IOWA NATIVE PLANT SOCIETY

Erythronium

Newsletter of the Iowa Native Plant Society, vol. 29 no. 1, January 2024

Native Plant Spotlight – *Carex grayi*

by Dr. Thomas Rosburg

The idea at the root of the proverb "beauty is in the eye of the beholder" goes back to at least the 5th century B.C. and Protagoras, a Greek teacher and philosopher. His thesis that "man is the measure of all things" expresses the subjective and relativist view that is at the core of "beauty is in the eye of the beholder." Credit for the modern expression belongs to the Irish novelist Margaret Wolfe Hungerford, who included it in her book "Molly Bawn"' published in 1878. Simply put it means the perception of beauty is always subjective. What is beautiful to one person may be simple and plain to another. It is a simple but an important axiom. And I begin with it because I believe one of Iowa's most beautiful vascular plants is one that lacks a showy colorful corolla. There is no fragrant scent emanating from the plant. There are never brightly painted leaves to grab our eyes. *Carex grayi* (common names include Gray's sedge, common bur sedge, and mace sedge) has none of those qualities to impress observers. Yet, in my eyes, it is an exceedingly beautiful and graceful plant.

For many, sedges are, well, just sedges. They have a well-deserved reputation for being anonymous. One thing in their favor in that regard is *Carex* is the 5th largest genus in the world, with about 1,800 species. The 480 *Carex* species in North America makes it the most speciose genus, way ahead by 100 species, of runner-up *Astragalus*, which sits in first place world-wide with 3,270 species. Here in Iowa, approximately one out of every 12 native species is a sedge. Iowa is home to 25% of the North American sedge flora. Being a graminoid (meaning grass-like in form) also makes them a challenge to identify. Their leaves are always long and narrow and usually less than 20 mm in width. Sedge flowers are unisexual, highly reduced, and usually greenish. The petals and sepals are absent. The tiny female flowers are hidden within a closed sac or pouch. There is simply not much to base the separation of species on, or so it seems.

It turns out of course that there is morphology to distinguish one species from another. It just requires you to adjust your attention to smaller-scale features and make careful observations. *Carex* are difficult because in order to be absolutely certain in your identification the majority of them involve examination with a dissecting scope and most likely some measurements. The mystery and challenge add enjoyment to the naming game for me, for others not so much. If the latter applies to you, don't despair! You too can impress friends and family with sedge names rolling off your tongue IF you are selective in the species you pick. I can think of a dozen species that hardly require a hand lens let alone a dissecting scope to name. It can happen because they are very distinctive in their form, recognizable because of their individual beauty. Like Gray's sedge.

Carex grayi is fairly easy to find in the right habitat and if you are south and east of a line from Clayton County southwest to Hamilton County, then south to Decatur County (Figure 1). It does best in rich damp forests on alluvial or lacustrine soils. Floodplain forests along larger rivers are the best place to look, but you might also find populations in shaded seeps, in shaded riparian habitats and on the margins of tree-covered wetlands.

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INPS is a 501(c)(3) non-profit organization

Leaves of the President's Notebook

Greetings INPS members and friends! We have had an eventful summer and fall. INPS hosted seven field trips across the state of Iowa between May and September and co-sponsored the Doolittle Prairie Preserve field trips. We greatly appreciate our Vice President, Tom Scherer for organizing our 2023 field trips and our field trip leaders! We were also fortunate to partner with the Illinois Native Plant Society to support a floristic plant inventory at Wildcat Den State Park. We are very much looking forward to planning another season of outdoor opportunities.

In early November we were able to showcase algific talus slope research from Luther College during our annual meeting. Dr. Beth Lynch did a wonderful job explaining the importance of algific talus slopes and unveiling some interesting preliminary data. A recording of the presentation can be found on our website (https://www.iowanativeplants.org/2023/11/11/2023-annual-meeting-webinar-recording/).

Behind the scenes INPS is continuously trying to find ways to improve our organization to make meaningful change in the state and engage individuals. We have a few updates to report on. I'd like to welcome Lael Neal as our newly elected Treasurer. Lael has been active with INPS since 2020 and is a great asset to the organization. Her passion for conservation and strategic thinking are immensely helpful. Additionally, I'd like to give a huge shoutout to Bill Blankenship who served for many years as the Treasurer of INPS! Thank you for your diligent and committed service.

I would also like to take this time to inform you all that our annual membership fee has increased. I think as a nonprofit it is important to be transparent about changes, particularly financial ones. We decided to make an increase to our fees to better support our grant awards and other projects like setting up online membership. Our membership funds are critical to our mission and will help us grow in efficiency and support for the causes we hold dear to our hearts. We appreciate each and every member and all other donations received throughout the year. We cannot do this work without you. As always, I am very grateful for the fantastic team we have at INPS. The dedication of our board members never ceases to amaze me.

Thank you for supporting INPS and for caring about Iowa's native ecosystems. I hope you all have a wonderful, peaceful winter season.

All the best,

Sarah Nizzi

Minutes of the 2023 Iowa Native Plant Society Annual Meeting

The Iowa Native Plant Society Annual Meeting was held on November 4, 2023, via Zoom. The meeting was called to order at 11:00am by President, Sarah Nizzi.

Minutes from the 2022 meeting were shared by Lael Neal.

Bill Blankenship, Treasurer, opened with a request to change the annual report to coincide with the calendar year to coordinate with the memberships. He reported a bank balance of $18,154.22, up $1,620.99 from the balance at our last meeting, 14 months ago. Printing costs were down. There were only three grants funded. We will change to a financial report year to year beginning with 2024.

