OCTOBER 2019

THE NODDING ONION

Newsletter of the Northeast Chapter of the Illinois Native Plant Society

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WHAT'S IN THIS ISSUE:

From the President

We went all over the region this year (see map, right), even dipping into Indiana and Wisconsin. Our chapter board is scheming hikes and other events for 2020, including a chapter gathering on January 26th — save the date!

The asters and sunflowers are finishing up flowering, but there are ways to get your flower fix all throughout the winter without heading south. Join iNaturalist.org, where you can upload your old photos and help other people identify theirs.

The results of the 2019 Illinois Botanists Big Year will be announced in late January and there are many thousands of observations waiting to be identified. Can you help?

—cassi saari

2019 Northeast Chapter Events

Help Identify

A smattering of Asteraceae diversity by local iNaturalist users (iNatters):

Eupatorieae: *Eutrochium maculatum* (spotted Joe Pye) by @vvoelker

Astereae: *Symphyotrichum novae-angliae* (New England aster) by @musicmanz

Heliantheae: *Rudbeckia hirta* (black-eyed susan) by @psweet

Polymnieae: *Polymnia canadensis* (leafcup) by @sanguinaria33

Gnaphalieae: *Antennaria plantaginifolia* (pussytoes) by @kkucera

Cichorieae: *Cirsium hillii* (Hill's thistle) by @sanguinaria33

Photo: *Argentina anserina* (silverweed) by Domenico D'Alessandro

Mid-Summer Field Trip to Montrose Beach Dunes: Plants (Almost) Upstaged by Piping Plovers

By Susanne Masi

Sixteen participants had the great privilege of visiting Montrose Beach Dunes on July 16 under the guidance of its longtime and very knowledgeable site steward. Montrose Beach Dunes development began in the early 1990s when Lake Michigan's water level dropped to a historic low, creating a much wider beach soon colonized by plants such as *Cakile edentula* (sea rocket) and *Juncus balticus* var. *littoralis* (lakeshore rush), a species not seen in Chicago in over half a century. *Ammophila breviligulata* (marram grass) soon followed, and low dunes began to form from sand deposited by long-shore currents. Since then, many dune and swale (panne) species have volunteered on the now 11-acre site, and a number of high quality foredune species have been introduced from similar habitats in the Indiana Dunes.

Owned by the Chicago Park District and managed primarily by volunteers, the site received formal protection in 2001 and was placed on the Illinois Natural Areas Inventory in 2005. It features dunes, swales, and a globally imperiled, interdunal alkaline wetland type called a panne. Only a unique set of plants can tolerate this environment, many of them rare. Currently 26 state-listed species occur at Montrose Beach Dunes, many of which have been monitored by Plants of Concern (Chicago Botanic Garden). Illinois Natural History Survey botanists have established permanent transects to follow the changes in plant and community composition over time.

Despite the timing of our tour (between spring and summer blooms) and the fact that the wetland areas were flooded and inaccessible due to almost record high lake water levels this year, we were still able to experience wonderful flora and fauna.

Utricularia macrorhiza (great bladderwort)
All photos: Mark Kluge

Oenothera clelandii (sand evening primrose)

Monarda punctata (horsemint)

From behind ropes blocking flooded trails, we marveled at hundreds of *Utricularia macrorhiza* (great bladderwort) floating in dramatic yellow clouds over flooded swales. We also viewed *Lysimachia quadriflora* (narrow-leaved loosestrife), *Arabidopsis lyrata* (sand cress), *Oenothera clelandii* (sand evening primrose), *Monarda punctata* (horse mint), and *Argentina anserina* (silverweed), as well as the sand-binding *Ammophila breviligulata* (marram grass), *Calamovilfa longifolia* (sand reed), and *Koeleria cristata* (June grass). Several federal and state endangered species, many of them unique to beach and dune/panne habitats, caused appreciative “oh wows.”

The true highlight of our tour, totally unexpected when we planned this date, was the excitement over seeing the federally endangered Piping Plovers, Monty and Rose, brooding their four eggs. Piping Plovers had been regularly seen at the dunes during migration, and in 2018 one young plover broke the state record and stayed at the dunes and Montrose Beach for three months. This year, Monty and Rose arrived and successfully nested amidst many challenges on the busy beach, including renesting after their first nest was flooded.

