



Erythronium

Newsletter of the Iowa Native Plant Society vol. 24 no. 2 – January 2019

History of the University of Iowa Herbarium (IA), by Deborah Lewis

I was recently asked to write an article for *The Vasculum: the Society of Herbarium Curators Newsletter* about the Ada Hayden Herbarium (ISC-IA), now the combined herbarium of the University of Iowa (IA) and Iowa State University (ISC) collections. I will also share the article in *Erythronium*, but given its length, will spread it over several issues. It seems appropriate, given the passing of Dr. Diana Horton this summer, for me to start the series here with the history of the University of Iowa Herbarium (IA). [Note that dates in parentheses following names are the years that the person was at the University of Iowa (UI).]

The earliest history of the founding of IA remains a mystery, with geology professor Charles A. White (1867-73) having referred to the “State University of Iowa Herbarium” and listed a few plant species collected as early as 1869 as part of the report of the “Cabinet of Natural History”. Extant specimens indicate the establishment of IA in 1878, with collections made by botanist and mycologist Thomas H. Macbride (1878-1916). UI’s Botany Department was initiated under Macbride’s guidance. His extensive collections of Myxomycetes are primarily at the U.S. National Fungus Collections in Beltsville, MD, although a smaller subset remains in ISC-IA, along with his other fungal and plant specimens. In 1893, the British Museum sent ~30,000 vascular plant duplicates to IA in exchange, apparently for Macbride’s duplicate Myxomycete specimens (Macbride, 1912). Many of these specimens are the oldest held in ISC-IA. Macbride spearheaded the establishment in 1909 of Iowa Lakeside Laboratory near Milford, Iowa. He and Louis H. Pammel (at then Iowa State College, now ISU) proposed and pushed for the establishment of Iowa’s State Parks system, and Backbone State Park, the first, was dedicated in 1920. Macbride State Park and Pammel State Park honor their legacy.

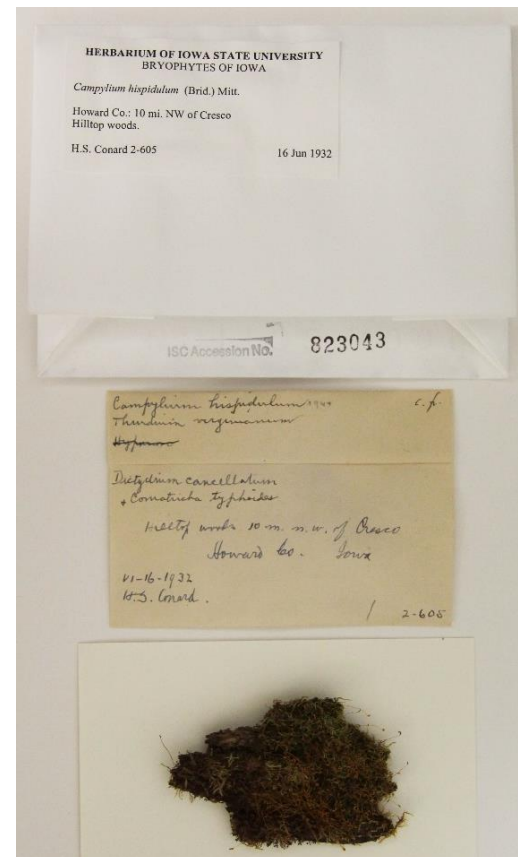
Bohumil Shimek (1890-1932) was added to the Botany faculty to assist Macbride. He was appointed as Curator of the Herbarium in 1895, and he held this position until his retirement in 1932. More than 20,000 vascular plant specimens and 3000 bryophytes and

fungi document his diverse interests and contributions.

A few years after Macbride retired from UI, George W. Martin (1923-55) joined the faculty as a mycologist. Although his mycological interests were broad, he

teamed with Macbride, and later with C.J. Alexopoulos, in studies of the Myxomycetes (slime molds) that resulted in the definitive reference books for this group.

William A. Anderson (1931-49) was named Curator of Vascular Plants at about the time that Shimek retired, a position he held until his death. After retiring from Grinnell



College, Henry S. Conard (1944-54) brought his large collection of bryophytes, as well as some vascular plant specimens, to IA as a Visiting Research Professor. He spent the next decade curating his own collections, as well as those collected by Shimek.

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Leaves of the President's Notebook



Observations

Lots can be learned by simply observing nature. I have realized that living on a gravel moraine can be pretty interesting! Who would guess it is an overwintering spot for the chorus frogs you hear in the early spring? They are the last frogs I hear in the fall, and the earliest ones I hear in the spring. There is a pothole at the bottom of the hill that holds water in the spring. If the water lasts long enough, the population of frogs is replenished. Toads often share the water, and if it lasts long enough, they complete part of their life cycle. Sometime later, our yard is the destination for hundreds of little toads seeking new territory. The other frogs using the pothole are tree frogs, and it is interesting to me that both varieties of tree frogs, Cope's and the eastern gray tree frog, use it. The nice thing about having them both, it is easier to learn the calls. It can be difficult to tell them apart, but when you hear them together it makes it easier.

Another group I have found is some harvestmen on my hill that are surviving through the winter under some metal buckets. I looked them up and they are a species that survives the winter as an adult, the only species of the Opiliones in Iowa that does this!

Another phenomenon I have witnessed is a dragonfly swarm. I saw a mass of dragonflies in the yard, so I went out to see what they were doing. I discovered they were feeding on ants. The ants were making a nuptial flight, and the dragonflies were picking them off as the ants were trying to fly. There were hundreds of dragonflies in the air, so many that they were running into each other. I could hear the wings hitting each other as they collided. It was quite an interesting feeling to be surrounded by so many dragonflies! I could see the ants coming up from the ground on stems of plants and see them start to fly, and I could hear the snap as the dragonfly grabbed them out of the air. I am sure it happens other places too, but you have to be aware.

The Iowa Prairie Network will be having the annual Region 5 winter seminar on January 26 at the Ames High School. See the details for this meeting on page 3 – it is a good chance to see people from across the state.

~ *Lloyd Crim*



In Memoriam: Diana G. Horton (1949-2018)

Dr. Diana Horton passed away unexpectedly at her second home in Vancouver, Washington, on 24 June 2018. Diana earned her Ph.D. in Botany (bryology) in 1981 at the University of Alberta. In 1983, she joined the faculty of the Botany Department at the University of Iowa, and she served as the Director and Curator of the University of Iowa Herbarium until 2004. Her research included studies of both vascular plants and bryophytes. She worked closely with Glenda Buenger and Pat McAdams (whose passing was also in 2018) in protecting Eddyville Dunes, and she worked on behalf of other sites, as well.

Diana also served INPS in a variety of ways, including Treasurer (2000-2005), field trip leader and, most significantly, in setting up and managing the Iowa-Native-Plants listserv.

The 2019 Iowa Prairie Network Region 5 Winter Seminar, January 26th

9:30-5:00 on Saturday, January 26th

Ames High School, 1921 Ames High Dr. in Ames

No preregistration, membership or fees required.

You're welcome to come and go as you need during the day.