Dianne Blankenship gave the Membership report. Membership has stayed the same at 125. She noted memberships often include households, so many additional people are represented. Four are students. We need to encourage more of these $5.00 student memberships which last for the duration of student status. Thirty-seven of our members joined in 2007 or earlier. Two of those members have passed on in 2023 – Nancy Slife and Caroline Dieterle. Memberships brought in just short of $6,000, which is very good. Twenty-one memberships were at the $100 level or higher. Membership categories will be reviewed and updated for 2024. Dianne, Sarah, Lael, and Deb will meet to propose the changes.

The Newsletter report was given by Deb Lewis. She continues to put the newsletter together twice a year with assistance from Sarah. Dianne and Bill review the newsletter prior to release. She thanked people for providing articles and has set the date of December 1 for items due for the next newsletter.

Field Trips in 2023 were plentiful. Tom Scherer managed to coordinate field trips and attended all. Thanks to Tom Rosburg for organizing two as did Mark Leoschke. Field trips included Wolters Prairie, Yellow River State Forest (co-sponsored by their Friend group), Patton Prairie, Yellow Banks County Park, Kurtz Prairie, Brush Creek Canyon State Preserve, and Hitchcock Nature Area. Additionally, we sponsored the Loess Hills Prairie Seminar, North American Prairie Conference, Doolittle Walks, Ray Hamilton prairie walks (co-hosted by Iowa Prairie Network and the CCB), and the Wildcat Den workshop (co-hosted by the Illinois NPS). Tom is stepping down from field trip coordinator and the position is open currently for one or two board members to plan 2024 field trips. The Iowa Prairie Conference will be held August 16-18, and there will probably be Doolittle Walks monthly, the LHPS, and Ray Hamilton prairie walks to work around. Lael requested a field trip at the Zales prairies in Plymouth County.

Elections were handled by Sarah. Sarah as President, Tom as VP, Lael as Treasurer, and Dianne as Secretary were all approved unanimously.

Molly McNicoll briefly shared 2023 grant information and then Lael and Molly led a lively discussion about increasing and adjusting grant funds. Molly, Lael, Sarah, and Pauline Drobney will meet to work on the changes to propose for 2024 grants.

There was a very lively discussion about the lack of management of already preserved prairies and the need to support management and have champions for these areas to rally volunteers. Others have volunteer organizations (TPE, Illinois). Our champions have “aged out” or left to other endeavors. This should be a topic to be discussed at the 2024 IPC. There is a dire need to follow through with management after “preservation.” CCB’s are strapped with funding and increasing grant amounts might help some to do more.

Sarah proposed work by her and Lael to create an updated logo for INPS. This will take time, and it is noted that the brochures in 2022 are plentiful and will be considered as to how to use them more generously so they can be replaced with a new logo when that is ready.

The meeting was adjourned at 12:15pm. All votes and approvals were 100% unanimous.

Dianne Blankenship, Secretary

Upcoming Events and Activities

IOWA PRAIRIE NETWORK

IPN Annual Winter Seminar

Saturday, February 24, 2024

Registration opens 9:00am

"Prairies: Growing and Changing"

Event 9:45am – 5:15pm Ames High School

Lunch sponsored by Outdoor Alliance of Story County

OUTDOOR ALLIANCE OF STORY COUNTY

Agenda

9:45am to 11:15am: 3 concurrent morning sessions

A - **Urban Conservation: Creating Habitat with Native Plants** - *Auditorium*
with Kaytlan Moeller, Outreach Coordinator, Dubuque County Conservation Board and Sarah Nizzi, Pollinator Conservation Specialist, NRCS Partner Biologist, Xerces Society

B - **Storytelling to Communicate Prairies -** *Room TBD*
with Tony Vorwald, Naturalist, Jackson County Conservation and Dr. Dale Easley, Geologist, University of Dubuque

C - **Plant Identification - Native and Non-Native Thistles** - *Room TBD*
with Dr. Tom Rosburg, Professor, Dept of Biology, Drake University and Deb Lewis, Ada Hayden Herbarium Curator, Iowa State University

11:15 to 12:00 Lunch break

A sandwich lunch will be available on site, $10 suggested donation. You are welcome to bring a sack lunch. The cafeteria will be open for attendees to sit, eat and visit.

12:00 to 5:15 Afternoon sessions

All afternoon sessions will be held in the Main Auditorium.

12:00 - 12:10 **Welcome Address**, Tabitha Panas, IPN President

12:10 - 12:15 **Silent Auction Fundraising Recipient: Drake Prairie Rescue,** Dr. Tom Rosburg

12:15 - 1:00 **Climate Change and Prairies,** Dr. Bill Gutowski, Professor, Department of Geological and Atmospheric Sciences, Iowa State University

1:00 - 1:25 **Break 1** - visit silent auction + vendors

1:25 - 1:35 **North American Prairie Conference student scholarship update,** Jon Judson, Diversity Farms

1:35 - 2:25 **Southeastern Grasslands,** Jeremy French, Director of Stewardship, Southeastern Grassland Institute

2:25 - 2:55 **Break 2** - visit silent auction + vendors

2:55 - 3:35 **Old Growth Prairies,** Carl Kurtz, Landowner, Author, Prairie Advocate
3:35 - 4:05 **Break 3** - last chance to visit silent auction + vendors
Silent Auction closes at the end of break!!
4:05 - 4:40 **Invasive Species and their Allies,** Derek Miner, Land Steward Associate, Iowa Natural Heritage Foundation
4:40 - 5:00 **Images of Intention,** Jacob Pitzenberger Photography
5:00 - 5:15 **Closing remarks**, Tabitha Panas, IPN President
5:15pm **Pick up auction items and check out.**

Loess Hills Prairie Seminar
Monona County Conservation

LHPS 2024: The Hills are Calling!