The dune habitat, which had been closed since the chicks hatched, was reopened to the public in time for the site’s spectacular show of late summer forbs including four *Lobelia* species (among them the rare *L. kalmii* (bog lobelia), several *Agalinis* species (including purple false foxglove), *Parnassia glauca* (grass of Parnassus), *Oligoneuron riddellii* (Riddell’s goldenrod), *Oligoneuron ohioense* (Ohio goldenrod), and many others. INPS members will find Montrose Beach Dunes a trove of botanical treasures. At 11 acres, it is a manageable hike with well-defined trails, but those with botanical curiosity can easily spend hours exploring and identifying hundreds of plant species. We haven’t even mentioned the sedges!

View over interdunal wetland at Miller Woods. Photo: Evan Barker.

Botanizing in the rain at the USGS Ecological Research Station. Photo: Evan Barker

Getting a closer look at *Oligoneuron album* and *Lobelia kalmii* growing on a sand dune. Photo: Evan Barker

Native Plant Societies Get-together

In August, Northeast Chapter members participated in the second annual Interstate Native Plant Societies Get-Together. Botanists from Illinois, Indiana, Michigan, and Wisconsin turned out for the two-day event hosted this year by the Indiana Native Plant Society. Scott Namestnik, Indiana state botanist, and Nathanael Pilla, botanist at Orbis Environmental Consulting, led a botanical tour of black oak savanna and interdunal wetlands at Miller Woods, part of Indiana Dunes National Park. The next day, the group explored the flora of the USGS Lake Michigan Ecological Research Station in Chesterton, Indiana. Of the 134 native plant species recorded over the two days, 28 species are either state-listed or extirpated in Illinois. Thanks to Nathanael and Scott for organizing this memorable trip and to Paul Marcum for compiling the species list.

—Anna Braum

Toxicodendron vernix - posion sumac
Photo: Paul Marcum

Bartonia virginica - yellow screwstem
Photo: Paul Marcum

Scott Namestnik and Nathanael Pilla (standing on dune) led the field trip. Photo: Evan Barker

Spiranthes on the Moon

By Maureen Clare Murphy

What ecological potential can a former steel processing site hold? The answer is being explored at Big Marsh Park in the Calumet Region on Chicago's Far Southeast Side. Dr. Lauren Umek, an ecologist and project manager with the Chicago Park District, gave an overview of the site's history and possible future during the INPS Northeast slag party and orchid hunt on August 31. (Spoiler: we found the orchids!)

Before its industrial transformation, Big Marsh was part of a dune and swale wetland complex near Lake Michigan. The site is adjacent to the Acme Steel Coke Plant, shuttered since 2001, as well as the Paxton Landfill, which was closed in the early 1990s. Today parts of Big Marsh are covered with slag, an industrial byproduct from the steel manufacturing process. This moonlike rocky material, though potentially highly contaminated, happens to share characteristics with dolomite prairie. Rare native plants found in dolomite prairie and other dry and gravelly habitat are now colonizing slag fields on Chicago's Southeast Side.

Only recently under management, some 10 percent of Big Marsh's 300 acres have been cleared of invasive buckthorn and *Phragmites*. Big Marsh's dirt bike park, soon to be expanded, makes use of areas of least ecological value while encouraging a more positive attitude towards the site.

