

# THE NODDING ONION

*Newsletter of the Northeast Chapter of the  
Illinois Native Plant Society*

**WHAT'S IN THIS ISSUE:**  
New Roots for Restoration  
Orchids in Northeast Illinois  
2023 Research Grant Awardees  
Local Volunteer Opportunities

# Northeast Chapter Events

## Hike at Spring Creek (near Trailside)

July 23rd from 10AM-11:30AM

783 Thatcher Avenue, River Forest, IL

## Visit Us at Green Bay Trail Day

July 29th from 8AM-noon

Green Bay Trail Between Shelton Park and  
Hubbard Woods near Glencoe

## Hike at Burnham Wildlife Corridor

August 12th from 10AM-11:30AM

Lakefront Trail, Chicago, IL

## Tour at FermiLab\*

September 9th from 10AM-noon

Possibility of seed collecting from noon-1PM

Kirk Road and Pine Street, Batavia, IL

\*all attendees must provide REAL ID compliant  
photo at security gate

## Tour at the Field Museum

September 30th from 10AM-11:30AM

1400 South DuSable Lake Shore Drive, Chicago, IL

<https://illinoisplants.org/northeast-chapter/events/>



*Liatris aspera*  
(button blazing star)

*Amorpha canescens* and *Coreopsis palmata*  
(lead plant and stiff coreopsis)

# 2023 Illinois Native Plant Society Research Grant Recipients

The Illinois Native Plant Society Research Fund was developed to promote the conservation of Illinois native plants and communities through scientific research. Through this fund, the INPS is able to award research grants to students, citizen scientists, volunteers, and non-profits.

Massi Jones (Grad Student) and Dr. Mary Ashley (faculty; Co-PI) with the University of Illinois Chicago for the proposal titled: How reproductively isolated is a population of *Asclepias tuberosa* in a fragmented remnant prairie?

Dan Marshalla (Grad Student) and Dr. Jennifer Fraterrigo (faculty; Co-PI) with the University of Illinois Champaign-Urbana for the proposal titled: Functional diversity of forest understory plant communities across a gradient of fire history

Keegan McConnell (Grad Student) with Southern Illinois University for the proposal titled: Maintenance of species boundaries between *Triodanis perfoliata* and *T. biflora* despite extensive hybridization

Will Overbeck (Consultant) with Hey and Associates, Inc. and Eric Ziomber (citizen scientist; Co-PI) with the North Branch Restoration Project for the proposal titled: Floristic inventories of Upper and Lower Des Plaines River nature preserves to assess woodland and grassland ecological gradients for discovery of indicator species and characteristic local plant community composition

Rory Schiafo (Grad Student) with the Chicago Botanic Garden and Northwestern University for the proposal titled: Understanding the competitive interactions between species used to restore oak woodlands: The importance of light availability and species' arrival order

Thanchira Suriymongkol (Grad Student) and Dr. James Zaczek (faculty; Co-PI) with Southern Illinois University for the proposal titled: Assessing the Relationships between Forest Cover and Canebrakes in Illinois: Implications for Management

## Congratulations to all recipients!

<https://illinoisplants.org/grants>

# Restoration scientists at the Chicago Botanic Garden collaborate with researchers across the US from several disciplines under the The New Roots for Restoration Biology Integration Institute.

*7 institutions, 10 core research projects, 28 plant species and 100's of collaborators; Chicago Botanic Gardens Jacob Zeldin speaks about the projects and unique approach the institute is taking to inform the restoration of natural and agricultural ecosystems.*

WRITTEN BY: MELISSA DUDA

It is easy for us to become caught up in our own work without paying attention to other happenings at our job. For researchers, it is no different. Jacob Zeldin, a Research Ecologist and Ph.D. student in Plant Biology and Conservation at Northwestern University/Chicago Botanic Garden, stated, "Often, in science, we become stuck in our silos, focusing on our specific research questions and goals." The New Roots for Restoration

Biology Integration Institute works to overcome this common occurrence by integrating multiple fields of biology, ecology, and agricultural science to make meaningful advances. The National Science Foundation is funding the project through 2026.