Save the date for May 31st to June 2nd, 2024, for the 47th Annual Loess Hills Prairie Seminar. This year's theme is "The Hills Are Calling!" Check back regularly for updates, and follow us on social media to stay connected to our community: https://www.loesshillsprairieseminar.com/

If you have any questions or would like to participate in LHPS as a speaker, volunteer, or in another role, please email: mccbnat@mononacounty.org

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The 39th annual Prairie Preview will be held in Iowa City on March 28th. Watch for more information!

2024 Iowa Prairie Conference

Aug 16-18, 2024 | Iowa Lakeside Lab, Milford, IA

The 2024 Iowa Prairie Conference will be held at Lakeside Lab. Details will be posted here: https://www.iowaprairienetwork.org/2024-iowa-prairie-conference as they become available. Your support is greatly appreciated!

Visit the 2024 IPC Facebook page

More events will be added to the INPS website calendar as new opportunities become available, including additional information about events already scheduled – www.iowanativeplants.org/calendar.php. For events that are some distance in the future, confirm that the information provided here is correct by visiting the INPS Calendar of Events at the link above or visit the website provided in the event description.

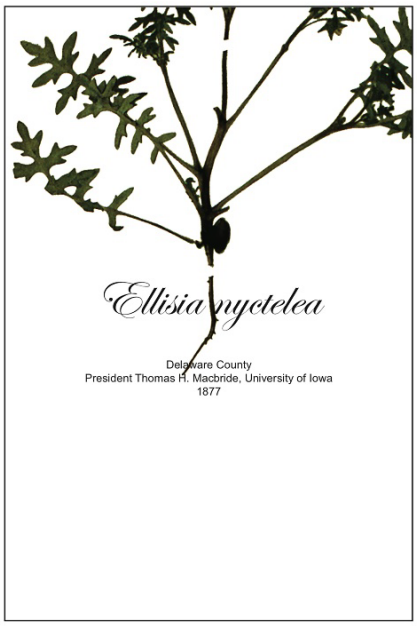
A Review of *In the Field: A Collection of Iowa Herbarium Specimens,* by Marybeth Slonneger

review by Connie Mutel

Untying the ribbon of the handmade binder that holds *In the Field* pulled me into another world. This unbound folio of 107 herbarium images is held within a 5- by 7-inch silk-covered box that opens like a book. All specimens represented in the book are from the former University of Iowa Herbarium. Each plant species is graphically represented on two pages: the first, a closeup image of the specimen, its scientific name, and its collection date and location; the second, a full view of the plant with its common name. These paired images are fronted by a short essay on the history and use of botanical collections and a list of the included plants. The entire book-like structure is beautifully rendered, obviously a work of labor, love, and artistry.

Since the folio interweaves pages of transparent vellum and opaque white paper, each page must be hand-held for reading. I found myself entering the creative process as I slowly read through the collection, admiring the plant names and shapes, losing my sense of time. I stopped to remember my own sightings of many species that have become my wildland friends. Because plant collectors included pioneering Iowa naturalists such as Thomas Macbride and Bohumil Shimek, the book also became a walk-through history.

INPS member Marybeth Slonneger, a book designer who has authored five other books, completed the laborious hand-making of 30 copies of this book in 2023, 20 years after she initiated the project. She describes her labor as "from my heart," emphasizing the care taken in selecting specimens that were collected between 1877 and 1997 from 61 Iowa counties. This was, she states, a very personal project that was motivated by her love of native plants.



In the Field reflects a respectful bonding of the artistic and natural worlds. It is an ode to the enduring legacy and beauty of our native plants, as well as a quiet celebration of the richness and diversity of the botanical world that once dominated the Midwest. It also is an ode to the University of Iowa Herbarium, which was integrated into the Iowa State University Herbarium in 2004, and to Dr. Diana Horton (1949-2018), the UI Herbarium's final curator, who helped Slonneger select her herbarium specimens.

I think that in these days of the Sixth Mass Extinction, when we are losing far more than we may ever understand, we need to slow down, admire what we have known, and grieve the declines we are observing – including the losses of both ecosystem function and the beauty and color, light and shadow of the natural world. And through each of these declines, the loss of human experience. *In the Field* invites us to stop, observe, consider, and then turn the page, hopefully to become more proactive in saving what remains. By doing so, this book has earned my high praise.

A limited number of these handmade books are available to fellow native plant lovers for $50 plus postage. A portion of the proceeds are being donated to INPS. For more information, contact the author at mbslonn@mchsi.com or call her at 319-400-0713.