Registration will open at 9:30 with the 3 morning programs running concurrently from 10:00 to 11:30.

The display/vendor room will open at 11:00. Lunch break is from 11:30 until 12:30. Sub sandwiches will be available on site from 11:00 till 12:30 and you are always welcome to bring a sack lunch. The cafeteria area will be open for attendees to sit, eat and visit.

The afternoon program starts at 12:30 and wraps up around 5:00. There will be 3 sessions with two 30 minute breaks. During the breaks attendees can bid on silent auction items, view displays, and enjoy refreshments.

If you would like to stay following the meeting for pizza, sign up during the afternoon. A \$5 donation is encouraged but not required. Pizza will be delivered around 5:00 in the cafeteria.

Silent Auction:

This year's silent auction proceeds will go toward the protection and purchase of the Hargoves II Property in the Loess Hills in Monona County.

Items may be donated by contacting Carman Rosburg at crozburg@prcd.org. Items for the auction may be brought to the site starting at 9:00 on the 26th. **Auction bidding will begin during the first break of the afternoon and close at the end of the second break**

Program Highlights:

The morning program will have 3 concurrent sessions all starting at 10:00 and concluding by 11:30

1- Carl Kurtz: "Management Options, Realistic Expectations and Succession" -- Carl will cover planting procedures and options, post-planting management and plant succession that takes place year after year. What we start out with is not what we end up with.

2- Tom Rosburg and Deb Lewis: "Those Amazing Milkweeds - biology, ecology and

identification of Iowa's milkweed species" – Iowa has 16 species of milkweeds, all of them native and representing a variety of habitats. This hands-on workshop aims to help participants better understand milkweed morphology and how to identify Iowa's species. A key to Iowa's milkweeds will be used along with voucher specimens to develop experience in keying. Reproductive biology, habitat affinities, and the biogeographical distribution of species will also be covered.

3- Panel discussion: "Young Natural Resource Professionals Discuss Conservation Careers in Iowa" – A panel discussion will focus on engaging students to think about careers in conservation. The panel of young professionals from a variety of public and private groups will discuss what they did to position themselves to be successful in getting started in the conservation field in Iowa.

The afternoon program will start at 12:30 and conclude by 5:00. There will be 3 sessions, each with a main presentation and short informational talks.

Session 1: Kevin Kuhn, Resource Conservationist in the NRCS State Office: "Landowner Guide Sheets for Seeding and Managing Native Prairie"

Session 2: Dr. Thomas Rosburg, Drake University: "Effects of past and present Cattle Grazing on the Plant Species Composition of Tallgrass Prairie"

Session 3: Michelle Biodrowski, Pottawattamie County Conservation Naturalist and IPN President: "Benefits of Native Plants for Backyard Habitats" How and why to add natives to your home gardens

Directions to Ames High School:

Coming to Ames on I-35 take Exit-113 (13th St) and go west into Ames (2.5 miles) - take Grand Ave north (right) to 20th St - then go west on 20th St. - this will take you directly into the north end of the High School property. Continue to drive along the north side of the school where parking is available - the double door entrance is near the west end.

You also may park in the large lot on the east side of the school and enter at the multiple doors under the "Home of the Little Cyclones" sign.

We will try to have Meeting signs posted on both entrances.

For more information contact: Trish Patrick – tpatrick5350@gmail.com

Quite a Busy Field Trip Season in 2018!

The Iowa Native Plant Society offered many field trips in 2018. Photos from several of these are posted on the INPS website. We wish to thank the people who led and organized these.

MJ Hatfield led both spring and fall plant and insect hikes at Red Oak Prairie in northeast Iowa.

Dawn Snyder led a wildflower walk at Fowler Forest Preserve which was co-sponsored by Loess Hills Wild Ones and Woodbury County Conservation.

Tom Rosburg took on the four monthly Doolittle State Preserve prairie walks which were co-sponsored by Story County Conservation and IPN.

Connie Mutel, Rick Hollis, and Larry Gullet organized and led the field trips to Cedar River Crossing and Ciha Fen Preserve, co-sponsored by the Friends of Johnson County Conservation.



Ciha Fen Preserve field trip, photo by Connie Mutel

The INPS board organized and John Pearson led the Cordova County Park field trip which was followed by the INPS annual meeting.

Tom Rosburg and John and Shari Paule led the visit to Paule Preserve near Winterset which was co-sponsored by IPN.

Mark Leoschke annually selects an interesting site to visit. In 2018 it was Patton Prairie in Buchanan County.

Ray and Patti Hamilton invited INPS, IPN, and Jackson County Conservation to co-sponsor their prairie walk at their Codfish Hollow Hill Prairie near Maquoketa.

INPS also was one of many co-sponsors of the annual Loess Hills Prairie Seminar and had an exhibit at the evening programs.

We appreciate all who offered these field trips and the many who were willing to offer events during Iowa Wildflower Month, May. Thank you!

Lloyd Crim once again created an activity and exhibit for the Monarch Festival at Blank Park Zoo. INPS is a supporter of Plant.Grow.Fly. This is the zoo's program that promotes (mostly) native plantings for pollinators. He also had an INPS table at the Okoboji Blue Water Festival.

INPS annually exhibits and collects memberships at the IPN Winter Seminar, which is planned for January 26, 2019. (See separate article about this.)

Thank you to the many people who helped make 2018 a very busy field trip season filled with opportunities!

Minutes of the 2018 Iowa Native Plant Society Annual Meeting

June 30, 2018 at Cordova County Park on Lake Red Rock

Twenty people braved the heat and stormy forecast for the day. John Pearson led the morning hike for an enthusiastic group that appreciated John's extensive botanical, ecological, and historic knowledge of the site. Participants were also involved in identifications and discussions during the visit.

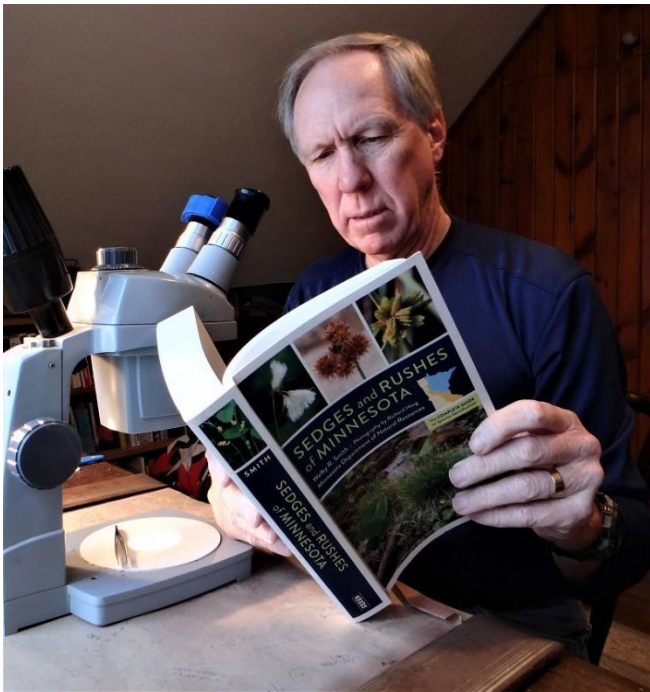


John Pearson as field trip leader, photo by Dianne Blankenship

Following the hike, the Playground Shelter provided shade for the meeting. Most people stayed for the meeting and many brought some lunch. Tom Scherer provided cold water. Board members present were: Lloyd Crim, Dianne Blankenship, Bill Blankenship, Deb Lewis, Tom Scherer, Beth Henning, and Pauline Drobney.