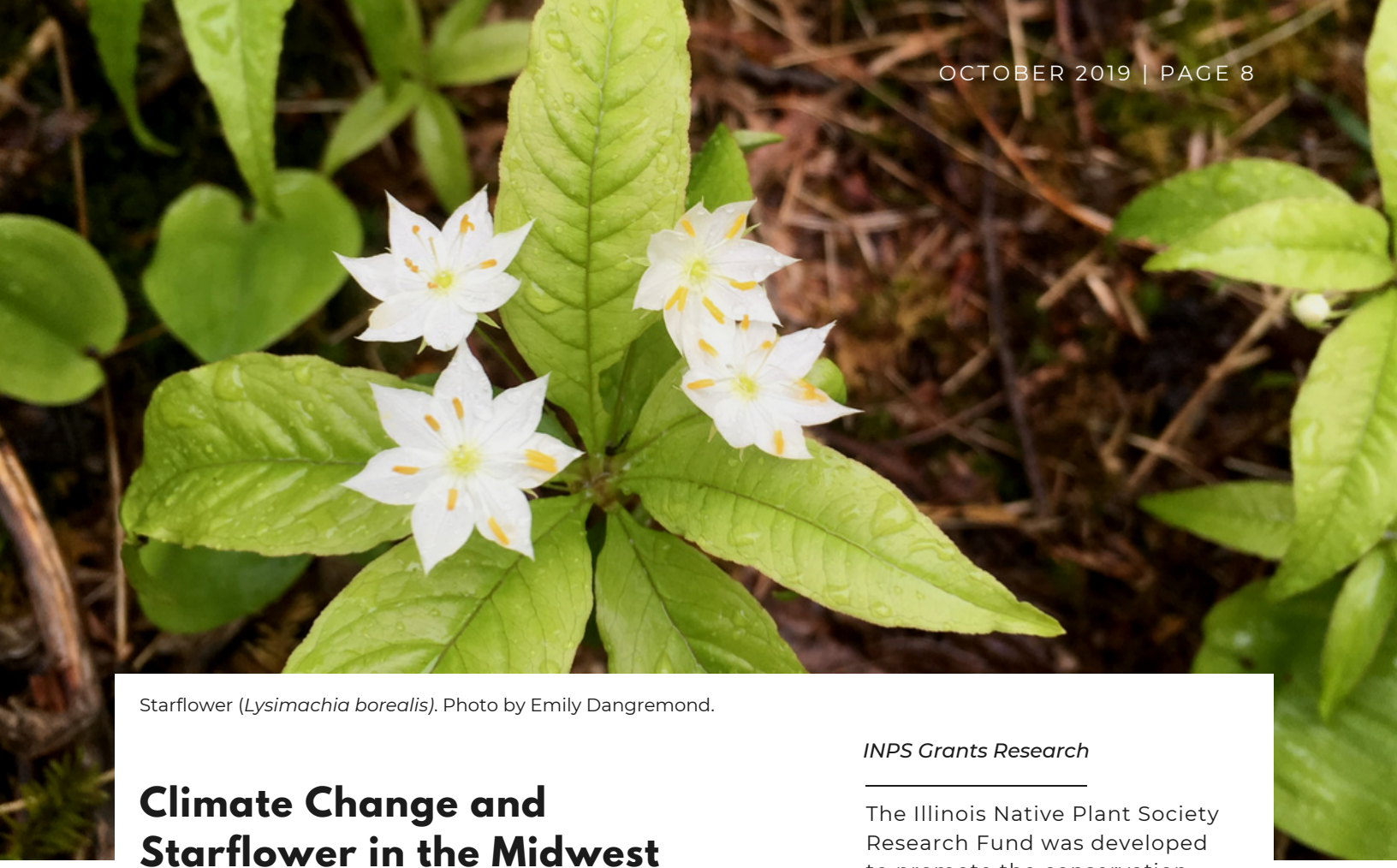
Photos (from top): Lauren Umek provides an overview of the site (photo: Maureen Clare Murphy); slender false foxglove (*Agalinis tenuifolia*) and gray goldenrod (*Solidago nemoralis*), were some of the native plant species found growing on slag (photos: cassi saari).

"What ecological potential can a former steel processing site hold?"

Colonization by conservative plants in this unique landscape recommends a vision for Big Marsh beyond a typical grassland prairie restoration. Our group found a colony of dozens of nodding lady's tresses orchids (*Spiranthes cernua*) surrounded by *Phragmites*. We also saw conservative plants like slender false foxglove (*Agalinis tenuifolia*) and false pennyroyal (*Isanthus brachiatus*) growing alongside the greatest hits of Chicago-area invasives.

This coexistence of conservative native and invasive plant species in a landscape formed by industry, rather than geology, makes for weird botany. It also prompts us to reflect on the permanent changes modern humans have made to our environments, and how we might better value them in the future.

Northeast Chapter members enjoyed the plants as well as the bike park at Big Marsh.
Photo: Maureen Clare Murphy



Starflower (*Lysimachia borealis)*. Photo by Emily Dangremond.

INPS Grants Research

The Illinois Native Plant Society Research Fund was developed to promote the conservation of Illinois native plants and communities through scientific research.

