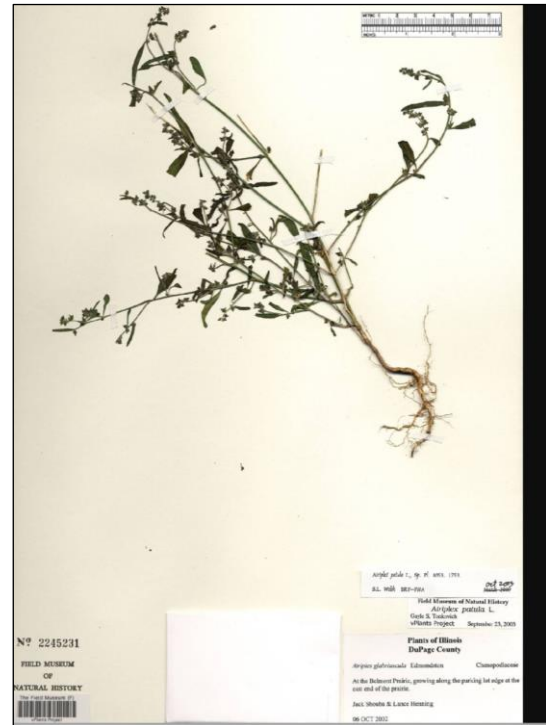
Jerry examined the *Atriplex* and said it looked like *A. glabriuscula* (smooth orach). Laura examined it with her hand lens, commented on some obscure feature I had not noticed, and confirmed the identification. It turns out

the plant has come here from the North Atlantic coast, and this was evidence that it is spreading. “We will have to keep our eye out for this,” they agreed, as I generously donated our weed to the herbarium to become one more record documenting the changing flora of the Chicago region.

I emailed the news to Lance that we had our 300, and that even though it was a non-native weed, it was a plant with a story. He emailed back that he had found an apple tree by the fence, so our count was now 301. I should point out that one of our plants was *Scutellaria lateriflora*, known as mad-dog skullcap—“mad-dog” because it was once thought to cure rabies, and skullcap from the shape of its flowers. So, in the tradition of calling the tall kid “Shorty” or the bald guy “Curly,” I decided to call my botanical buddy Mad-Dog.

But what of the list itself? What story does it tell? Long recognized as one of the finest prairie remnants in the Chicago region, Belmont Prairie has been an Illinois Nature Preserve since 1979. The original plant list was from 1981, more than 20 years ago. Lance and I wanted to add to the list, but also to find out if any of the plants had disappeared or were in danger of disappearing. After all, most Illinois Nature Preserves are tiny islands of native plants in a sea of alien plants. Ecological theory suggests that small areas are vulnerable to species loss.

Of the 128 plants on the original list, we failed to find 12 and we did not see another half dozen that had been seen between 1981 and 2001. Mad-Dog had seen one of them last year but not this year, so that one may still be there. We may have missed a few, or maybe they had not flowered this year and will do so next year. But we are afraid most of them have been lost. In addition, several species were down to one or two individuals and are in danger of extirpation.



***Atriplex patula*, herbarium specimen, collected 2002: “At the Belmont Prairie, growing along the parking lot edge at the east end of the prairie.”**



***Lithospermum canescens*, hoary puccoon, 2011.**



***Psoralidium tenuifolium*, scurfy pea, 2015.**

But what about the 170 or so new plants we found? Where had they come from? Do they compensate for the lost species? We suspect that most were there all along, but were not noticed by the botanists because they had

not visited every few days all season long as Mad-Dog had. Many are common weeds or invading trees around the edges of the prairie that they did not record since they were concentrating on native plants. Some may have moved in due to lack of management prior to saving the prairie, though that has changed: Downers Grove Park District is aggressively managing the prairie these days, with prescribed burns, removal of non-native trees and shrubs, and planting prairie in a large buffer area adjacent to the prairie. Significantly, most of the new plants we found are more weedy (less conservative, in botanists' terminology) and more common than the ones that were lost. Belmont Prairie is one of the few places in the Chicago Wilderness with 225 kinds of native plants. Our plant list helps us understand its current condition and will help guide management decisions. But it also documents a problem: rare plants are disappearing. That's why we need large preserves in addition to the little islands. That's why we need buffer zones around our preserves. That's why we need proper management. That's why we need more volunteers. And that's why we need people willing to walk around and look at flowers. And the good news is, it's more fun than chemical engineering.