Lloyd Crim, president, called the meeting to order shortly after noon. Dianne Blankenship, secretary, read the minutes from the previous annual meeting which had been held at the Longhouse at Chichaqua Bottoms Greenbelt on May 6, 2017. The minutes were accepted as read.

Deb Lewis, newsletter editor, gave the report on grants awarded this year, as also reported in the spring newsletter. She added that INPS' small grants program has awarded to date a total of over \$27,000 and the Restore Iowa! grants total is nearly \$7,000. She noted that the Restore Iowa! grant awarded this year was named the "Linda Scarth Memorial Restore Iowa! grant." It was funded this year entirely by donations gifted to INPS honoring Linda following her death in June, 2017.



John enjoying his new book

A diversion from the reports occurred when Lloyd announced that John Pearson was being honored. Lloyd read a personal piece written in admiration of John's outstanding work, and Dianne presented John with a Certificate of Appreciation and a photo of a book that is expected to be published in July. *Sedges and Rushes of Minnesota: The Complete Guide to Species Identification* by Welby R. Smith and Richard Haug will be mailed to John as soon as it is available. The certificate stated that John was awarded this ...*for his outstanding dedication to furthering the appreciation of Iowa's native flora*

and its diverse floral and faunal associates, and his dedication to recognizing and preserving our natural areas.

Bill Blankenship, treasurer, provided the treasurer's report. Deb Lewis clarified that the Blank Park Zoo donation was actually for INPS' support of Plant.Grow.Fly. The report was approved.

Dianne reported on memberships. She noted that to date we had 126 members including 19 new members.

Another diversion from the agenda occurred when Lloyd was presented with two mugs featuring photos from Doolittle Prairie and with a Certificate of Appreciation ...*for his outstanding dedication to education about Iowa's native plants and prairies through 26 seasons of walks at Doolittle Prairie State Preserve in four monthly walks each season.*



Thanks, Lloyd, for Doolittle Prairie walks!

With no old business, new business transitioned into discussions and sharing time. Discussion topics included the membership fee structure and whether the \$10 basic fee is too low. The board could revisit this to find a way to encourage more memberships at above \$10 while still offering that basic level. Suggestions included doing more to inform members where their membership dollars go.

A permanent change of the Restore Iowa! grant's name to be the Linda Scarth Memorial Restore Iowa! grant was discussed. This had support, but since Connie Mutel is in charge of the grants program and was absent, and other board members, Jane Clark and Carl Kurtz, were unable to attend, it was determined that this would be considered at a later date.

Dianne shared her involvement in establishing a Wild Ones chapter in Sioux City. Wild Ones is a national organization that promotes landscaping with native trees, shrubs, and wildflowers. Visits to natural areas are included in the Loess Hills Wild Ones programs. Some discussion of native plant sales and such followed.

Ray Hamilton announced field trips that he has helped to organize in eastern Iowa.

The meeting concluded shortly after 1pm.

John provided Lake Red Rock brochures, INPS posters were provided for free, and INPS cards with photos by Tom Scherer were offered for purchase.

Respectfully submitted,

Dianne Blankenship, INPS secretary

2019 Field Trips – It looks like another banner year!

We already have interest in providing field trips from Connie Mutel with Rick Hollis and Dave Wehde at Kent Park in Johnson County, Frank Olsen and Brian Preston at Dubuque County hill prairies, Glenn Pollock at a special site in western Iowa, and Mark Leoschke, who will select a diverse site. On June 22nd, Tom Rosburg and Ron Eckoff will lead a field trip on Ron's property in Warren County. There will possibly be a walk at Sheeder Prairie, and a season of Doolittle walks are scheduled again for the 4th Thursdays, May through August, at 7:00 p.m.

INPS continues to coordinate our events and those of others especially during the month of May. Iowa Wildflower Month was established to help draw attention to native plants as they begin a new season of blooming. What better way to welcome Spring and entice people to join us in our enthusiasm for our natural areas! If you know of events that would be of interest to our

members, please email that information to Dianne, who posts them on our website calendar. Check the calendar often, as it is regularly updated.

INPS will have a presence at the Iowa Prairie Conference at Central College in Pella on August 9 and 10, 2019. (Note the change in date from July.) That might be the site for our annual membership meeting.

Please let us know of your ideas of a natural area you would enjoy visiting with your INPS friends. Do you want to organize one or lead one? Do you know of groups with whom we could partner? We welcome your ideas. This is a big state and we need to partner with others and try to encourage local people to experience our natural areas and our native plants. We need to do better at contacting local news sources to reach more people. Please post any of our field trips on your local media. Ask Tom Scherer or me to help if needed.

Tom is now helping coordinate field trips and I will continue to, also. I post them on the INPS calendar. You can contact either of us. We look forward to hearing from you. Remember to check the calendar often to find events by INPS and others which might be of interest to our members. Send photos from field trips to Tom.

Dianne Blankenship – bennaid@hotmail.com

Tom Scherer - thomas.scherer@centurylink.net



Paule Prairie field trip, photo by John Paule

2018 INPS Grants: Reports of projects completed

“Continued management of university-owned prairie remnant used for conservation and plant research and instruction,” \$1034.

Awarded to Jennifer L. Stoffel and Scott Figdore, professors at Upper Iowa University, Fayette, IA.

“A visit to Pleggenkuhle Prairie allows students to step back in time and see the wonderful array of plant species typical of Iowa’s tallgrass prairie heritage,” said Dr. Scott Figdore.

Three Upper Iowa University (UIU) upper classmen were compensated for work that spanned July-November at the UIU Pleggenkuhle Prairie Management (Codie LaGrange, Joshua Crosbie, and Ryan Roth). Much of the student labor included the management of woody encroachment on the prairie. Dr. Jennifer Stoffel led the students through low impact management techniques which are best for remnant prairies. She discussed with students the considerations that needed to be made in the different plant communities along the site, as well as in the ecotone.



Clearing woody encroachment at Pleggenkuhle Prairie

Students were given the opportunity to review plant taxonomy under the direction of Dr. Figdore and land management techniques and considerations. Herbarium voucher specimens for

over 65 plant species were collected this season, including samples from a dozen *Carex* species.

Additional species with very low abundance (less than twenty plants) were observed and photographed, but voucher specimens were not taken. For example, one plant of downy gentian (*Gentiana puberulenta*) was observed this fall. This was the first time downy gentian was recorded to be observed in this prairie.

Dr. Jennifer Stoffel noted that she “enjoys helping students’ link ecological principles to real life decisions that must be made while developing and implementing a land management plans. Having the opportunity to work on a prairie remnant cannot be replicated by any other experience! We are grateful to INPS for providing resources to our students to grow in their knowledge of prairie remnants.”