Climate Change and Starflower in the Midwest

By Emily Dangremond
Assistant Professor of Biology, Roosevelt University

Illinois is nicknamed “The Prairie State,” but many woodland species also make their home here, visible in our forest preserves and other natural areas. One of these species is starflower *(Lysimachia borealis*), an understory plant with seven-petaled white flowers. Starflower was previously known as *Trientalis borealis*; the genus name *Trientalis* means “one-third of a foot,” referring to the height of these tiny plants. Unfortunately, starflower is threatened in Illinois. It only occurs in a few populations in northern Illinois, and populations are small and isolated compared to those in northern Wisconsin, Minnesota and Michigan. It is possible that the wooded places where starflower occurs in Illinois are remnants or "relicts" from a time when the climate was cooler, such as close to the last Ice Age.

If that is the case, are these small starflower populations simply hanging on, doomed to go extinct as the climate warms? Possibly, but hopefully not.

My research, supported by the Illinois Native Plant Society, has been focused on two questions: First, what is the relationship between temperature and starflower phenology? In other words, do the plants flower earlier in warmer climates? Second, how genetically diverse are starflower populations in Illinois? Both of these research questions can aid conservation of this species.

I used data from herbarium specimens dating back to the 1890s and more recent observations from iNaturalist.org. I found that the flowering date of starflower has not shifted over the past 126 years, either in the Midwest or across eastern North America. However, when we look at specific states, the story gets a little more interesting. We do not have enough records from Illinois to detect any trend in flowering time, but in Indiana and Wisconsin, there has not been a shift in the peak date of flowering. Minnesota, on the other hand, does show a significant shift to an earlier flowering date over time. Why is this? The Arctic and northern areas are actually warming faster than other areas—so even within the Midwest, northern Minnesota is warming faster than southern Minnesota (or northern Illinois).

In response to warming temperatures, starflower does indeed flower earlier in the year, but populations in different places experience different climatic conditions.

Many plants are flowering earlier in response to climate change, and it can be an issue if pollinators are not responding to the same cues. More of a concern though, is the fact that starflower, a boreal species, doesn't like to be too hot at night. Previous work showed that during cooler nights, starflower plants can make storage organs (tubers) that will turn into flowering plants the following spring. But warm nights can be physiologically stressful; the plants have to work harder to make energy and have less available to store, resulting in fewer or less vigorous plants the following year.

I have been tracking reproduction of starflower populations in Illinois and Minnesota, and I have found that Illinois starflower populations consistently have fewer flowering plants and lower seed set than populations in Minnesota. The actual percentages vary from year to year, but some Illinois populations have less than 10% of plants setting seed, while in Minnesota, 50% or more of the flowering plants ultimately made seeds. What is the reason for this discrepancy? Are the pollinators not doing their job in Illinois? Or is low seed set due to low genetic diversity?

My students and I are still gathering data to answer this question. What we know so far is that Illinois starflower populations have low genetic diversity, but that doesn't necessarily mean they're doomed. We can't rule out pollinators, because we haven't studied the pollinators yet. The low genetic diversity we see is not a huge surprise given that starflower is capable of asexual reproduction and sends out rhizomes that produce genetically identical plants. Many plant populations survive with low genetic diversity, but the lack of diversity may hamper the ability of the population to adapt to changing conditions.

For now, we can hope that shady trees and cool Lake Michigan breezes can keep starflower happy enough to maintain the Illinois populations. We will soon know more about the genetic diversity of starflower populations, knowledge that can help with future conservation actions.

