



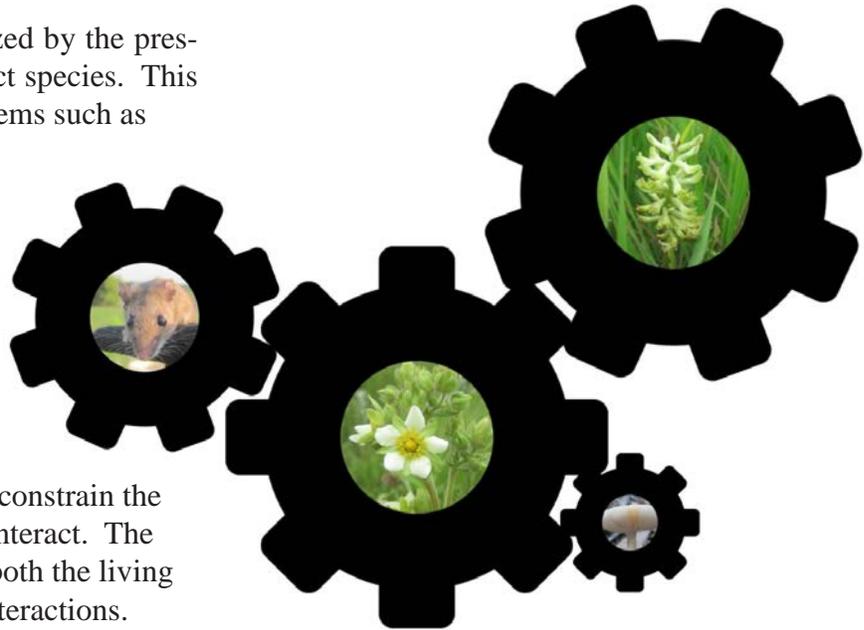
Erythronium

Newsletter of the Iowa Native Plant Society vol. 19 no. 2 December 2013

Clockwork Prairie: A systems view of life

Elizabeth Bach

Ecosystems are commonly characterized by the presence of specific plant, animal, and insect species. This can present challenges for defining systems such as the tallgrass prairie, which contains no endemic species (Steinauer & Collins 1996). “Prairie” species actually evolved, and can be found, in other habitats such as woodlands and wetlands. Yet, a prairie is a distinct and charismatic ecosystem. What makes prairie distinct is the *combination* of living organisms found there. Factors like climate, soils, fire, and topography constrain the types of organisms that can thrive and interact. The concept of an ecosystem encompasses both the living and non-living components *and* their interactions.



The term ecosystem was coined in 1935 by Sir Arthur George Tansley, the father of British ecology, to describe “a *system*, of which plants and animals are components, though not the only components” (Tansley 1935, emphasis is original). By considering organisms as a component of a system, Tansley considered the exchange of resources, such as energy and nutrients, between organisms and their environment to be the defining factor for biological assemblages. The components of the system are analogous the gears of a clock turning together to keep time. Each gear, or component, is essential, but it is a timely clock, the ecosystem itself, that is of greatest importance.

Hand-wound or battery powered, our clocks, much like the ecosystems, need energy to keep time. Energy is a fundamental flow through ecosystems. All organisms need energy to grow and move. Carbon (C) is the currency of energy. Plants capture sunlight energy to build bonds between C atoms acquired from carbon dioxide (CO₂) in the air. Resulting molecules are used to produce roots, leaves, stems, flowers, and seeds. Insects and animals that feed on plants use this C to build tissues, move about, and keep warm. The transfer of C energy continues up the food chain as preda-

tors eat insects and small mammals. The C energy cycle is completed when fungi and microorganisms break down dead plant and animal tissue, incorporating some C into growth and respiring some as CO₂, which can be incorporated into new plant growth. Interactions between soils, decomposers, and dead plant and animal material determine how much litter C energy is used. “Leftover” C energy in dead materials, including dead microbes, remains in soil. In prairies, climate and disturbances such as fire and grazing constrain the rate at which this stored energy is released so that decomposition is much slower than soil

continued on page 3...

Table of Contents

Leaves from the President’s Notebook	page 2
Minutes from the INPS Annual Meeting	page 4
More Useful Websites	page 5
2013 INPS Small Grant Awarded	page 5
2014 Grants Call for Proposal.....	page 6
Book Review.....	page 7
Membership Form.....	back page

President:

Linda Scarth, Cedar Rapids, IA

scarth@infionline.net

www.scarthphoto.com/wp/

Vice President:

Open

Secretary:

Interim: Dianne Blankenship (see below)

Treasurer:

Peter Hoehnle

Iowa Valley RC&D

920 48th Avenue, Amana, IA 52203

peter@ivrkd.org

INPS Board Members:

Dianne Blankenship, INPS contact for web-site, field trips, and calendar

Sioux City, IA

bennaid@hotmail.com

Jane Clark, INPS contact for issues and action
Clive, IA

jrclark@radiks.net

Lloyd Crim Boone, IA

lloydcrim@gmail.com

Rose Danaher, INPS contact regarding honors
Ames, IA

okmagic@gmail.com

Pauline Drobney Prairie
City, IA

pauline_drobney@fws.gov

Brian Hazlett Sioux City, IA

Brian.Hazlett@briarcliff.edu

Deborah Q. Lewis, INPS contact for
newsletter

Ames, IA

dlewis@iastate.edu

Connie Mutel, INPS contact for grants
Solon, IA 52333

Connie-mutel@uiowa.edu

Non-board assistance:

Lisa Harmison, Newsletter Layout

lisa@octabode.com

Liz Aderhold

Website (please contact Dianne Blankenship
as above)



Printed on recycled paper.