2020 Epilogue

Jerry Wilhelm and Laura Rericha published *Flora of the Chicago Region: A Floristic and Ecological Synthesis* in 2017. They now say that smooth orach, *Atriplex glabriuscula*, is not a separate species but is included with common orach, *A. patula*.

Our pressed specimen of *Atriplex* is now located in the Field Museum herbarium; it can be seen by searching the website called [vPlants: a Virtual Herbarium of the Chicago Region](#).

Lance continues to volunteer at Belmont Prairie and has been joined by other volunteers who help the Park District manage the prairie; they occasionally find a new plant to add to the list.

I am doing species list updates at several other prairies in northern Illinois. All have lost at least a few species over the years and some have lost significant numbers. All have an increased number of non-native plants. Every single one needs significantly more help to manage invasive species, keep the plant list up-to-date, and record the bees, butterflies and other animals.

It is nearly 20 years since our "300" year. It's time for another update of the species list. Have any of our 16 missing plants been found and have any more have gone missing? Have any of the invasive species been eliminated or have new ones invaded?

Plants Found in 1981 But Not in 2002

Asclepias purpurascens (found one plant in 2006), *Bidens coronata* (now called *Bidens trichosperma*), *Chelone glabra*, *Cirsium muticum*, *Equisetum hyemale*, *Helianthus rigidus* (now called *Helianthus pauciflorus*), *Panicum virgatum*, *Phlox pilosa*, *Physalis heterophylla*, *Scutellaria parvula leonardii* (now called *Scutellaria leonardii*), *Solidago gymnospermoides* (now called *Euthamia gymnospermoides*)

Plants Found Between 1981 and 2001 But Not Found in 2002

Botrychium simplex, *Cacalia atriplicifolia* (now called *Arnoglossum atriplicifolium*), *Eragrostis spectabilis* (found later, date not recorded), *Pinus sylvestris* (removed by 2002), *Thaspium trifoliatum*

Jack Shouba is a Life Member and former board member of the INPS. He has taught 200 classes at the Morton Arboretum and is an avid nature photographer with a special interest in prairies.

Carex Corner #11: Rare *Carex crawfordii*

By Linda W. Curtis

Exciting news for this botanist—the discovery of a rare sedge, *Carex crawfordii*, previously known from only two counties, Lake and Cook counties in northeastern Illinois (Wilhelm and Rericha 2017). An older record from Menard County in the 1800s is also south of the current range. The Lake County occurrence is likely extirpated (Taft #890) and the Cook County specimen is from a prairie restoration. I reported its GPS

coordinates to the Illinois Department of Natural Resources that records state rare plants and the Missouri Botanical Garden that maps species distribution by counties.

Carex species can be identified by their seedheads, width of leaves, and the shape and size of their perigynia, a pattern like a fingerprint. The perigynia or seed sacs of *Carex* vary from nearly circular, a 1:1 proportion, to ovate 2:1 to 3:1, into lanceolate 4:1 length to width, and longer into linear-lanceolate, 5:1 and longer.



Those with linear-lanceolate narrow sacs 1-2mm wide in Illinois are *C. crawfordii* and *C. scoparia* with leaves 2-3mm wide. Others with narrow sacs are *C. projecta* and *C. tribuloides* but their leaves are 3-7mm wide.

Summer sedge research in the Green River area of Illinois Grand Prairie found this species with the narrowest perigynia in the Midwest *Carex*, only 1-1.3mm wide. Was this an immature *Carex scoparia*? Since my other choice in various manuals' keys was *Carex crawfordii*, I doubted it at first as it had only been found in two counties in northeast Illinois and I was sedge searching south of its range in central Illinois—Lee, Ogle, Whiteside, and Putnam counties.

A boreal sedge, *C. crawfordii* is common in northern Michigan, Minnesota, and Wisconsin. Its dispersal was likely from a stormfront packing a lot of dust, spores, and seeds. In this case, airborne perigynia that germinated and grew, producing seed heads in the second or third year.

Another dispersal could be migratory waterfowl. In each site, they grew in areas of brush cutting. Another possibility, the species was there all along waiting for a botanist with a digital camera microscope to measure the 1 mm perigynia.