Codie LaGrange offered that, “The knowledge that I have gained from working on these UIU field sites has provided me the confidence I need in real-world applications. I really enjoyed clearing some of the trees and manage for remnant species that are on the site with Dr. Stoffel. Any time that I get a chance to operate a chainsaw, I am going to do it.”

“One thing for certain is that UIU professors care about the students,” LaGrange said. “The relationships that I have built with the faculty are probably what I will remember most about attending the University. These relationships have allowed me to understand the sciences in a way that I can better communicate and collaborate with others about our precious natural resources.”

Crosbie and Roth were instrumental in management of the property as well, spending several hours doing manual labor on the site while also enhancing their chainsaw skills, chemical application skills, and learning about best practices for working on prairie remnants.

Grant funding on this site also developed additional enthusiasm for this great space! Two additional projects were motivated because of work at this site along with more student volunteers who will continue to help Dr. Stoffel continue to manage the site while they are students at UIU.

“Clayton County Conservation Youth

Conservationist Program,” \$537. Awarded in 2017 (completed in 2018) to Kenneth Slocum, Clayton County Conservation, Elkader, IA.

In 2017, the Clayton County Conservation Board (CCCB) received a generous grant from the Iowa

Native Plant Society (INPS) to provide tools and provisions for a Young Conservationist program. The program would provide an opportunity for a population traditionally underserved by CCCB programming – teenagers and young adults - to gain real, hands-on experience in land management and ecosystem restoration, while also allowing the CCCB to restore and maintain oak savanna habitats found at the Motor Mill Historic Site outside of Elkader, Iowa.

INPS provided a grant extension of one year when the 2017 program failed to draw participants. The 2018 effort suffered a similar fate, but the work still needed to be done, and so the CCCB considered other alternatives while maintaining the spirit of the original program design. Digging into our reserve funds, the CCCB decided to hire a crew from the Conservation Corps of Iowa & Minnesota (CCI) to work on extending and maintaining the savanna. Importantly, the crew hired was the corps' first "quarter-term" crew, composed exclusively of college students and individuals preparing for their first year of college who could work only during the summer season – in other words, the age group sought by the Young Conservationist proposed program.



Conservation Corps of Iowa and Minnesota crew

The crew worked closely with CCCB naturalist Kenny Slocum every day, and also enjoyed assistance from Gregg Pattison of the US Fish & Wildlife service's Partners Program. Typically, CCI crew projects include a brief orientation from site hosts and an explanation of the project's goals before the crew is "set loose" to work largely independently. By having a constant presence, the

CCCB and USFWS were able to teach while working. Crew members learned about the operational definition of savanna, the identifying characteristics, the dimensions necessary to recruit certain bird species, the historical extent of savannas throughout the Upper Midwest, maintenance requirements and ecological threats, and much more. For their part, the CCI crew consisted of exceptionally curious individuals, all students of conservation, who took every opportunity to ask questions and learn the "why" for every "what."



Savanna in Clayton County before and after restoration

The presence of knowledgeable professionals throughout their time on the project created a considerably more meaningful experience for the crew members, according to their own unsolicited testimony. At the end of their project, the members expressed that it was "easily their favorite project," not only because of the gratifying work itself, but because they gotten a chance to work closely with site hosts who supplemented that work with a steady diet of resource knowledge. Crew members expressed that this was not a typical part of their experience, and that it made their time much more enjoyable.

Furthermore, providing a more meaningful experience has yielded meaningful benefits. One student from that CCI crew, now at Drake University, has spearheaded a partnership between Drake's environmental studies program and the CCCB. The university hopes to use CCCB properties for capstone research projects, including floral and faunal inventories and the associated development of

storymaps – interactive, online versions of those inventories detailing the resources of a given site. Additionally, that same CCI crew member has launched a partnership between Drake's Zoo & Conservation Science concentration and the Osborne Native Wildlife Exhibit, providing an opportunity for students to study and improve the care of live animals housed at the Osborne Nature Center.

While the original vision for the Young Conservationist program did not come to pass, the broader goals certainly did: the CCCB was able to leverage INPS funds into an opportunity to connect young people with meaningful, hands-on restoration experience and detailed lessons on the science behind land management decisions. By providing the means to create this experience, the INPS facilitated a long-term partnership between exactly the demographic "Young Conservationists" targeted and the Clayton County Conservation Board. This partnership will lead to a better understanding and management of the resources available at Clayton County parks, and a better engagement with the public to which they belong.

The CCCB thanks the INPS for its contribution, without which these developments would not have come to pass. Without the funds, the CCCB would have never attempted the Young Conservationist program or identified the Motor Mill savanna project. Without identifying that project as an organizational imperative, the CCI crew would have never been hired and the subsequent partnership with Drake University might never have evolved.

"Land Management Kits for Land Ambassadors (Volunteer Program)," \$700.

Awarded to Melanie Louis, volunteer coordinator for the Iowa Natural Heritage Foundation, Des Moines.

With the \$700 awarded to the Iowa Natural Heritage Foundation, the Volunteer program has successfully purchased ten Land Management kits for the Land Ambassador program. These kits contain hand tools for various sizes of brush, appropriate chemical/applicators, and PPE (protective gear for the volunteers). This year we have added two more Land Ambassadors (LA) to our current four dedicated volunteers in the

program. These Land Ambassadors are responsible for the stewardship and management of properties in Marion and Jones County. The Land Management kits allowed these volunteers access to appropriate tools and gear to accomplish their work. The Volunteer Coordinator and staff continue to look for opportunities to engage volunteers to participate in the program, and are currently working toward getting a Land Ambassador in Dickinson County (one of the priority areas addressed in the grant application). INHF is very appreciative of the generous grant that Iowa Native Plant Society has awarded to the Volunteer Program. Our volunteers are grateful too!



Volunteer treating stump makes use of Land Management kit

Linda Scarth Memorial "Restore Iowa!" grant award: "2018 Summer Youth Corps Activities," \$925. Awarded to Erika Schoenberg, Youth Corps Coordinator for Polk County Conservation, Granger, IA.

The Polk County Conservation Youth Corps (PCCYC) mission is to engage and inspire diverse youth through hands-on environmental stewardship projects, outdoor recreation, and conservation education. This summer, PCCYC employed 27 teens ages 15-18 from diverse socioeconomic and ethnic backgrounds to work for two 4-week sessions in parks and trails managed by Polk County Conservation.

Youth Corps crews were mentored by three crew leader staff who taught lessons about land stewardship, leadership, ecology, tool safety, and teamwork while providing on-site guidance. Each day, crew leaders and supervisors facilitated environmental education as crews completed

restoration work throughout Iowa's wetland, prairie, and woodland habitats.

For this grant supported project, PCCYC crews were educated about invasive plant species in Iowa, woodland management, and proper removal and prevention of oriental bittersweet in a section of Fort Des Moines Park. Appropriated grant funds were used to purchase tools such as hand pruners, bow saws, bypass loppers, pole saws, and safety glasses to remove a specific section of invasive oriental bittersweet and other invasive plants. Youth crews understood that the removal of these invasive plants would allow sunlight to reach the forest floor, allowing native trees to thrive.