New Roots for Restoration consists of researchers representing organizations like non-profit research institutes, universities, and botanical gardens from Illinois, Missouri, Kansas, and Vermont. "With this institute, we want to answer questions like: How can we leverage our understanding of native perennial ecosystems of the midwest and apply that to agricultural systems? And, how can we perennialize our crops to maintain soil health instead of only planting corn and ripping it out yearly, degrading our topsoil in the process?" explained Zeldin.

To answer these broad questions, researchers at the institute are focusing on the roots and shoots of plants. This focus may seem simple on the surface, but plant roots and shoots can tell us a great deal about a plant's fitness and life strategy. "By measuring root and shoot functional traits or characteristics, we will be able to place a species or individuals within a species on this spectrum of how they function in a natural system," explained Zeldin. There are many different types of functional traits, but an easy one to understand is plant height. "In grasslands, you might observe 40 species in a square meter, so if you're a taller plant species, you can grow quicker, intercept more light resources, and potentially out-compete

## Definitions

- **Plant functional trait:** a measurable physiological or morphological characteristic related to a plant's survival and fitness
- **Intraspecific trait variation:** differences in traits (characteristics) among individuals of the same species in a population

other species,” said Zeldin. On the other hand, shorter plant species might be better able to survive in stressful conditions like a drought.

New Roots for Restoration encompasses ten core projects that largely fit under three themes: plant organismal systems, population and community ecology, and the soil ecosphere. “Each project is its own distinct thing, but these projects integrate and relate to one another at different levels,” stated Zeldin. “We are focusing on 28 plant species across the ten projects; these species represent three major plant families, Poaceae (grasses), Asteraceae (sunflowers), and Fabaceae (beans),” said Zeldin. The institute chose these three plant families because they represent crucial agricultural crops and are dominant in natural grassland ecosystems.

Even though restoration ecology and agriculture may seem at odds with one another at times, our native ecosystems, like prairies and grasslands, can prove vital to understanding perennial agriculture systems. “Soils in the Great Lakes region are eroding at a rapid rate, much quicker than they were formed, partly because of modern conventional agriculture. We know that our native plants (and the soil flora they form relationships with) played a huge role in building our rich soils,” said Zeldin. Similarly, the advanced technology from the agricultural industry may be able to be applied to natural ecosystems to help advance restoration. “Imagine pulling a corn plant, roots and all, out of the ground, agricultural scientists can use technology such as hyperspectral root imaging on this corn plant to build a 3D model of what its root system looks like on the computer, and you can measure all of these different root traits from that,” explained Zeldin. However, the root systems of our native plants are intricate and intermingle with one another. “There are some growing pains with this technology because the roots of crop species look much different than a native prairie species with their deep, complex root systems,” said Zeldin.

The institute faces some other challenges due to its large size and distance between organizations. “We have field sites across multiple states that are carrying out some of the same experiments, so one challenge is ensuring we are taking the same standardized data,” said Zeldin. Another challenge stems from the idea of a collaborative approach across multiple subdisciplines.



“Great efforts have gone into structuring the institute to ensure operations run smoothly. We created expertise cores for each subdiscipline, so if a collaborator has a question about a specific topic, they know who to ask,” stated Zeldin.

Besides Zeldin, five other conservation scientists of the Chicago Botanic Garden’s Negaunee Institute for Plant Conservation and Action are also part of the institute: Alicia Foxx, Kay Havens, Andrea Kramer, Louise Egerton-Warburton, and Nyree Zerega. For Zeldin's part, he is leading a project that examines the differences in intraspecific functional traits - differences in traits within a species - in populations of *Schizachyrium scoparium* (little bluestem). He collected seed from different populations of little bluestem across Illinois and Wisconsin and propagated them in tissue culture. Zeldin explained, “We want to address if these root and shoot functional traits in little bluestem relate to one another or co-vary and if these traits depend on the habitat they originate from.”