The related *C. scoparia* is a prairie marsh sedge and has slightly wider perigynia at 1.3-2mm wide. A microscope or magnifier and ruler shows what the human eye cannot perceive. Both are in the Dreaded section *Ovales* of *Carex* subgenus *Vignea* that have flat perigynia with winged margins. The wings run from tip to base in some species or partway in others. The nerves vary, too. *C. scoparia*'s sacs usually have three distinct nerves on both sides while *C. crawfordii* is faintly three-nerved and its inner face obscurely nerved.

With good magnification, the serration on the wings along the beak can be seen on *C. crawfordii*, not on *C. scoparia*. Both grow as clumps but *C. scoparia* can grow massively in sedge meadows as the dominant sedge. *Carex scoparia* seed heads have spikes in overlapping rows while *C. crawfordii*'s are closer, more clustered, in the Midwest.



Linda W. Curtis, botanist and Carexpert, is author of *Woodland Carex and Bog-Fen Carex of the Upper Midwest*. www.curtistothethird.com.

Vernal Pool Soil Seed Banks for Use in Ecological Restoration

By Matt Evans, Northwestern University and Chicago Botanic Garden, 2019 INPS Research Grant Program Recipient

Background

In eastern North American deciduous woodlands, ephemeral wetlands, or ponds, referred to here as vernal pools, are abundant on the landscape and are a conservation priority due to the amount of biodiversity they support. Vernal pools are fish-less, isolated wetlands inhabited by amphibians breeding in spring and specialized plant communities adapted to fluctuating hydrology. Most woodlands and the vernal pools in this region suffer from invasion of exotic species, which has reduced biodiversity and ecosystem function. Ecological restoration is undertaken by heroes of nature to shift the balance back to native species and their community functions. Ecological restoration can be broadly divided into passive and active, where practitioners seed and manage actively after disturbance is removed versus intervening very little after removal of disturbance. In this example, seeding is the active restoration that requires precious resources and passive restoration relies on natural regeneration of the native plant community.



Spring pool.



Same location in summer.

Experiment

The primary goal of this study was to understand whether passive ecological restoration may be a viable option for practitioners when restoring vernal pool vegetation. For this, three vernal pools located in a European buckthorn-invaded (*Rhamnus cathartica*) oak-hickory woodland in Cook County, Illinois, were sampled to understand soil characteristics as well as the distribution, diversity, and abundance of native and non-native species present in the soil seed bank of each pool. The study site is typical of long-term invasion, consisting of mature oak and hickory trees in the canopy layer and very little native vegetation in the understory and ground layers. The lack of native ground vegetation is thought to be responsible for increased rates of upland soil erosion during heavy rain events, which may be filling in these low-lying vernal pools.

To understand the distribution of seeds in the seed bank in each pool, eight soil cores (8.25cm x 15cm) were collected: four from both the inner and outer region of each pool. Each core was separated into 3x5cm sections to assess whether the soil seed bank changed by depth. To account for different soil moisture requirements during the germination of seed-banked species, samples were grown in two soil moisture conditions (dry, saturated). Germinants were recorded and removed upon identification, and the diversity and abundance of native vs. non-native species calculated. These data were informed by assessments of soil texture and soil organic carbon (SOC) and nitrogen (N) at all three vernal pools.

Results

Soil Seed Bank: Ninety percent of the 404 germinants from these samples were native, representing 27 different species. This included many annual (e.g., false nettle (*Boehmeria cylindrica*), false pimpernel (*Lindernia dubia*)) as well as *Carex* species (blunt broom sedge (*C. tribuloides*), hop sedge (*C. lupulina*)). The remaining germinants represented 11 non-native species, with barnyard grass (*Echinochloa crus-galli*) being most common. The greatest diversity and abundance of native germinants were found in the shallow inner samples (863/m²), with the lowest abundance in the deep outer samples (222/m²). The shallowest samples also contained the lowest C-value species, which led to increasing abundance-Weighted FQI with sampling depth.

Soil Characteristics: Our analyses did not reveal clear evidence of soil deposition from eroded upland soils within our vernal pools. However, we did find increasing clay content with deeper sampling and that sand content declines, but there was variation among pools even within this small site. Soil organic carbon (SOC) and nitrogen (N) declined with increasing sampling depth, which is consistent with previous studies. Notably, the relationship between carbon and depth is the inverse in permanent wetlands where decomposition at depth occurs at a reduced rate compared to seasonally inundated vernal pools.