The division manager of Polk County Conservation's Natural Resources department recommended we target a 1.06 acre area of woodland that was completely suffocated by oriental bittersweet and preventing new growth of quaking aspen trees and a stand of old oak trees. Prior to our work, only the top canopy of the aspen trees could be seen with no visibility of the aspens from a nearby trail.



Part of the "Free the Aspen" crew

With this project goal, the crews were excited and ready to "Free the Aspen," which became our project name. The crews followed the vines to the base and removed the vines, as high up the tree as possible, to untangle and free younger trees. The cut sections were immediately sprayed at the base with triclopyr. Follow-up treatment was conducted by the Youth Corps crews several days after the initial work to make sure all the vines were dead and reinforced their work by cutting and treating remaining vines. Polk County Conservation staff

plan to burn the area this fall to supplement our work.

We are grateful to the Iowa Native Plant Society for selecting our program as recipients of the Linda Scarth memorial grant. Youth Corps crews learned first-hand about the damage an invasive species plant can cause in a community of trees, the work it takes to restore an area, and the satisfaction of a job well done. This project allowed 27 diverse youth to experience restoration work this summer, and future PCCYC crews will be able to expand on our 2018 accomplishments.

Upcoming Events:

Invasive Species Workshop – "What Has Wandered Into Your Woods?"

Friday, February 1, 2019; 9:00 a.m. – 3:00 p.m.; registration starts at 8:30 a.m.

E.B. Lyons Interpretive Center, Mines of Spain State Recreation Area, 8991 Bellevue Heights Road, Dubuque

Registration fee: \$10, covers lunch and handouts
Register by January 29th at

www.TreesForever.org/WanderedIntoYourWoods



Hear from experts on how the state park cares for native trees and plants, including how they are dealing with invasive plants such as Oriental bittersweet, which chokes out native trees. Learn how to identify,

treat and remove invasive species. Discover the importance of native plants. Native plants provide more benefits for the environment than nonnative plants, including better food and habitat for animals and pollinators. Help us protect our native ecosystem

by removing invasive species and implementing sound land management practices.

Questions? Contact: Emily Swihart, eswihart@treesforever.org, 563-260-1000

Sponsored by Trees Forever, the Iowa DNR, the U.S. Forest Service and OperationPollinator.

11th Annual Day of Insects

Celebrating an Annual Day of Insects

Reiman Gardens is so enthusiastic about insects that we set aside a special day just for them every year. Our annual Day of Insects brings together professionals, academics, advocates and enthusiasts of all levels from across the country to explore and celebrate entomology (the study of insects). Topics often include insects native to Iowa, exotic insects, endangered insects, conservation efforts and new educational programs aimed at advancing the appreciation of all invertebrates.

Events are open to anyone interested and also include informal time for food and socialization on the night before the Day of Insects, and snacks and lunch during the day.

Again this year we will be offering four different workshops on Friday afternoon on invertebrate related topics for those interested in attending. These workshops are offered in two different time blocks so you will need to decide which topic you are most interested in. Individuals can participate in the workshops regardless if they are attending any of the other DOI activities.

For individuals who are in town early the night before, we will have an opening reception. Come, be casual, enjoy dinner, and get to know other insect enthusiasts – there are more of us than you think. Anyone attending DOI can sign up to attend the reception and there will be some slots made available for individuals unable to attend DOI so they can participate as well.

WORKSHOPS (Friday, March 29)

***Each workshop has a 20 person limit.**

12:45-2:45 p.m. – **“What to do with photos and specimens.”** My method for curating specimens and cataloging photos. Presented by Jim Durbin

12:45- 3:20 p.m. – **“Iowa Butterfly Survey Network Training”**

3:00-5:00 p.m. – **“Identification of moths”.**

Using body and wing shape to identify to family. Using the Moth Identification program to identify specimens. Presented by Jim Durbin and Moni Hayne.

OPENING RECEPTION – (Friday, March 29)

6 p.m. – 8:30 p.m. Dinner, Keynote presentation and behind the scenes Reiman Gardens entomology tour.

Keynote: **“Beauty, Diversity, and Society: Insect Surveys in a Changing World”** presented by Riley Nelson.

PRESENTATIONS (Saturday, March 30)

9:10-9:30 a.m. – “Bumblng After Bumblebees: The Search for the Endangered Rusty-patched Bumblebee in Iowa” presented by Stephanie Shepherd, Iowa DNR

9:30-9:50 a.m. – “Planted Prairies: Are They Functioning? What Can Insects Tell Us?” presented by MJ Hatfield, Oneota Biological Field Station

9:50-10:10 a.m. – “Not So Fast, Beetles! Why Hymenoptera is the Largest Animal Order” presented by Andrew Forbes, University of Iowa

10:10-10:30 a.m. – “Gym-N-Eat Crickets: The Unlikely Adventure of Raising Crickets for Human Consumption” presented by Shelby Smith

11:00-11:20 a.m. – “Muscatine Pollinator Project: Many Hands Make Light Work” presented by Paul Mayes and Dave Cooney

11:20-11:40 a.m. – “Domestication and Insect Evolution: Exploring the Role of Agriculture on Specialist Fruit Fly Speciation” presented by Alaine Hippee, University of Iowa

11:40 a.m.-12:00 p.m. – “Bee Visitors and Residents in an Atypical Suburban Yard” presented by Stephen Johnson

12:00-12:20 p.m. – “Where We Are With Moths in Iowa” presented by Jim Durbin

1:20-1:40 p.m. – “Using Insect Hotels to Improve Biodiversity at the La Crosse County Landfill” presented by Ben Gibson & Ted Wilson, Viterbo University

1:40-2:00 p.m. – “Does Host Plant Matter? Divergence in the Redheaded Pine Sawfly” presented by Robin Bagly, University of Iowa

2:00-2:20 p.m. – “Omaha Bug Symposium: Science for Adults” presented by Dave Crane and Andy Matz, Omaha Bug Symposium

2:20-2:40 p.m. – “Moth Assemblages of Oak-Hickory Forests and Planted Tallgrass Prairies in

Luther College's Natural Areas" presented by Lena Schmitt and Kirk Larsen, Luther College

3:10-3:30 p.m. – "Butterflies of Nachusa Grasslands" presented by Wayne Schennum

3:30-3:50 p.m. – "The Impact of Prairie Restoration on Insect Communities" presented by Susan Villarreal, Grinnell College

3:50-4:10 p.m. – "The Hunt for the 'Lost' Red Milkweed Beetle" presented by Marlin Rice

TO REGISTER ONLINE FOR DAY OF INSECTS, go to:

<https://www.reimangardens.com/collections/insects/day-of-insects/>, then find the "CLICK HERE" to register. Attendees must register by March 25, 2019.

Other Information:

Silent Auction to support Plant.Grow.Fly.

During DOI, we will be holding a silent auction for participants at DOI to bid on. If you would like to participate in the auction and can bring items for the auction, they can be dropped off at registration in the morning for DOI. This year all proceeds from the auction will go to supporting the Plant.Grow.Fly. program.