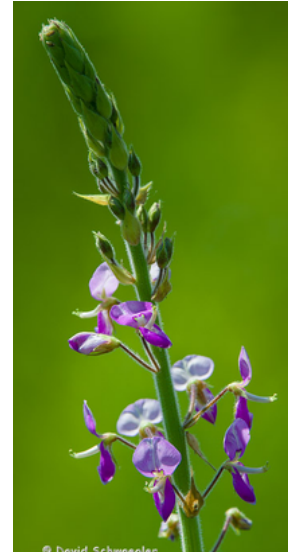
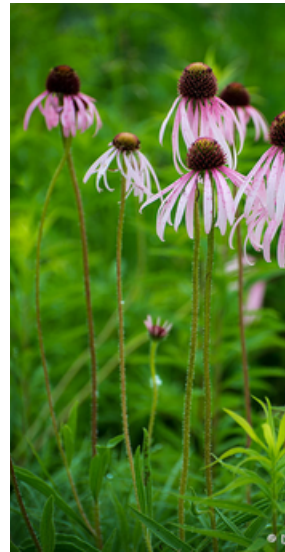
The Chicago Botanic Garden is also running a field experiment in Mettawa, IL, focused on trait diversity and community composition. “We are using three species commonly found in prairies, *Schizachyrium scoparium* (little bluestem), *Silphium integrifolium* (rosinweed), and *Dalea purpurea* (purple prairie clover), to create multi-species communities at our field site to see how these communities react to different diversity treatments,” said Zeldin. These multi-species communities are being planted in different types of soils to see how they respond in both neutral and stressful conditions.

Another interesting project happening on the agricultural side of the institute is planting perennial bi-cultures of intermediate wheatgrass (Kernza®) and alfalfa and comparing

Native Illinois species being used by New Roots for Restoration researchers, pictured from top to bottom: *Dalea purpurea* (purple prairie clover), *Schizachyrium scoparium* (little bluestem) and, *Silphium integrifolium* (rosinweed)



it to monocultures of each crop in terms of productivity and long-term soil health. "Understanding whether planting bicultures is beneficial for the soil and produces yields as high as more conventional agricultural practices can serve as evidence to move us toward a more sustainable way to feed the future," stated Zeldin. One of the organizations involved in this project, The Land Institute in Salinas, Kansas, has spent many years trying to make these perennial grain crops financially viable for farmers to plant.



Native Illinois species being used by New Roots for Restoration researchers, pictured from left top right: *Amorpha canescens* (lead plant), *Helianthus mollis* (downy sunflower), *Echinacea pallida* (pale purple coneflower) and *Desmodium illinoensis* (Illinois tick trefoil)

New Roots for Restoration has made it a priority to promote diversity and education within the institute. "Diversity and education is another main pillar of ours; we are trying to get individuals in at the ground floor like interns, students, and trainees and encourage them to advance through the institute," explained Zeldin. Additionally, collaborators are beginning to form links between academic communities, restoration managers, and rural communities that depend on agriculture for their livelihood. "We want to conduct research that can benefit these folks rather than just publishing papers, so we want to hear from them throughout this project," said Zeldin.

For his part, Zeldin is thrilled to be part of the project because it allows him to connect with experts that he might not otherwise interact with. "I have not had much exposure to the soil microbiome in terms of the fungi and bacteria that exist in the soil. We typically think that the function of an ecosystem is driven by plant species composition, but the living things in the soil matter just as much; I am excited to learn from the experts in soil science," said Zeldin.

To learn more about New Roots for Restoration, please visit their website at: <http://www.newrootsforrestoration.org/>

*Some quotes have been edited for clarity*

# Shedding light on Orchids in Illinois

**Orchid experts, Fernando Rocha Vento and Sarah Wetterer of the Chicago Botanic Garden, explain the current state of orchids in Illinois and their goals to help conserve them.**

WRITTEN BY: MELISSA DUDA

While most people recognize orchids as houseplants bought at a home improvement store, Illinois is surprisingly home to forty-seven native orchid species. However, due to habitat destruction and poaching, most Illinois species are listed as rare or endangered, which calls for diligent conservation actions. Some of our native orchid species are already thought to be lost, not having been seen in Illinois for many years.