Putting it together

- Our study indicates that a diverse, native soil seed bank exists in the studied vernal pools. In turn, this seed bank has the potential to support restoration of a desired native plant community and with fewer resources required to restore function and health than upland woodland habitat types.
- While it may not be necessary to actively seed native species to restore native vegetation in vernal pools, controlling invasive species that emerge from the seed bank and that are dispersed from outside the pool will continue to be important.
- To improve the chances that seeds present in the soil seed bank are able to germinate and establish, we suggest practitioners consider methods to expose the seed bank by mixing vernal pool soils. Tilling, turning the soil over, or stirring soil with waterproof boots are potential methods for seed bank exposure.
- Resource allocation for maximum impact is critical to ecological restoration practitioners. Our results indicate that resources may be better allocated to restoring upland habitat near pools, which will not only decrease seed rain of invasive species into pools but ensure sufficient upland habitat for amphibian species who spend much of their adult lives in the upland portion of these woodlands.

While our soil analyses did not suggest that upland soils are eroding into the study pools, further study using different techniques (e.g., stable isotopes) is needed to fully exclude this possibility. We did find that soil contained viable native seeds of many species at each depth but note that study pools were almost entirely devoid of vegetation even after the removal of invasive species (one year after). In fact, numerous species were found only in the seed bank and not in the above-ground vegetation surveys (e.g., *Mimulus ringens*, *Ludwigia polycarpa*), suggesting something is inhibiting seeds in the soil from germinating. Future studies should investigate whether mixing soils in the study pools improves germination and establishment of seeds in the soil seed bank. When considered in combination with seed dispersal from waterfowl and increased light levels due to emerald ash borer (EAB) ash canopy reduction, the potential for natural processes, with minimal intervention, to restore native vegetation in the studied vernal pools is relatively high, as long as invasive species continue to be managed.

Thank you to the Illinois Native Plant Society for funding this research and supporting conservation research in Illinois.

Floristic Survey of the Joliet Junior College Main Campus

By Anthony J. Gibson & Andrew J. Neill, 2020 INPS Research Grant Program Recipients.

Annotated floras are botanical accounts that not only convey the presence or absence of a given species in a geographic area, but include information describing the ecological and distributional patterns of each listed species. We were inclined to conduct a flora of the Joliet Junior College grounds as it contains remnant land holdings and historical herbarium specimens. Additionally, its location is next to major transportation routes.

Prior to field surveys, an herbarium search is conducted. The purpose of this procedure is to acquire all historical herbarium records that pertain to the geographic area at hand and subsequently apply a name to these specimens that correlates to the names used in the authors' flora. The challenge presented to the authors in this case is not only to assign a name to a static specimen, but also to locate the point of original collection of this specimen. If a specimen name is incorrect, due to nomenclatural or taxonomic reasons, we will then "annotate" this specimen with a small slip of paper with our correct binomial name. Some herbarium material, indeed, has suffered from years of fluctuating indoor climate, insects, mold, and even mechanical damage. It is worth adding that certain families of plants age disproportionately from insects and other forms of degradation. For example, in our instance, specimens of the Brassicaceae (mustard family) have been found missing whole petioles, leaves, and flowers.

Once an inventory of historical voucher specimens is developed, and correct names assigned, we then survey the region at hand to collect previously unsubstantiated species. This is the nuanced process of doing systematic surveys, finding historical plant locations, and searching areas of presumed significance. In the case of our project, each species we list must have either a historical or author-collected herbarium voucher to substantiate it. Once collected, these specimens will be pressed, identified, mounted on herbarium paper, and given a corresponding label. Collecting a physical specimen demonstrates how the authors interpret and apply the taxonomic literature used. This procedure includes all vascular plants, regardless of taxonomic complexity or conservativeness.



Phlox glaberrima ssp interior, previously unknown from our fen until June of this year, was found adjacent to a natural seep.



Scutellaria parvula, a common inhabitant of our dolomite pavement at JJC. It is differentiated from S. leonardii by its glandular pubescence.

This indeed could extend to the level of variety or subspecies. An example of this level of infraspecific tabulation in our flora is the fowl mannagrass subspecies *Glyceria striata* subsp. *stricta* and the typical subspecies, *Glyceria striata* subsp. *striata*. The first subspecies is a strict inhabitant of our fen, differentiated by the lemmas possessing scarious margins and being infused with purple; the latter is found among the sides of mowed trail and has lemmas that are green and scarcely scarious. In this instance, both subspecies have been collected and will be mentioned under their respective entry in the annotated flora.