A Review of *On Common Ground: Learning and Living in the Loess Hills*, edited by Ryan Allen and Brian T. Hazlett

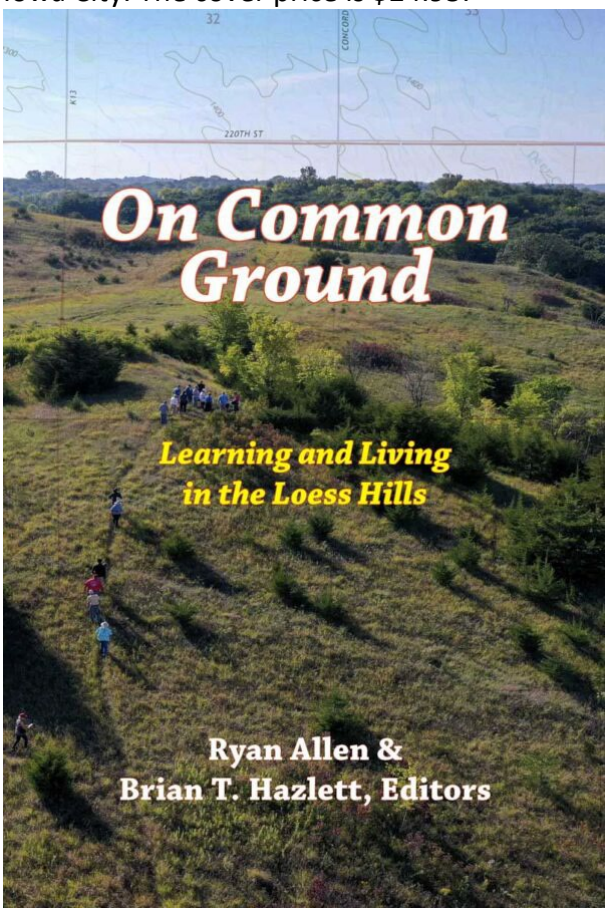
reviewed by Deb Lewis

When people with diverse education, vocations, interests and talents come together on familiar "common ground", something almost magical can happen. Such was the case when 32 participants shared a weekend together in Iowa's northern Loess Hills. This gathering and the weekend's activities were planned and convened by Ryan Allen and Brian Hazlett, professors at Briar Cliff University, and facilitated by Connie Mutel and Dan O'Brien in the fall of 2021. However, this was not a mini-version of the Loess Hills Prairie Seminar. Instead, participants were invited specifically for their ties to the Loess Hills and for their talents in communicating their passion – and in bringing diverse training and experiences to this project to create a book. The gathering included some who called the Loess Hills home and others who are successful scientists, nature writers, theologians, poets, and visual artists, most with ties to the Loess Hills. Together, they experienced staying at Joy Hollow (former Girl Scout Camp), an encounter with bison on a field trip to TNC's Broken Kettle Grasslands Preserve and working the fire-lines on a burn at one of Bill and Dotty Zales' prairies. They also shared in evening programming and discussion at Joy Hollow.

The resulting book, *On Common Ground: Learning and Living in the Loess Hills,* contains personal and natural history essays, poems, artwork and photographs. In addition to Ryan and Brian, the 18 participating authors and artists include James Schaap, Patricia Hicks, Vincent Miller, Norma Wilson, John Price, Melanie Krieps Mergen, Jim Helfers, Kristen Drahos, Aric Ping, Daryl Smith, Bill Zales, Mike Langley, Jerry Wilson, Dan O'Brien, Connie Mutel and Scott Moats (in the order of their contributions). The shared activities, discussions and discoveries inspired this talented group to offer their best work, and both individual contributions and the book as a whole give us a beautiful reflection of their experiences and ponderings!

The first annual Loess Hills Prairie Seminar was held in 1977, and in 1989, Connie's *Fragile Giants: A Natural History of the Loess Hills* was published. Both have brought some attention to the Loess Hills, although the Hills remain virtually unknown to many Iowans. *On Common Ground* provides an introduction for the uninformed and a reminder for the rest of us that we have a national treasure on our western border – and the contributors have invited us into a shared love story of this special region!

On Common Ground: Learning and Living in the Loess Hills is available online from the publisher, Ice Cube Press: https://icecubepress.com/2023/03/17/on-common-ground-2/, as well as from other online booksellers, and at Prairie Lights Bookstore in Iowa City. The cover price is $24.95.



Native Plant Spotlight: *Carex grayi* -- continued

The name *Carex* originates from a Latin word for "cutter" most likely in reference to the sharp edges sometimes present on the leaves or the triangular stems. The specific epithet *grayi* honors Asa Gray, a renowned American botanist born in 1810 in Sauquoit, New York. The monumental *Gray's Manual of Botany* was published in 1848 when he was on the

faculty at Harvard University. *Gray's Manual of Botany* is the short name for the more cumbersome *"Manual of the Botany of the Northern United States, from New England to Wisconsin and South to Ohio and Pennsylvania Inclusive*". The manual is nearly 800 pages long and includes a treatise on plant morphology, a botanical glossary, taxonomic keys, and descriptions for genera and species represented by the 8,340 species included. Without a doubt, Asa Gray is well-qualified to be the "Father of American Botany."

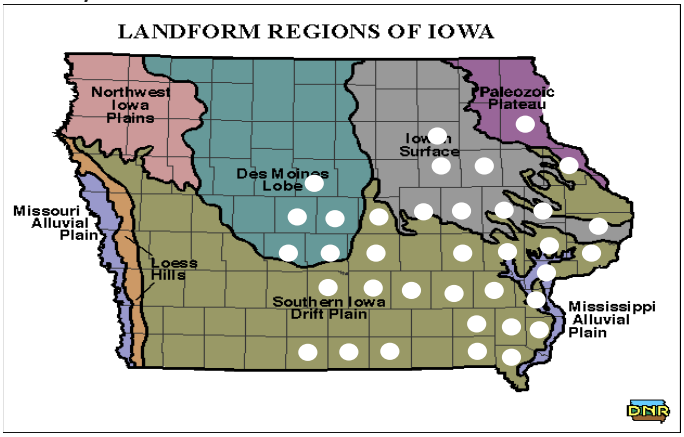


Figure 1. Biogeographic distribution of Gray's sedge in Iowa. Norris and Zager 2013.