"Habitat loss is probably the biggest threat to orchids, but poachers make a bad situation worse," said Fernando Rocha Vento, one half of an orchid-loving husband and wife duo. He and his wife, Sarah Wetterer, are Ph.D. students at Northwestern University/Chicago Botanic Garden. "If you look on Etsy, you can find shops selling Illinois native orchids," Wetterer added. Searching orchid species like, *Pogonia ophioglossoides*, *Cypripedium parviflorum* var. *makasin* brings up multiple sellers on the website. Poaching is why individuals who monitor these rare orchid species are hushed about the precise locations of populations.

But unless you are an orchid poacher or an orchid conservationist, orchids fly under the radar of most plant enthusiasts, "I think people here are just not aware of our native orchids because many of them are small and hard to find," Wetterer said, "Most people aren't expecting to see orchids when exploring natural areas in Illinois."

Rocha Vento and Wetterer have thought of a promising way to prevent orchid poaching from natural areas and create awareness for orchids, "with our conservation work, we hope to make these orchids more available to the general public so that poaching becomes obsolete," Wetterer stated, "orchids are not expensive to grow and produce thousands of seeds so if you have the correct equipment you could grow enough orchids for both ecological restoration projects and hobbyists."

Besides trying to conserve native orchids, Rocha Vento and Wetterer also have their eye on a nonnative orchid, *Epipactis helleborine* (broad-leaved helleborine). "According to records, this ornamental orchid species was first planted here in Syracuse, New York, in 1879", said Rocha Vento. The ornamental plant has spread to 31 states, including Illinois. Wetterer said, "We see it pretty often when we explore natural areas, but we do not think it will become invasive; it does not seem to be harming native orchid species. It will be interesting to see what happens with it because it is becoming prolific". However, if it does become invasive, it could be tricky to eradicate, "We tried pulling some out just to check, and yeah, it would be a restoration nightmare because it is hard to pull out its roots, herbicide would be the only effective option."



# Native Orchids of Northern Illinois



*Cyripedium candidum*  
(white lady's slipper)



*Spiranthes magnicamporum*  
(Great Plains ladies tresses)

Fernando's  
Favorite



*Collarorhiza trifida*  
(Northern coralroot)



*Platanthera aquilonis*  
(Northern green orchid)



Sarah's  
Favorite

*Calopogon oklahomensis*  
(Oklahoma grass-pink)



*Pogonia ophioglossoides*  
(rose pogonia)

Rocha Vento and Wetterer became interested in orchids while working at the Pine Jog Environmental Education Center at Florida Atlantic University. Rocha Vento started in 2017, collecting orchid seeds from natural areas in Palm Beach and Martin County and propagating them in the education center lab. Wetterer completed her Bachelor's degree at the University of California Berkeley and returned to her native Florida. "I was first introduced to the orchid family when I found an invasive rain-pollinated orchid, *Eulophia maculata*, growing in a muddy ditch near my house," explained Wetterer, "and eventually I took over Fernando's position as Laboratory manager at Pine Jog, which is how we got to know each other."

Years later, Rocha Vento and Wetterer are working towards their Ph.D.'s studying the orchid family. Rocha Vento's Ph.D. research focuses on a subtribe - a taxonomic rank between genus and family - of orchids in Florida called Oncidiinae. For part of his research, he is collecting samples of 4 rare orchid species in Oncidiinae to conduct population genetics studies to measure the genetic diversity within populations and compare the genetic diversity to larger, historical populations.

Wetterer's Ph.D. research is closer to home, "I plan to collect seeds and the corresponding mycorrhizal fungi of orchid species native to the Great Lakes Region to establish a seed bank and a living collection at the Chicago Botanic Garden," said Wetterer.