Some of our vouchers have been unprecedented discoveries that allude to the changing distribution of many vascular plants. Two notable examples in the genus *Chamaesyce* (known typically as a subgenus in the genus *Euphorbia*), prostrate spurge (*C. prostrata*), and creeping spurge (*C. serpens*), were found growing among the landscaped areas of the campus. These two plants were exemplary of the findings we have uncovered that have been anomalous. In this case, *C. prostrata* was mentioned under the entry for the ubiquitous spotted spurge (*C. maculate*) as “rarely adventive” and “probably not persistent in our range” by Gleason and Cronquist (1991) a mere 29 years ago. Similarly, *C. serpens* is mentioned at the time of publication of the Flora of the Chicago Region in 2017, being first discovered in 1964 along a railway embankment southwest of a “military reservation” (Swink #28-C, SIU). The haunts of this plant were further revealed in 1997 at the Midewin National Tallgrass Prairie in the “bottoms of desiccated ponds” (Lammers #10370, F).

The third element of this work is a zone-by-zone inventory of the campus. This inventory subdivides the campus into pre-established zones that are conceived on the basis of land use, vegetation structure, and abiotic boundaries. Much of our campus is already “zoned” for the purpose of coordinating restoration activities. Each zone inventory will have generated conservatism-based metrics, such as the familiar mean C and FQI. The intent of this is to determine which of our zones have a mean C greater than 4.0, or what has been considered impossible to restore or mitigate. Secondly, we would like to know if our natural areas are ecologically stable in terms of vascular plant species. Finally, this gives us the relative value of our land holdings, which we are seeking to define in order to better coordinate restoration. This section was designed as an application of the floristic method, which itself is an organized and verifiable means of developing a comprehensive reference of plants in an area or region.

The ultimate intent of this research is to reimplement the time-honored subdiscipline of floristics in a way that shows contemporary application and the need for taxonomic biologists in the realm of plant biology. This method synergistically blends the need for site inventory, while introducing an ecological application that implements taxonomic findings. Annotated floras go beyond a site inventory and elevate site-specific ecological context for each species mentioned. This flora is intended to be a living document, both through the specimens generated that can be viewed and annotated later, and the demonstrative nature of the text itself. We expect this flora to be further updated by successive generations of students and faculty to address the changes in the scientific interpretation of the college’s flora and the dynamic nature of plants themselves.

I would like to extend my gratitude to the Illinois Native Plant Society for providing grant monies to fund this project. In addition to the INPS, Joliet Junior College has been invested in this endeavor since its inception, providing not only supplementary monies, but the necessary equipment, facilities, permissions, study areas, and most importantly, mentorship and guidance.

Anthony Gibson is currently pursuing an Associate's degree in Horticulture at Joliet Junior College. His current focus is classical and contemporary plant taxonomy, floristics, and herbarium curation. Read more about Anthony and this project at <https://jjc.edu/jjc-student-receives-grant-study-plant-life-campus>.

Professor Andrew Neill currently holds a Master's Degree in Biology with an emphasis in Evolutionary Ecology and has taught biology for 27 years at Joliet Junior College. Professor Neill has been a steadfast advocate of this flora and the principal driving force behind the restoration of the College’s remnant land holdings.

Other News & Web Links

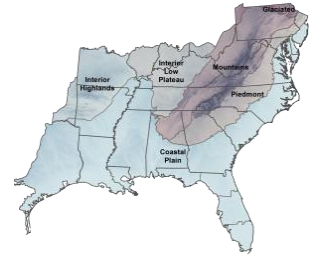
Tales from the Crypt

The possibility of snatching a flower or fern from the jaws of extinction has fired up a community of enthusiasts trying to document and protect what’s left of the rarest of native vegetation. The challenge is immense, but sometimes there are wins. It’s good practice in the art of hope. Botanist Wesley Knapp, who studies extinctions with the North Carolina Natural Heritage Program, calls his motivational spiel about conserving native plants

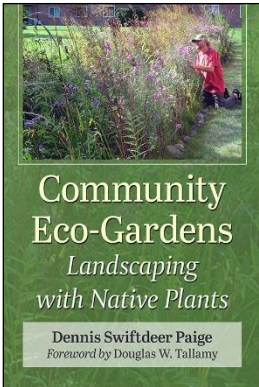
“Tales from the Crypt,” and together with his colleagues, has painstakingly identified 58 plants that are extinct in the wild in the US and Canada with no miracle rescues in gardens. Read about their efforts in “[How passion, luck and sweat saved some of North America’s rarest plants](#)” in *ScienceNews*.