You can identify Gray's sedge without needing any understanding of sedge morphology and terminology. The common name "mace sedge" is well-deserved. The most conspicuous feature of mace sedge is the inflorescence of female flowers called a pistillate spike. It bears a strong resemblance to the medieval weapon called a mace (Figure 2). A mace is essentially a beefed-up club for use in close combat. Think of a large stick with a heavy, spherical, stone or metal top providing the user with greater striking power. Pointed knobs protrude from the surface to penetrate heavy armor and tear apart its target.

Figure 2. The mace, a hand weapon used in medieval times

The similarity is obvious (Figure 3). The pale green sphere, slightly smaller than a ping pong ball, with 20 to 25 radiating, cone-shaped points, is the pistillate spike. The slender, cone-shaped structures are where the female flowers are hidden, one flower in each of them. Botanists call them perigynia, or a perigynium if referring to one. Gray's sedge, or mace sedge if you prefer, has the largest perigynia of any species (Figure 4). Their length ranges from 13 to 20 mm and their diameter at the base is between 4 and 8 mm. But it's the way they are arranged that is distinctive. Like the light of a star, the perigynia radiate from the center in all directions.

Figure 3. *Carex grayi* (Gray's sedge, mace sedge, common bur sedge). Photo by Tom Rosburg

Figure 4. *Carex grayi* perigynium, pistillate scales, and achene with the style still attached. Photo by Minnesota Wildflowers

Only three other species belong to the same section (characterized by species with equally large perigynia over 10 mm long) as mace sedge that are known to occur in Iowa. The most similar species is greater bladder sedge (*Carex intumescens).* However, its pistillate spike is more egg-shaped than spherical, and the number of perigynia are fewer, usually 2 to 8, rather than the 10 to 30 for mace sedge. Its perigynia point either out or upwards so that none of them point downward. Also, it is very unlikely you will find greater bladder sedge because it is likely extirpated.

There is only one known record for it in Iowa, from an observation in Allamakee County in 2000. It has not been seen since. So, if you were to find a sedge you thought might be greater bladder sedge, it would be a very big deal.

The other two similar sedges are common hop sedge (*Carex lupulina*) and false hop sedge (*Carex lupuliformis*). Both species have pistillate spikes that are clearly longer than wide (short oblong to cylindric) and not spherical. They also have more perigynia than mace sedge, up to 65 or 70, which all point either out or slightly upward. Hop sedge is more common than mace sedge. It is present in most of the counties east of a line from Emmet County in the north to Page County in the south. It too prefers damp, shady floodplain habitats, but it is more tolerant of sunny environments than is Gray's sedge. Hop sedge is another one of Iowa's anyone-can-identify sedges. That is true despite the fact that it and false hop sedge are nearly identical in appearance. Technically speaking, if you are in southeast Iowa, you can't be 100% sure its hop sedge unless you open up the perigynium to inspect the fruit, which in sedges is called an achene. That's the best way to separate hop sedge from false hop sedge. The achenes are similar in that they are somewhat egg-shaped with three vertical and equally-spaced ribs. At the center of each rib is a corner and the location where the achene has the greatest diameter (this is seen in Figure 4 for the achene of Gray's sedge). In false hop sedge, there is a noticeable knob or protrusion on each corner that is missing in hop sedge. However, the probability of observing false hop sedge is very low, maybe even zero. It is currently listed as a special concern species by the Iowa Department of Natural Resources. There have been only eight observations of it across six counties from Decatur County (south central) to Cedar County (east central). It has not been observed anywhere in Iowa since 1989, and with only one observation since 1980, it is qualified to be listed as an endangered species. Sadly, extirpated is more likely its correct status.

So why does Gray's sedge, and its close relatives, have such large perigynia? Their achenes are only 4-5 mm long, while the perigynia are 13-16 mm long, much larger than the female flower and the fruit that forms inside. The answer is the perigynia are functioning like balloons, they are super-sized and inflated to make a boat that will carry the achene and its single seed away from the mother plant. These species are all wetland sedges and floodplain specialists. They have adapted to the flood events that usually occur at least once a year by utilizing them for seed dispersal.

Gray's and hop sedge aside, most sedges go unnoticed and underappreciated. Unless they are in flower or fruit, they are easily mistaken for grasses. And like grasses, they perform many very important ecosystem functions while inhabiting nearly every type of ecosystem. Their fibrous roots and clonal growth bind and protect soil, and their leafy shoots can provide dense cover and forage for mammalian herbivores. Numerous insects utilize the leaves and stems for food – larvae of butterflies, moths, beetles and flies, and adult aphids, leafhoppers, grasshoppers, flies, bugs and beetles. The achenes are food for many birds and small mammals. The annual growth and death of leaves produces fine fuels for encouraging fire, the annual growth and death of roots contributes to soil structure and organic matter which in turn supports the food soil web and healthy soil. These functions are especially important in forest and wetland ecosystems, where sedges usually contribute greater productivity than grasses.

Gray's sedge is a lovely example of yet another amenity sedges can bring to our lives. It adds a touch of charm and inimitability to our yards and urban landscapes (Figure 5).

Figure 5. Gray's sedge in an ornamental setting. Photo courtesy of the website Gardenia https://www.gardenia.net/plant/carex-grayi-mace-sedge)

Its many leaves create a stage of curved and diagonal lines, each a stroke from a paintbrush that can't quite decide which shade of green is best. Set among this backdrop is a constellation of chartreuse star bursts, each a nearly perfect replica of the others, and yet each with its own story to tell – a wondrous tapestry mixing multiple elements of design. It's art in its purest form. That's what I see in *Carex grayi*.