Sarah Wetterer and Fernando Rocha Vento posing with *Cypripedium reginae* (showy lady's slipper)

Orchid seeds are unique because they do not contain an endosperm - the tissue that nourishes the developing embryo. Instead, orchid seeds form relationships with specialized mycorrhizal fungi in the soil. Unlike many other mutualistic, mycorrhizal relationships, orchids are generally thought to parasitize their mycorrhiza in the early stages of their life. "I would love to be able to share these orchid species with other botanic gardens across the US and abroad to support reintroduction efforts and create more awareness surrounding them," added Wetterer.

Wetterer said, "If we don't do anything now, these endangered and rare orchid species will most likely go extinct, so we want to do as much as possible to help safeguard these native orchids." Perhaps, most importantly, Fernando's and Sarah's shared enthusiasm for orchids will allow a better chance for future generations to enjoy them.

*Some quotes have been edited for clarity*

# Local Native Plant Volunteer Opportunities

## Plants of Concern in Northern Illinois

Plants of Concern community scientists monitor the rarest native plants in the Midwest, including wildflowers, grasses, trees, and ferns — species that are in danger of disappearing from the landscape forever. Participants visit hundreds of natural areas each year to assess the health of rare plant populations.

To learn more, visit: <https://plantsofconcern.org/get-involved>

## Native Seed Nursery in Lake County

Many of the native grasses and wildflowers used in forest preserve restoration projects get their start at Lake County's 5-acre Native Seed Nursery at Rollins Savanna. Volunteers may propagate plants, plant plugs, maintain plant beds and collect and process seed.

To learn more, visit: <https://www.lcfpd.org/what-we-do/nursery/volunteer/>

## Ecological Stewardship in Cook County

Ecological stewardship volunteers help increase native biodiversity and protect threatened plant and wildlife habitat in the Forest Preserves of Cook County. Volunteers learn about plants and animals, gain hands-on experience in ecological restoration and develop leadership skills.

To learn more, visit: <https://fpdcc.com/volunteer/ecological-stewardship-workdays/>