Flora Of The Southeastern United States – 2020 Edition

The 2020 edition of the *Flora of the Southeastern United States*, covering over 10,000 species, was published in October. The *Flora*, published by the University of North Carolina at Chapel Hill Herbarium (NCU), North Carolina Botanical Garden, and University of North Carolina at Chapel Hill, can be downloaded for free from the Botanical Garden’s website: <https://ncbg.unc.edu/research/unc-herbarium/flora-request/>.



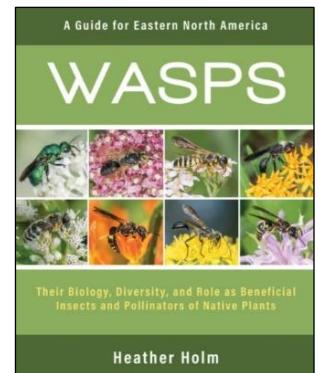
Community Eco-gardens: Landscaping with Native Plants by Dennis Swiftdeer Paige



Part how-to, part personal narrative, this book provides a practical guide for creating native-species eco-gardens and chronicles the author’s 20-year journey of transcendental awakening. With the help of the greater community, a neglected five-acre condominium landscape in Schaumburg, IL is transformed into a stunning range of multi-seasonal prairie woodland and wetland micro-habitats. Dennis Swiftdeer Paige’s illustrated account describes this process of ecological reconciliation and traces his discovery of the higher self along the way. With a foreword by Doug Tallamy, the book is being published by McFarland and is available at <https://mcfarlandbooks.com/product/community-eco-gardens>.

Wasps: A Guide for Eastern North America

Wasps is the first full-color, illustrated guide featuring approximately 150 species of flower-visiting wasps that occur in eastern North America, and the specific native plants and habitat each species depends upon. Written by Heather Holm with an ecological lens, this richly-illustrated book details wasp diversity and has full-page profiles for each wasp species that include identification tips, geographic range maps, biology, prey, natural history and habitat. This is an essential book for conservationists, naturalists, insect enthusiasts, biologists, nature photographers, native plant aficionados, and anyone interested in beneficial insects and pollinators. Available in January, this book is available for preorder from <https://www.pollinationpress.com/>.



An Ambitious Breeding Effort to Save North America’s Ash Trees

At the USDA Forestry Sciences Laboratory in Delaware, OH, forest geneticist Jennifer Koch is overseeing a team of technicians, researchers, and students are researching the maggot-like larvae of the emerald ash borer (*Agrilus planipennis*), the most devastating insect ever to strike a North American tree. Since the Asian beetle was first discovered in Michigan in 2002, it has killed hundreds of millions of ash trees across half the continent and caused tens of billions of dollars of damage. They are looking for signal trees that, through genetic luck, can kill emerald ash borers, rather than the other way around. Such rare resistant trees could ultimately help Koch achieve her ambitious goal: using time-tested plant-breeding techniques to create ash varieties that can fend off the borer and reclaim their historic place in North American forests. Read the details in a feature article by Gabriel Popkin at <https://www.sciencemag.org/news/2020/11/can-ambitious-breeding-effort-save-north-america-s-ash-trees>.

Cadaver Botany

Enjoy this video introducing the concept of "cadaver botany" as Chris Benda explains how to identify 17 common plants found in the woods of southern Illinois in November:

<https://www.youtube.com/watch?v=MT4OEs0yJ0I&feature=youtu.be>

Langham Island of Global Importance

The newly formed Friends of Illinois Nature Preserves have joined forces with the Friends of Langham Island to host continuing volunteer work days to restore 20-acre Langham Island in the Kankakee River. The end goal is to steward the island's ecosystem back to an oak-dominant savanna and save the Kankakee Mallow and the many other rare, native plant species that live there. Nowhere else in the entire world has the mallow been found growing naturally, though it has been made commercially available for garden settings.). "This is an island of global importance," says Stephen Packard, former Director of Science and Stewardship for the Illinois Chapter of the Nature Conservancy, who serves as a mentor for the project. For more information about the project and how to participate, see this [article in the *Kankakee Daily Journal*](#).