Community Engagement Through Prairie Restoration

by Sarah Nizzi

Figure 1. Prairie violet (*Viola pedatifida*), 11 May 2023. Photo by Sarah Nizzi

Over the last four years I have assisted with and documented the efforts of saving small, fragile prairie remnants within Polk City Cemetery in Polk City, Iowa (check out previous blogs, Discovery of a Rare Plant Through Remnant Prairie Restoration, The Return of Wild Pansy at Polk City Cemetery, and Rewards of Prairie Management: Bountiful Evidence of Beauty). To date five prescribed burns and multiple days of brush removal have taken place. It is with a great sense of pride I am happy to report we are continuing to see remarkable results of our dedicated land management. Remnant prairie indicator species that have not been seen in several years, if not decades, are reappearing. We once thought prickly pear (*Opuntia humifusa*) existed only within a few square feet of one isolated area. Now, another population has been uncovered (literally) in a larger remnant parcel of the property. Species like fringed puccoon (*Lithospermum incisum*) and blue-eyed grass (*Sisyrinchium campestre*) were scattered throughout the entire cemetery remnants this spring. Most notable was the prairie violet (*Viola pedatifida*). Somehow, some way prairie violets emerged in small numbers in a sea of smooth brome.

Figure 2. Fringed puccoon (*Lithospermum incisum*), 11 May 2023. Photo by Sarah Nizzi

In early November the usual suspects returned to the cemetery to conduct another prescribed fire on one parcel of remnant prairie. Tom Rosburg, three local volunteers, and I were present to help. It was an unseasonably warm day with a stiff south wind. The prescribed fire was fierce at times, but for the most part slowly backburned through vegetation, which is exactly what we wanted. We want a slow, complete burn to set back unwanted species like the dominating, smooth brome. Tom and I are pleased to have completed another prescribed fire before the year was over, but we're equally as happy to have gained the interest of Polk City and Polk County residents to help in the restoration efforts.

It takes many hands to conduct restoration work. There are only so many of us doing such work. It is critical for us to engage and recruit local volunteers to give back and take interest in the local gems outside their backdoor. Neither Tom nor I live in Polk

County. I am especially excited to have the assistance of residents to not only be a helping hand for brush removal or prescribed fires, but also to pick up trash (which they've done) and hand collect seed from the remnant prairie to disperse into the recently burned areas (which they've done). These people are not ecologists by trade, but they care, and they are willing to do their part with a little direction and encouragement. It warms my heart to know the small, fragile prairie remnants in Polk City Cemetery are impacting strangers I can now call friends and together we can work to continue making a difference, no matter how big or small.

My challenge to you, readers, is to think of a special place near you. Perhaps it is a place you've done restoration work before. Perhaps it is a savanna or a wetland or a woodland. Does it need help? Are communications and partnerships in place to conduct restoration work by volunteers? There needs to be more than just a few of us in the state to protect these delicate ecosystems. We need more individuals and groups to maintain the little habitat we have. We need proud, dedicated, prairie champions (as Pauline Drobney has suggested) to care and to adopt a special place, if possible. This work cannot be done once and then left for several years. Management is ongoing and never ending. Is it possible to have other examples across the state where areas are being managed consistently? I understand there can be constraints outside of our control preventing us from doing restoration work in some cases, and accessibility can be an issue, but wherever possible, I would like people to consider this idea. Lastly, do you have an existing platform to help leverage enthusiasm? Polk City Cemetery garnered attention locally from written publications spotlighting it's existence and word of mouth. Similar stories could be told all over the state.

I'll conclude by giving thanks to Laura, Tanya, Annette, and Chad for taking time out of their days to help with prescribed fires, brush and trash removal, and seed dispersal. It takes a village! I look forward to carrying on the efforts at Polk City Cemetery, hopefully with each of you by our sides. I would also like to thank Tom Rosburg who has taken me under his wing and given me opportunities to give back and feel the sense of purpose I often forget I have and need reminding every now and then. The restoration work at Polk City Cemetery has been some of the most rewarding work thus far in my conservation journey.

Goldenrod

by Kara Grady

Blanketing the hillsides
And deep within the fen
It spreads a golden mantle
And gilds the foxes' den
Its multitude of flowers
Offer both food and board
To buzzing bees and migrants
With gold dust now adorned
And as the cold grip comes
Gold fades to fuzzy seed
And people with red noses
Complain that it's a weed
Autumn's final color
That cheerful yellow bloom
Bowing out another year
Before winter's dark gloom
The richest of the flowers
Bends slowly to the sod
And to delight the earth again
Next year's fair goldenrod

"Solidago canadensis - Canada goldenrod" by Matt Lavin, licensed under CC BY-SA 2.0.

How Native Plants Sustain Biodiversity and Ecosystem Health

by Coral Huber, reprinted with permission from Spirit Mound Trust News, *December 2023, pg. 5*

Restoring and reconstructing the prairie at Spirit Mound has tremendous benefits for sustaining biodiversity and ecosystem health. Native plants, the flora that naturally occur in a specific region and have evolved over time to adapt to local environmental conditions, play a crucial role in maintaining the health and balance of ecosystems. As human activities continue to impact the environment, understanding the importance of native plants becomes imperative for conservation efforts, biodiversity maintenance, and overall ecological resilience.

Native plants are the foundation of biodiversity in any given ecosystem. They provide the necessary habitat and food sources for a myriad of organisms, including insects, birds, mammals, and fungi. Numerous articles in our previous newsletters describe many of these organisms. A diverse range of native plant species supports a variety of life forms, contributing to the richness and complexity of an ecosystem.