Hotel Information

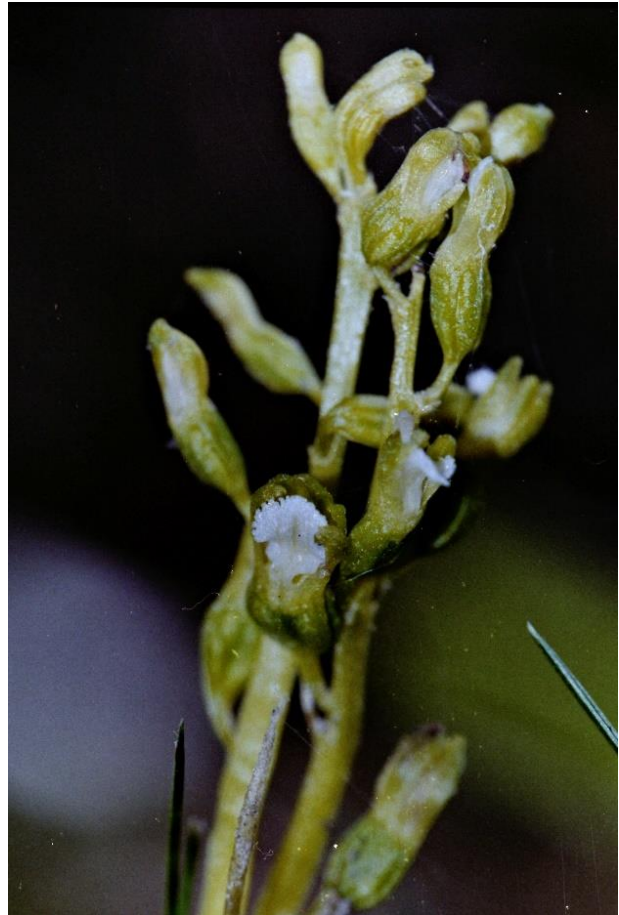
If you are looking for a hotel to stay in while you are in town for DOI, Gateway Hotel & Conference Center has a DOI rate of \$109 a night if you mention "Reiman Gardens' Rate" when you call and make your reservation: Gateway Hotel & Conference Center, 2100 Green Hills Drive, Ames, Iowa, 50014

Phone: 515/292-8600; Fax: 515/268-2224

For more information, contact Nathan Brockman at mantisnb@iastate.edu.

Article: Autumnal conundrums: Green coral-root orchids and twin leaf oaks, by Stephen Johnson

In late summer 2006 I stumbled upon two engaging plant phenomena. The first occurred at Fifield Park along the shores of Lake Red Rock when my friend Mary Stark, Professor of environmental literature at Central College, found a cluster of three lime green fall coral-root orchids (*Corallorhiza odontorhiza*) by a park bench. The plant looked far more like its northern congener, pale coral-root (*C. trifida*) which we recall seeing



Green form of Corallorhiza odontorhiza in northern Minnesota. Looking into the adjoining woods we located perhaps eight more plants and over the next five years I, or we, returned to check on them. First, the limited scientific literature devoted to this species indicates that while the pale yellow-green stemmed *C. odontorhiza* is not necessarily rare, it is typically only a minor part of a fall coral-root population. So, I went back to walk the Fifield forest and assess the green coral-root population one early autumn day in 2007. While dodging frequent encroaching leaves of poison ivy (*Toxicodendron radicans* var *negundo*), extensive expanses of white snakeroot (*Agertina altissima*) and orchids blending in with heart-leaved aster (*Symphotrichum cordifolium*), I counted thirty-one green *C. odontorhiza* and only two clumps (a total of five stems) of the normal purple-brown coral-roots, a distribution decidedly skewed from what the published literature indicated. So, to document its various aspects and keep it distinct from the normal variety in my notebook, I initially called it *C. odontorhiza* var *flava*. I found in *Gray's Manual of Botany* a reference by Harvard botanist Merritt Lyndon Fernald to a pale-yellow fall coral-root given

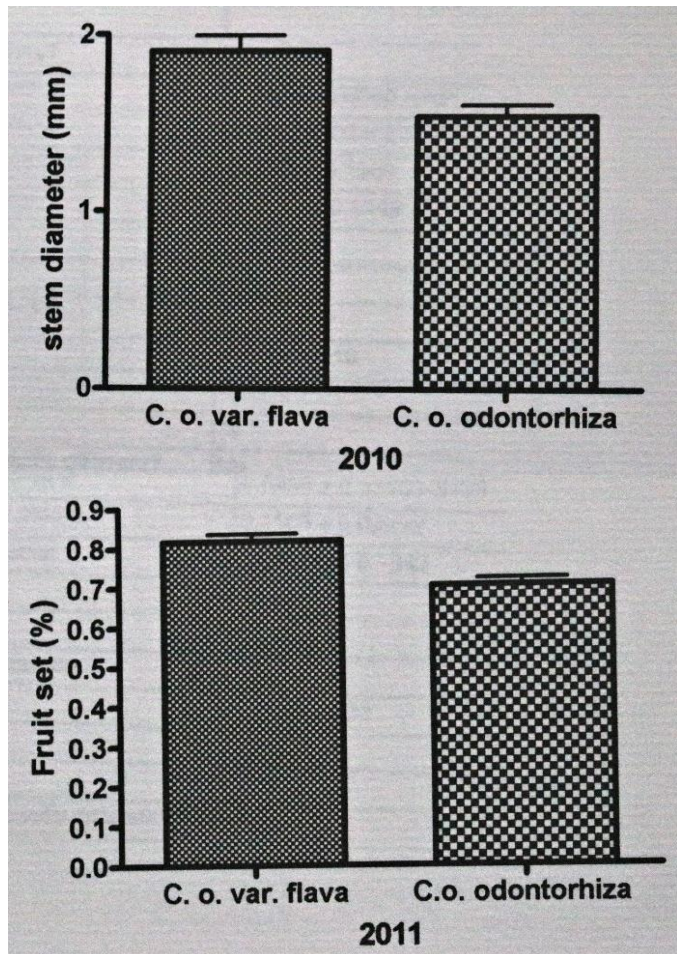
the descriptor forma *flavida* (Wherry). So I subsequently chose to call the coral-roots I saw forma *flavoviridis* because, while they could be construed as faintly yellowish, I saw them as decidedly lime fruit-pulp green in color.

One of our first investigations was to explore the pigmentation of the green *C. odontorhiza*. For this we undertook an alcohol extraction using 95% ethanol and a coffee filter. For comparison I also performed the extraction on a garden basil leaf. The results were clear; where basil had strong chlorophyll *a* and *b* lines as well as reddish and brown accessory pigments; the coral-root orchid showed only a clear but weak chlorophyll *a* line. The faintness of the line may also relate to the small tissue sample; I only used a single stem.

We were both familiar with the typical purple *C. odontorhiza*, having seen them many times over 15 years at two other parks: North Overlook nature trail close to Pella and about mile east of Fifield and Cordova County Park somewhat less than a mile to the west of Fifield. Both of these parks support only normal purple fall coral-root plants and showed no evidence of any green coral-root plants. Each of these coral-root orchid habitats is separated from the others by a distance of about one mile so it is likely that each acts as a distinct population.