## Plant Phenology Monitor in McHenry County

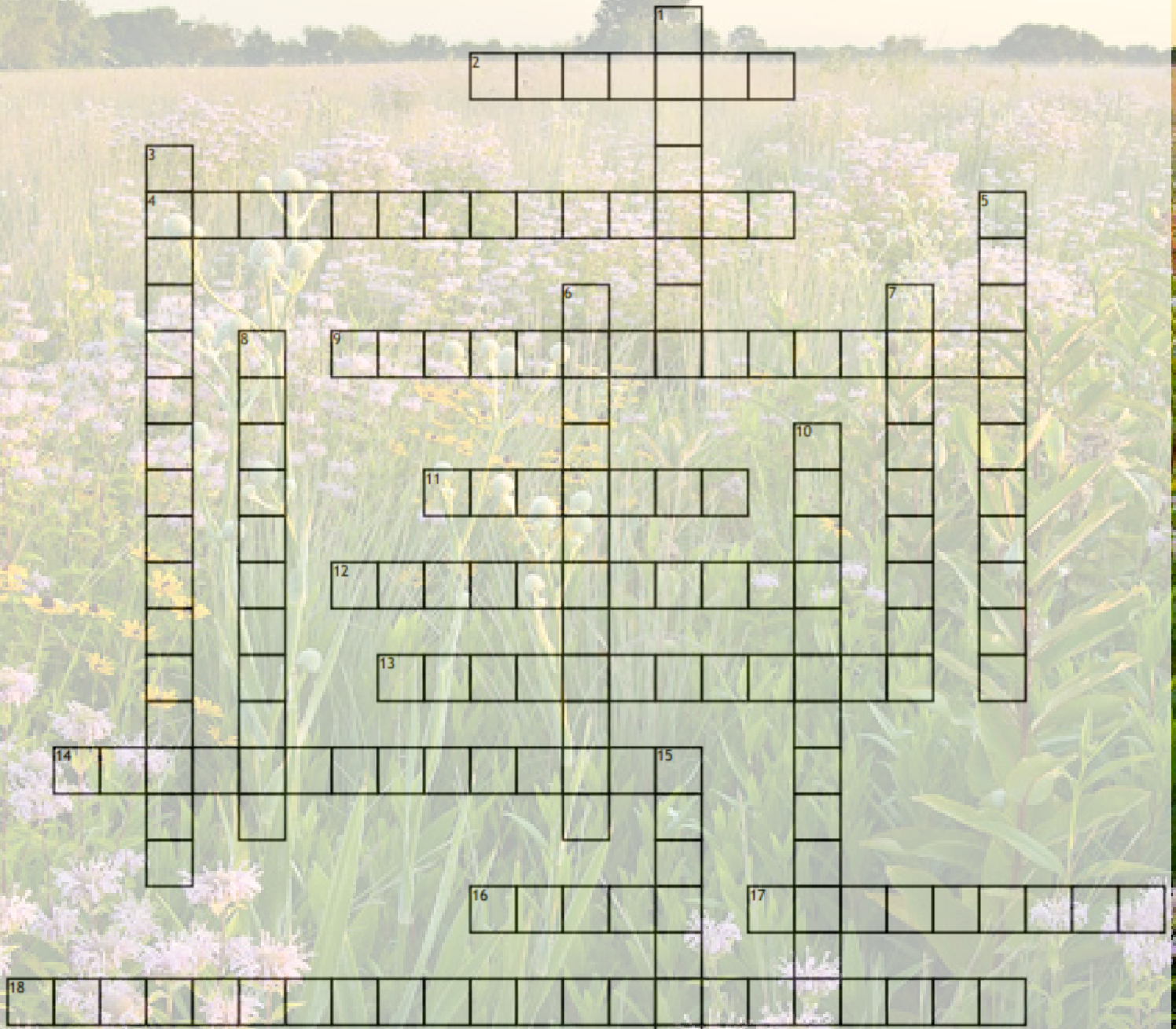
If you like to watch our natural areas come alive in the spring and summer, consider joining McHenry County Conservation District's phenology program. Volunteers will record which plants are blooming every other as part of an ongoing research study with our Field Station Ecologist. A moderate knowledge of plant ID is necessary, but an enthusiasm for getting out in the field regularly and a willingness to learn are even more important.

To learn more, visit: [https://www.mccdDistrict.org/about\\_us/work\\_with\\_us/volunteer/index.php](https://www.mccdDistrict.org/about_us/work_with_us/volunteer/index.php)



*Ratibida pinnata*  
(yellow coneflower coneflower)

# Native Illinois Summer Plants Crossword



Answers on Page 13

**Across:**

- 8. Grass with a side of oats
- 11. A disturbance that prairies rely on and are adapted to
- 12. Type of prairie that occurs in dune habitat
- 13. Growth habit of many native sedges and grasses
- 14. Plant that was partly responsible for the death of Abraham Lincoln's mother
- 15. Highly poisonous species in the carrot family that has livestock in its common name
- 16. A plant whose common name includes a chemical element
- 17. Type of plant that dominates Illinois prairies
- 18. Plant used to treat malaria

**Down:**

- 1. Scientific name of little bluestem
- 2. Prairie grass that has a peculiar smell similar to coriander, licorice, or popcorn
- 3. Very aromatic prairie plant in the mint family
- 4. Plant family that are host plants for monarch butterflies
- 5. Scientific name for pale purple coneflower
- 6. Plant with red flowers in the Lobelia family
- 7. Type of prairie found in Illinois
- 9. A plant that can supposedly provide directions
- 10. Widely recognized prairie grass with seed heads resembling turkey feet



## Contribute to *The Nodding Onion*

We're looking for submissions!  
Do you have an article, artwork,  
photos, or other content you'd like  
to share with the *Nodding Onion*?  
Or, do you have ideas for content  
you'd like to see?