Over centuries, native plants have developed unique adaptations to local climate, soil and other environmental factors. These adaptations make them well suited to withstand natural challenges, such as droughts, floods, and pests, all of which we have experienced since our first efforts to restore prairie at the Mound. The resilience of native plants contributes to the overall stability of ecosystems, especially in the face of changing environmental conditions.

Native plants play a vital role in preventing soil erosion. Their deep root systems help bind soil particles together, reducing the risk of erosion caused by wind and water. Areas at the mound experiencing significant erosion have benefitted from the return of native prairie plants. Additionally, native plants contribute to soil health by promoting microbial activity and nutrient cycling. The presence of native vegetation helps maintain the fertility and structure of the soil.

Native plants are often more adapted to the local water conditions, requiring less precipitation than do nonnative or invasive species. The continued drought in our region has made reestablishment of prairie species at the Mound difficult, but once established they do persist. Their ability to thrive with minimal water is not only environmentally sustainable but also helps to conserve water resources, a critical consideration in regions facing water scarcity.

Native plants have co-evolved with local pollinators, forming intricate relationships that are essential for both plant reproduction and the survival of pollinator species. Bees, butterflies, and other pollinators depend on native flowers for nectar and pollen for food, and on native plant material for egg laying and larval foraging, highlighting the interconnectedness of these species in maintaining healthy ecosystems.

Native plants often hold cultural significance for indigenous communities. They are deeply intertwined with local traditions, providing not only practical resources but also a sense of identity and connection to the land. Moreover, many native plants contribute to the aesthetic beauty of natural landscapes, enriching our surroundings with unique colors, shapes, and textures in all seasons.

The importance of restoring and reconstructing of the prairie with native plants at Spirit Mound cannot be overstated in the context of preserving biodiversity, maintaining ecosystem health, and promoting sustainability. As we face the challenges of climate change, habitat loss, and environmental degradation, the conservation and restoration of native plant species become a critical component of efforts to protect the natural world. By recognizing and respecting the value of native plants, we take a significant step towards ensuring a harmonious coexistence between human activities and the intricate web of life that depends on these vital components of our ecosystems.

A New Editor of *Erythronium*

by Deb Lewis

Following this newsletter, I will be stepping down as the lead editor of *Erythronium.* I'm pleased to report Sydney Upah of Ames will step into this position and bring a fresh, new look to *Erythronium*!

Ceasing the Sale in Missouri of Five Invasive Plants

by Deb Lewis, with information from the Missouri Invasive Plant Council website, https://moinvasives.org

In an effort to minimize additional spread of invasive plants and to help lessen the long-term impact of existing problem species, the Missouri Invasive Plant Council has proposed the idea of a Missouri statute that would cease the sale, propagation and intentional distribution of five invasive plants in the state: burning bush (*Euonymus alatus*); Callery pear (*Pyrus calleryana*) including its cultivars Bradford pear and Chanticleer pear; climbing euonymus (*Euonymus fortunei*), also known as wintercreeper); Japanese honeysuckle (*Lonicera japonica*); and sericea lespedeza (*Lespedeza cuneata*). Readers may be least familiar with climbing euonymus/wintercreeper (*Euonymus fortunei*). I found that five varieties of this species are reported as planted on the Iowa State University campus.

"Euonymus fortunei flowers" by wallygrom, licensed under CC BY SA 2.0

If the legislation is eventually passed, enforcement would likely take effect 1 January 2026 for climbing euonymus, Japanese honeysuckle and sericea lespedeza. Burning bush and Callery pear plants acquired by a licensed Missouri wholesale or retail plant nursery before 1 January 2025 would be exempt from enforcement until 1 January 2028. More information is available at https://moinvasives.org

"Korina 2011-05-14 Euonymus fortunei 1" by Katrin Schneider / korina.info, licensed under CC-BY-SA 4.0

In a related action, the Missouri Invasive Plant Council is offering a Callery pear "buyback" -- https://moinvasives.org/2024/01/12/callery-pear-buyback-2024/. This program offers one free native tree if the property owner brings a photograph of a Callery pear tree (one or more) that has been cut down on the property.

2024 Memberships Are Now Due!

Have you paid your dues for this year? Memberships are based on the calendar year, even though they may be received at meetings that include an INPS display throughout the year (including the upcoming Iowa Prairie Network Winter Seminar on February 24th in Ames).

A membership/renewal form is available on page 16 (back) of this newsletter if you wish to mail your membership, and is also online: https://www.iowanativeplants.org/membership/ with the option to join/renew electronically using PayPal. Student memberships remain at a one-time payment of $5. If you can, please consider one of the "Contributing Membership" levels.