For another project I decided to compare differences in plant robustness between normal vs green coral-root plants by taking stem diameter measurements carefully using digital calipers. I found twelve to fifteen green coral-roots sufficiently distant from conterminous poison ivy and about twenty-five purple coral-roots from populations at Fifield, North Overlook and Cordova. Upon statistical analysis I found that the stem diameters of green coral-roots were significantly larger than those of the purple coral-roots. The greater diameter stems of the green fall coral-roots may also convey to these plants a higher water carrying capacity.

In another year I first counted initial developing flowers on green and normal fall coral root plants and returned later to count the number of mature fruits on the same plants again in order to express results as a percentage of initial flowers vs successfully formed fruits; again, the green late coral had a significantly higher percentage of successful fruit maturation.



But by the late summer of 2011 severe drought set in. I hypothesized that with the minor help of chlorophyll *a* photosynthesis, the green coral-root orchids may provision an associate mycorrhizal fungus and hence persist longer than the normal plants. I found that they did, but only by a matter of about a week, and by Halloween of 2011, no orchids could be located. We returned in 2012, another drought year, and no orchids appeared. As a final insult to the green coral-root population, a new practice of brush clearing became the management style at Lake Red Rock and the entire habitat of Fifield was altered presumably so that motorists could see the lake from the access road. Mary and I visited in fall of 2016 and saw extensive colonies of rambling blackberry (*Rubus* sp.) and checked the place where we saw the very first green coral-root and saw instead a white sea of late summer flowering thoroughwort (*Eupatorium serotinum*).

While looking for normal late coral-root orchids at North Overlook, I serendipitously came to a place beneath a white oak (*Quercus alba*) tree, scanned the leaf litter, and did a double-take. Before me was a pair of leaves, but they were attached to a common

leaf base! I picked up the twin-leaf and wondered what might cause this early leaf-developmental “error.” Before too long beneath this white oak, I found seven completely distinct twin leaves and four of a slightly different variety where leaves began as one but split later in development so the leaf bases to one degree or another were one, but the mid-leaf to leaf tips were distinct. As I began to encounter more, I gave the twin leaves the descriptor of *geminophylls* while the others as split leaves were given the name *schizophylls*. As my best educated guess these phenomena constitute perhaps no more than two to three percent of the whole leaf population of a single tree, and only about 30% of all white oaks actually exhibited this phenomenon.



“*Geminophylls*”

At first I thought that the *geminophylls* would have the same overall leaf area of a single leaf, as if the tissue allotment would be the same and the two halves of *geminophylls* should be equal to the same leaf area as an adjacent single leaf. Dropped branches containing *geminophylls* told a completely different story. It turns out the each half of a *geminophyll* is equal to or only slightly smaller than a nearby single leaf indicating that *geminophyllous* buds allot about twice as much tissue to leaf area as a single leaf bud. Could this translate to a small uptick in local photosynthetic rate but also concomitantly, a doubling of local evaporative water loss?

Geminophylls and *schizophylls* were found on white oaks at North Overlook at both the nature trail and along the Volksweg Trail. I even found a single *geminophyll* on a street white oak tree in Tomah, WI. This phenomenon was never found on a northern red (*Quercus borealis* var. *maxima*) or black oak (*Q. velutina*), nor was it seen on bur oak (*Q. macrocarpa*), a closer relative.



“*Schizophylls*”

I sent a pressed *geminophyll* specimen to Donald R. Young, my former advisor at Virginia Commonwealth University, who showed the twin-leaf to the department botanist who, Don told me, “had never seen anything like it.” This year I placed a photograph of a *schizophyll* on the Facebook Botanical Wanderer Group and the few who responded found it fascinating and as a consensus, respondents echoed the themes of “I’ve never seen this before” and “I must go outside and look at leaves.”

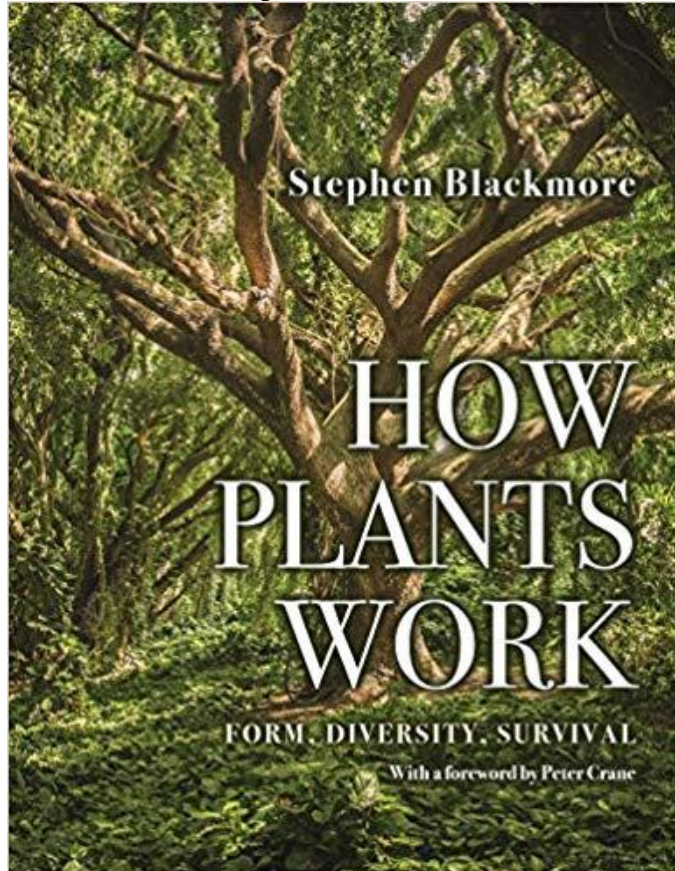
Book review: *How Plants Work – Form, Diversity and Survival*, reviewed by Rob Nicholson

The first thing that one notices about this book is how lavishly it is illustrated. Virtually every page features detailed, colorful photographs and drawings of plant life, ranging from the microscopic level to the landscape level. Indeed, the book is so stunning visually that it might well be of interest to artists and designers as well as botanists.

Yet it is no mere coffee table book. Edited by Stephen Blackmore, the Queen’s Botanist and an honorary fellow of the Royal Botanic Garden in Edinburgh, Scotland, and written by him and five other experts, it gives readers a solid grounding in the roles and functions of all types of plants—in other words, in how they actually perform the tasks essential to their survival and proliferation.

Like many botany texts, it takes a morphological approach, dealing in turn with the roles played by roots, stems, leaves, cones and flowers, and seeds and fruits. Not overly technical, it focuses on developing

concepts—explaining in clear, relatively simple terms how the different types of plants have adapted to their environments and acquired the particular properties that they have. There is also a strong evolutionary thread, highlighting the development of the increasingly versatile traits within the world of plants.



In addition, *How Plants Work* is a virtual treasure trove of botanical tidbits. I was not aware, for instance, that the discovery of 300-million-year-old fossils of glossopterid leaves in Antarctica, along with their known occurrence on other continents, was instrumental in inferring the existence of the supercontinent Gondwana. Nor did I know that certain flowers “lace their nectar with caffeine, nicotine, and other addictive substances” as a way of ensuring the fidelity of their pollinators. Because the book consists of short sections with numerous sidebars, readers can easily sample the portions of most interest to them as well as reading the book straight through.