Contact us at:  
[northeast.inps@gmail.com](mailto:northeast.inps@gmail.com)

## Northeast Chapter Board

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# Join/Renew/Follow



*Asclepias viridiflora* (short green milkweed)

The Illinois Native Plant Society is a volunteer-led, member-based organization with dues comprising the majority of our revenue. Please renew and encourage friends to join. Join or renew on our website:

**<https://illinoisplants.org/member>**

**As a member of the Illinois Native Plant Society, you contribute to our mission of promoting the appreciation, conservation, and study of the native flora and natural communities of Illinois.**



*Ceanothus americanus* (New Jersey tea)

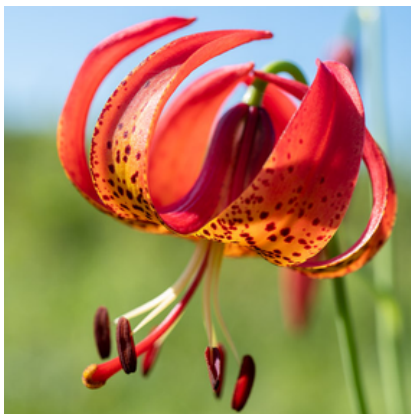
As a member, you receive:

*Erigenia*: our peer-reviewed scientific journal

*The Harbinger*: the statewide newsletter

*The Nodding Onion*: our chapter newsletter

Notification for and priority RSVP for events, including the statewide Annual Gathering, guided field trips, lectures, workshops, and other events.



*Lilium michiganense* (Michigan lily)

**Follow the Illinois Native Plant Society on social media:**

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**Northeast Chapter:**

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[instagram.com/northeastinps](https://instagram.com/northeastinps)

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Crossword answers: ACROSS 8. sideoatsgrama 11. burning 12. sandprairie 13. tussock 14. whitesnakeroot 15. cowbane 16. leadplant 17. forbs 18. wildquinine DOWN 1. schizachyriumscoparium 2. prairiedropseed 3. wildbergamot 4. milkweed 5. echinaceapallida 6. cardinalflower 7. tallgrass 9. compassplant 10. bigbluestem

# Photo Credit and References

Cover Page: *Pogonia ophioglossoides* (rose pogonia) by Dave Schwaegler

Page 1: *Amorpha canescens* and *Coreopsis palmata* (lead plant and stiff coreopsis) by Dave Schwaegler; *Liatris aspera* (button blazing star) by Dave Schwaegler

Page 2: Background photo by Dave Schwaegler

Page 4: Great Plains photo by The Nature Conservancy

Page 5: *Dalea purpurea* (purple prairie clover) by Dave Schwaegler; *Schizachyrium scoparium* (little bluestem) by Prairie Moon Nursery; *Silphium integrifolium* (rosinweed) by Illinois Wildflowers

Page 6: *Amorpha canescens* (lead plant) by Dave Schwaegler; *Helianthus mollis* (downy sunflower) by Dave Schwaegler; *Echinacea pallida* (pale purple coneflower) by Dave Schwaegler; *Desmodium illinoensis* (Illinois tick trefoil) by Dave Schwaegler

Page 8: *Cypripedium candidum* (white lady's slipper) by Dave Schwaegler; *Spiranthes magnicamporum* (Great Plains ladies tresses) by Dave Schwaegler; *Collarorhiza trifida* (Northern coralroot) by Amadej Trnkoczy; *Calopogon oklahomensis* (Oklahoma grass-pink) by Chris Benda; *Platanthera aquilonis* (Northern green orchid) by Dave Schwaegler; *Pogonia ophioglossoides* by NC State Extension

Page 9: Photo of Sarah Wetterer and Fernando Rocha Vento by Lucia Corte

Page 10: *Ratibida pinnata* (yellow coneflower) by Dave Schwaegler

Page 12: *Allium cernuum* by Dave Schwaegler

Page 13: *Asclepias viridiflora* (short green milkweed) by Dave Schwaegler; *Ceanothus americanus* (New Jersey tea) by Dave Schwaegler; *Lilium michiganense* (Michigan lily) by Dave Schwaegler