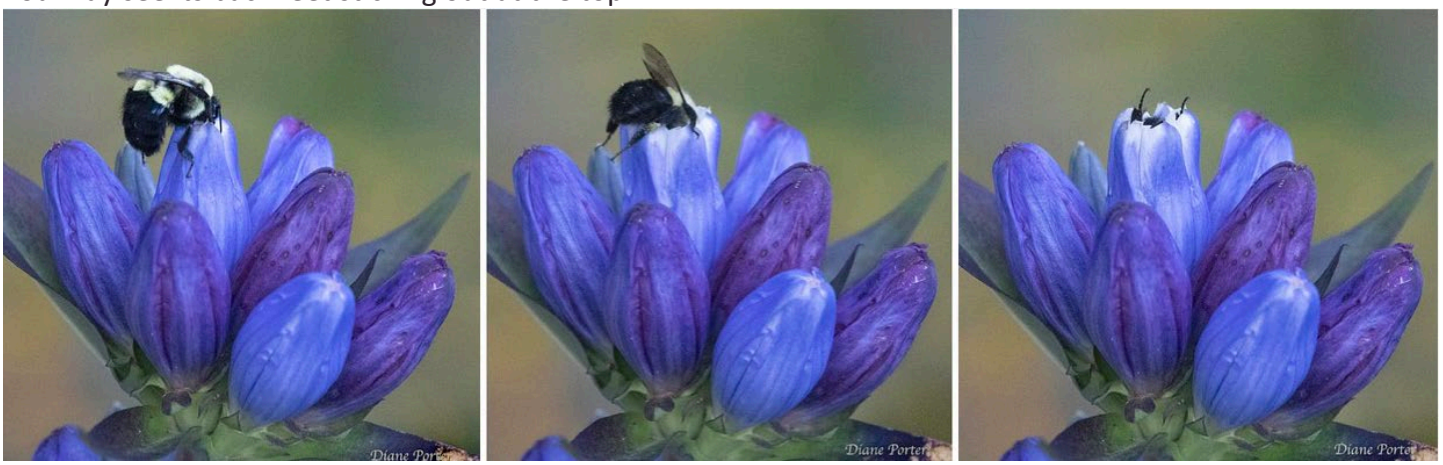
Bottle Gentian: Why the Petals Never Open

by Diane Porter

"Nectar here. Help yourself -- it's free!" That's what the blue of bottle gentian (*Gentiana andrewsii*) blossoms declares.

But bottle gentian is tricky. It looks like a bud that is going to open on its own. But here's the catch: the flower generously offers a handout, but keeps its petals closed. The five petals are sealed together along their edges, with their tips pressed tight together at the top, and the petals will never open on their own. Most insects go away hungry, because they cannot get to the nectar -- except for bumble bees.

Bumble bees are bigger than other bees and stockier than butterflies. They're stronger than many other insects. Knowing the nectar is down inside, a bumble bee pushes and shoves and pulls with its front legs at the tip of the blossom. After struggling for a while, the bumble bee usually manages to get the tip open and wriggle down inside headfirst. You may see its back feet sticking out at the top.



(A) Bumble bee struggles to open a bottle gentian | (B) It's got its head in | (C) Back legs are sticking out

While the bumble bee feasts, it can't help picking up some pollen on its body. If the next flower the insect visits happens to be another bottle gentian, some pollen will rub off the insect and pollinate the flower.

Why make nectar? Flowers produce nectar to entice pollinator insects to visit. From the point of view of a flower, the ideal would be for an insect to go straight from one of its blossoms to another of the same species. But that result can't be counted on, because insects don't necessarily confine themselves to one species. Furthermore, a flower's resources are limited, because each time an insect visits a flower, it depletes the nectar. Then the flower must replenish it over the next minutes or hours.

Bottle gentian has found a genius strategy to conserve its nectar and improve its chances of pollination. By excluding nearly all other insects, it wins the loyalty of bumble bees. A bumble bee who works its way into a bottle gentian is probably the first insect to reach the nectar. It gets a big reward.

Having slurped up a generous helping of nectar, the bumble bee backs out of the blossom and goes looking for its next meal. Since it had such a successful experience in the bottle gentian, it will probably look for another bottle gentian blossom. When it finds one, it's likely to bring about a successful pollination.

What happens next? Once the bottle gentian has been pollinated, the petals turn brownish, like loose old paper bags. If you gently squeeze a brown flower at this state, you'll feel the pod inside in which the seeds are ripening. Eventually, the dry petals get a bit ragged and easy to peel away, so the pod is visible.

(A) After each flower is pollinated, its petals turn brown | (B) Inside is a pod where seeds form

As the seeds ripen, a pod's tips curl away from each other. The pod splits lengthwise, separating like jaws opening, to reveal tiny, flat seeds. They look like microscopic potato chips.

(A) Ripe pod releasing seeds | (B) Bottle gentian seeds

Each pod may contain hundreds of seeds, which the wind can easily blow to new locations -- and grow new bottle gentians.

Discover Iowa's Native Flora

Become a Member!

Member Contact Information

Name:_____

Address:_____

City /State:_____Zip Code: _____

Phone:_____Email Address:_____

Membership Fees

Members will receive the Society's newsletter, discounts on INPS Merchandise, and will be kept up to date on all the native plant happenings across the state from field trips to webinars. Dues are payable on a calendar year basis from January 1 to December 31.

____$25 Basic Membership
____$5 One-Time Student Membership*

**For Students Only*
Students may pay a one-time membership fee of only $5.00 that provides membership until they are no longer a student. An active school email address must be provided.

If able, please consider these Contributing Membership Levels

_____$40 Anemone*
_____$50 Botrychium*
_____$100 Calamagrostis*
____$150 Dodecatheon*
____$200 and up Erythronium*
____If donor, prefer to remain anonymous.

**** Annual contributions beyond basic membership are tax deductible.***

Newsletter Sign-up

I wish to receive the newsletter by: _____Email ____U.S. Mail ($10 extra)

Please send this form with your dues to: INPS, 4486 88th St., Urbandale, IA 50322

If you need help with membership dues, please email: iowanativeplantsociety@gmail.com

The INPS mailing list is never distributed to other organizations or companies. Please use this form for changes of address.

Iowa Native Plant Society is a 501(c)(3) non-profit organization.