Despite the richness of its detail, however, *How Plants Work* seems intended for avid amateurs rather than serious students (either in or outside of the classroom). It entirely omits discussion of the chemical processes underlying such key functions

as photosynthesis and respiration and is somewhat cursory in its treatment of genetics. Nor, surprisingly, does it give much attention to ecology and systematics. But it is overwhelmingly successful at its primary purpose, which is to give ordinary educated readers an understanding of how plants actually function and—hopefully—a heightened awareness of their overwhelming importance to human life. It is certainly worth a look, and probably a place on your bookshelf (or coffee table) as well.

How Plants Work is available for \$35 from Princeton University Press (www.press.princeton.edu).

History of the University of Iowa Herbarium (IA)

continued from page 1

Robert F. Thorne (1950-62) joined the University of Iowa (UI) faculty and succeeded Anderson as the Curator of Vascular Plants. His dream of producing an Iowa Flora ushered in a new era of plant taxonomy at the University. He and his students accomplished both floristic studies of counties and regions of Iowa and those of plant families occurring in the state. Unfortunately, this project had not been completed by the time he left UI for Rancho Santa Ana Botanical Garden and Claremont Graduate University.

Thomas E. Melchert (1963-82) was named Curator of Vascular Plants following Thorne’s departure. Robert L. Hulbary (1963-81) assumed the role of the Curator of Bryophytes. During this time, some of IA’s holdings were dispersed, including most of the Myxomycete collection (~8500 specimens) sent to BPI and the entire lichen collection containing more than 5000 specimens sent to MIN.

The last Director of the Herbarium and Curator of Vascular Plants and Bryophytes was Diana G. Horton (1983-2004 (as Director)). She focused her efforts on floristic studies, including Iowa’s rare species, and on mosses.

Plant.Grow.Fly.

Plant.Grow.Fly. continues to have the support of INPS. We encourage you to register your garden and indicate INPS “sent you.” Their website includes lists of suggested host and nectar plants and you will be

pleased with the number of natives included. Thank you to Jessie Lowry, Blank Park Zoo's Director of Conservation and Research, for initiating and leading this effort to improve the prospects for our native pollinators.

Sarah Nizzi has stepped up to represent INPS at Plant.Grow.Fly. events. Her position as Farm Bill Pollinator Conservation Planner and NRCS Partner Biologist at the Xerces Society for Invertebrate Conservation is a natural fit. We thank her for volunteering for INPS.

If you have not heard Doug Tallamy speak about the importance of native plants to our native pollinators, he will be speaking at the Blank Park Zoo on February 7. His talk is entitled Restoring Nature's Relationships at Home, part of the Zoo's "Hope for the Wild" speaker series. For more information, call 515-974-2628 or email events@blankparkzoo.org. <https://www.blankparkzoo.com/conservation/plantgrowfly/>



Have You Paid Your 2019 Dues?

If not, INPS Treasurer Bill Blankenship will be happy to receive them! As always, the membership form is available on the back page of this newsletter, and dues will also be collected at the Iowa Prairie Network Region 5 Winter Seminar (the seminar is described on pg. 3.)

Thank You to Our 2018 Contributors!

We wish to thank all INPS members who have joined or renewed their membership for 2018 and hope you will do so for 2019! We are especially grateful to those who contributed more than the basic dues. Those who made contributions of at least \$25 in 2018 are listed below.

\$100 - \$200: Bill and Dianne Blankenship, Sibylla Brown, Ron and Barb Eckoff, Ray Hamilton, Mary

Jane Hatfield, Beth J. Henning, Joe Holland, Christine and Roger Kirpes, Bill and Judith Klink, Peter R. Kollasch, Steve Schomberg, Bill and Dotty Zales, Elisa Zappacosta

\$50 - \$99: Margaret Bailey, Mary Brown, Lloyd Crim, Tammy S. Crossmon, Mary Damm, Donald D. Draper, James Fluck and Julie Scott, Gerald Ford, Nancy Forrest, Ron Gamble, Patricia J. and Dave Hansen, Joyce Hornstein, Carter Johnson, Steve and Karen Laughlin, Dan and Cyndia Mays, Marlene Michel, James and Rose Marie Monagan, Susan Siev, Bill Watson, Mark Widrlechner

\$25 - \$49: Alice Atkinson, Steve Beaumont, Janine Bennett, Jane Clark, Fred Crane, Rob Davis, Jean Day, Michael DeCook, Pauline Drobney, Mark Edwards, Bruce and Marlene Ehresman, Beverly Foote, Luke and Sally Gran, Tom Gust, Suzanne Hawkinson, Ken and Charlene Heiar, Jo Hudson, Ben Johnson, Michael Meetz, Eileen Miller, Shami Lucena Morse, Bill Muhs, Connie Mutel, Lael Neal, Donald Nelson, Robert E. Nicholson, Carl Nollen, Sam Overturf, George and Trish Patrick, John and Shari Paule, Glenn Pollock, Rex Rundquist, George and Alliene Schrimper, James R. Scott, Leland Searles, Melissa Serenda, Nancy Slife, Jon and Kathy Steege, Sandy Steinbach, Russell Tabbert, Sue Travis, Peter and Judy Van der Linden, Nancy Wehrheim, Paul Weihe, Fred Wiegert, Danielle Wirth

Special thanks to Jane Clark for extra support for honoring John Pearson at our annual meeting and Loren Lown at the IPN Winter Seminar and to David Marlow for a gift in memory of Anna Gardner

2019 Loess Hills Prairie Seminar, May 31st – June 2nd



Blue-eyed grass, photographed by Don Poggensee during the Loess Hills Prairie Seminar

Membership Form

Name: _____

Address: _____

City, State: _____ Zip code: _____ County: _____

Phone: _____ Email Address: _____

Membership categories and dues:

____\$10 Member, please add \$5 for receiving newsletter by US Post; ____\$25* Anemone, ____\$50* Botrychium,
____\$100* Calamagrostis, ____\$150* Dodecatheon, ____\$200 and up* Erythronium, ____\$5 Student (one-time
payment while a student)

Send with your dues to: Bill Blankenship, INPS Treasurer
737 Buckwalter Drive, Sioux City, IA 51108

I wish to receive my newsletter via: email _____ USPS _____

INPS Endowment – information about the endowment and how to contribute, as well as a link for donations are available at:
<http://www.communityfoundationofjohnsoncounty.org/give/established-funds-z-partners-philanthropy/iowa-native-plant-society/> (See our website at www.iowanativeplants.org for more information.)

The INPS mailing list is never distributed to other organizations or companies.

Dues are payable on a calendar year basis from January 1 to December 31. Please use this form for changes of address.

* Annual contributions over \$10 are tax deductible. Iowa Native Plant Society is a 501(c)(3) non-profit organization.

INPS NEWSLETTER

c/o Deb Lewis, EEOB Dept.

Iowa State University

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