Friends of the Illinois Nature Preserves Up & Running



Launched in 2020, this new organization was formed to provide support for the Illinois Nature Preserves System through education, raising funds, facilitating partnerships, and volunteerism. It achieved 501(c)(3) tax exempt status in April 2020 and recently published its [2020 Annual Report](#) of accomplishments and goals. Check out <https://www.friendsofillinoisnaturepreserves.org/> for news and information about supporting the Nature Preserves.

A Lively Cemetery Comes Roaring Back!

An early model of Friends of Illinois Nature Preserves stewardship, read about the renewed restoration of the 1.3-acre Short Pioneer Cemetery in Grundy County. Very little management has occurred on this site since 1984, but that all changed in 2020 with the formation of a little "core of active generosity." [Strategies for Stewards Blog](#).

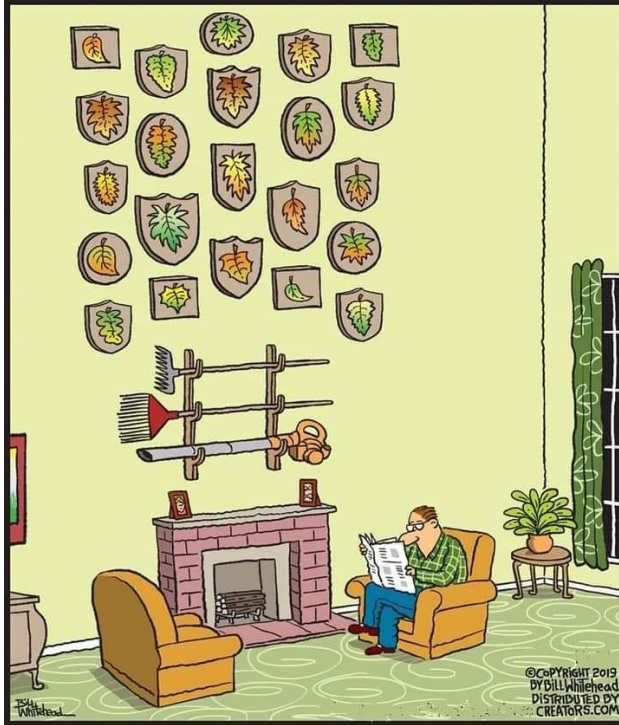
In Short Supply

Ryan Pankau's column in the *The News Gazette* addresses one very common issue for anyone interested in "going native"—the fact that they are relatively hard to find at retail garden centers. A study published earlier this year looked at almost 7,000 plants for sale at 14 wholesale nurseries in the Mid-Atlantic region. Only 25% could be identified as native to the region, and 4% were known invasive species to the region. Read more in Ryan's [Garden Scoop blog](#) on the Illinois Extension website.

New Tribal National Park on Nebraska-Kansas Border

The Nature Conservancy of Nebraska has transferred 284 acres of bluff property to the Iowa Tribe of Kansas and Nebraska. The tribe plans to use that land, plus an adjacent tract of 160 acres the Conservancy donated two years ago, to establish just the second such "tribal national park" in the country, just southeast of Rulo on the Nebraska-Kansas border. Lance Foster, the vice chairman of the tribe, said the 444-acre park will allow the tribe to tell the story of the Ioway people (spelled with a "y" to avoid confusion with non-Native American Iowans) and provide a rustic getaway for people to hike, primitive camp and birdwatch. Read more about the project in this [Omaha World-Herald article](#).

Botany Humor



Tree Bark Quiz Answers:

For more info, see <https://www.facebook.com/illinoisbotanizer/posts/2794823350732826>.

American Beech, <i>Fagus grandifolia</i>	Black Locust, <i>Robinia pseudoacacia</i>	White Ash, <i>Fraxinus americana</i>	Persimmon, <i>Diospyros virginiana</i>
Northern Red Oak, <i>Quercus rubra</i>	Shagbark Hickory, <i>Carya ovata</i>	Tulip Tree, <i>Liriodendron tulipifera</i>	Hackberry, <i>Celtis occidentalis</i>

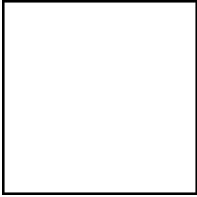
ILLINOIS NATIVE PLANT SOCIETY

P.O. Box 271

Carbondale, IL 62903

illinoisplants@gmail.com

www.illinoisplants.org



Frost flower

Photo: Chris Benda

The Harbinger Winter 2020

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