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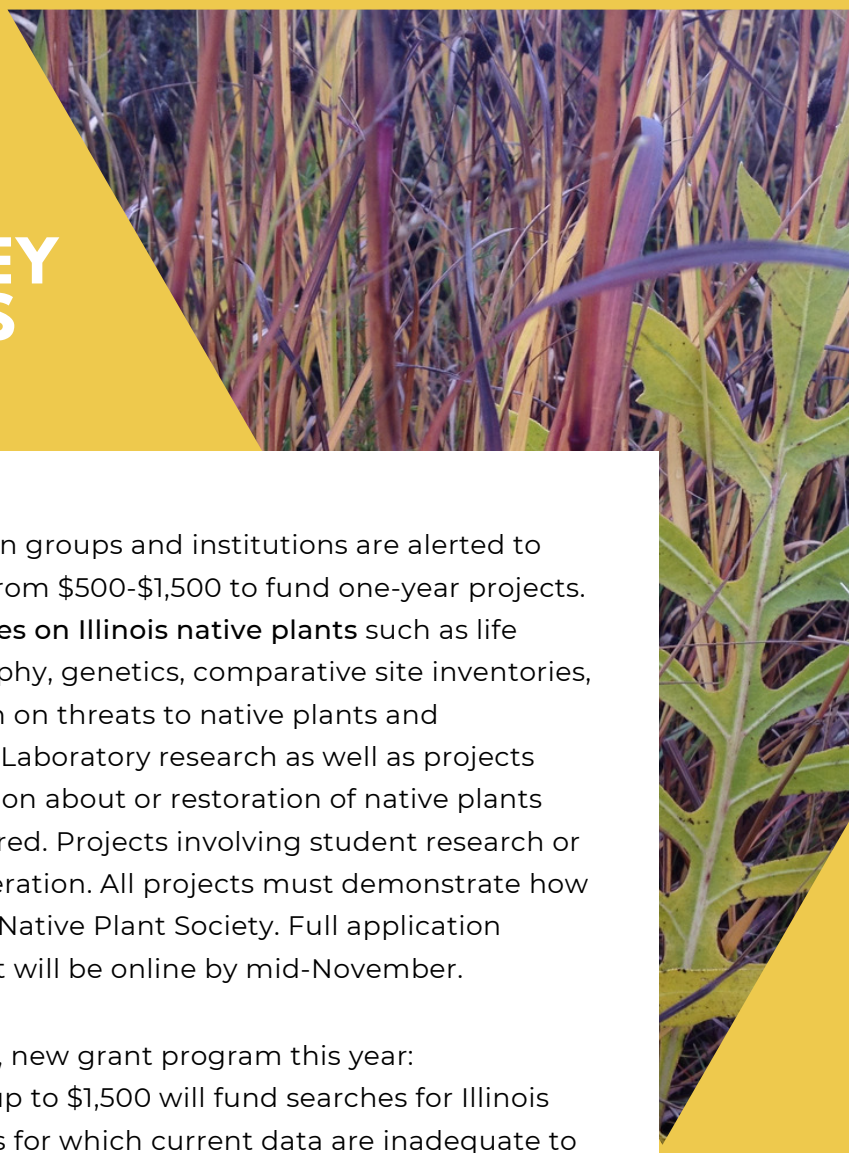

2020 RESEARCH GRANT AND SURVEY GRANT PROGRAMS ANNOUNCED

Students, citizen scientists, conservation groups and institutions are alerted to consider applying for a grant ranging from $500-$1,500 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, 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. Full application details and form for the Research Grant will be online by mid-November.

INPS is also excited to initiate a second, new grant program this year: the **Survey Grant Program**. This grant up to $1,500 will fund searches for Illinois endangered, threatened or rare species for which current data are inadequate to assess their status and for which field surveys and recovery recommendations are needed. INPS is working with the Illinois Department of Natural Resources to develop a priority list for the surveys. Experienced botanical field surveyors, either independent or associated with an institution, are invited to apply for this grant. Partnerships are encouraged. Interested parties should watch the INPS website for the December online launch of full application details and deadlines/timelines.

INPS is grateful to be able to expand its Grant Programs this year thanks to contributions from membership fees, generous donations to the Grant Programs, proceeds from the Annual Gathering, and support from the Central Chapter for a grant to conduct studies within the Central counties.

Applications must be received by January 31, 2020. Awards will be announced by March 31, 2020.

Calendar

Upcoming events in our region; check our website for the most up-to-date info.

Northeast Chapter Board Meetings

Tuesday, December 10
7:00 p.m. - 9:00 p.m.

If you are interested in attending these planning meetings or receiving meeting notes, please contact us at: northeast.inps@gmail.com.

Annual Chapter Meeting: Save the date!

Sunday, January 26
2:00 p.m - 5:00 p.m.

Thatcher Woods, River Forest, IL

Winter Hike at Wolf Road Prairie

Saturday, January 18
1:30 p.m. - 4:00 p.m.

Join other members of the Northeast Chapter of the Illinois Native Plant Society for a little winter botanizing at Wolf Road Prairie in Westchester, Cook County. As space is limited, RSVP at your earliest convenience here: http://bit.ly/winterwrp

Meet at the north side of the site, at 11225 Constitution Dr, Westchester, IL. Dress for the weather! This event will take place in all but the worst weather conditions. After we hike around the prairie, depending on the group consensus, perhaps we can grab a bite to eat or hike at another nearby preserve.

Join/Renew/Follow

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://ill-inps.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.

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.

Photos (first and last pages): Anna Braum

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