Leaves of the President's Notebook

Whenever there is talk of what makes a native, I think of the obituary I heard on an Athens, GA radio station shortly after we moved there after my husband had finished his PhD. The announcer read (and I paraphrase), "though not a native Athenian, she lived 98 of her 99 years in Athens." I am an admirer of native plants and think they should be encouraged in wild and domestic landscapes. However I often ask myself, native to where, when?

I also look at definitions of native species because I am interested in the differences and similarities from one to another. One of the most dominant features in many such definitions is time dependent. The coming of Europeans to a geological location at a specific time seems to be the dividing line between a pristine native species collection and one that has been altered or contaminated by humans. Of course, knowing what was there is often dependent on the accounts of Europeans. That could be seen as just another one of the Eurocentric views of the world.

One can wonder if the Incas took plants that turned out to be successful transplants with them in their domination of the pampas of southeastern South America. If they did, were they not altering the native vegetation? Or did the people who crossed the so-called Bering land bridge between what we now call Asia and North America bring any plants with them that naturalized and possibly evolved into relatives of Asian species? They certainly were here before Europeans. These are hypothetical challenges to the definitions that insist that European modification of a plant community is a key ingredient.

Another feature of many definitions is seen in the U.S. National Arboretum's statement that "A native plant is one that occurs naturally in a particular region, ecosystem, or habitat without human intervention..." It goes on to use the European arrival in North America as the dividing line. How did maize native to Mexico reach the Ohio Valley without human intervention? It and probably other plants were moved there before Europeans. Some definitions do include indigenous people as part of the human intervention component though most ignore it. And what is "human intervention"?

This definition keeps open the possibility of non-human transport of seeds. Bison and birds are possible transporters. Perhaps some particular transported species found a niche where it had never before existed that was well suited and it stayed to be present when the Europeans arrived.

Other definitions add the caveat that a plant is only native if it has not been changed by artificial selection or human interference. Does that mean that if a pre-European native species picks up some pesticide resistance or other genetic alteration from cross pollination with an altered relative, it is no longer native? Or that the native plants sold

continued next page...

Leaves of the President's Notebook

continued

in nurseries are no longer native because they were grown in pots and not on the land where their ancestors grew?

Some simple definitions ignore the means of transfer and just state that the species has been in the location or habitat in question for many years and therefore is a native. Not quite the same as the deceased lady in Athens, GA. This definition takes all those naturalized plants and animals that were in an area within typical human memory.

A few definitions state that the native plant species must have evolved in North America, sometimes adding that they evolved in a particular plant community. I wonder about all those that evolved elsewhere in the world. Are they not natives of their origins? Or a plant may have evolved in a particular species community and was transported by a non-human and found another equally acceptable environment in which to exist or even thrive, before or after Europeans got here.

This pondering usually also leads me to meanings of restoration of native communities, plants or animals. Since it is often difficult or impossible to know all of what was native to a locale before human (European or otherwise) interference, are we really restoring? Or are we doing what humans have probably always done, decided on what we imagine or hope or just want to see in the habitat and call it restoration of the natives?

Still pondering,

Linda Loos Scarth

scarth@infionline.net

NEW! Student Membership Available

Calling all students – you are invited to join the Iowa Native Plant Society at a special rate! One-time payment of the student membership fee of \$5 will allow you to join INPS, receive the electronic version of the newsletter, and also be eligible for the member discount on any INPS items for the entire time that you are a student. The student membership form will soon be online as a pdf at the INPS Membership tab at <http://www.herbarium.iastate.edu/inps/membership.php>. We welcome you and look forward to your participation!

Clockwork Prairie

continued

C accumulation from dying plant and animal material. Thus, cycling of C energy in prairies is fundamentally different from flows of C energy in other ecosystems such as forest and wetland. In fact, organic-rich soils, a key element in one definition of the term “grassland,” is the product of this unique C cycling in prairie ecosystems (Risser 1988).

Thinking of ecosystems as a circuit of energy, a stable or healthy ecosystem is one in which C energy is recycled efficiently, with few inputs and outputs. The suite of organisms within their climate and geologic context perform these transformations, and the interactions between organisms determine how efficient C energy cycling will be in the system. Losing organisms from a system disrupts the flow, creating spaces where C energy is lost to the atmosphere, through heat and respiration. This results in less energy available for use by other organisms in the system. The loss cascades throughout the system, reducing the number of herbivore, carnivore, and decomposing organisms that can be supported. Plant, insect, and animal species, including rare and threatened ones, are gears in the clockworks of the prairie. An ecosystem perspective views these species not as indicative of what the vast prairies once looked like, but as an indicator of how that system *functioned*. Protecting and reconnecting the circuitry will enable the prairie to “keep accurate time” now and into the future.

References

Steinauer, E.M.; Collins, S.L. 1996. *Prairie Ecology-The Tallgrass Prairie in Prairie Conservation*; Samson, F. B; Knopf, F.L (eds). Island Press. pp. 39-52

Tansley, A.G. 1935. *The use and abuse of vegetation-al concepts and terms*. Ecology 16: 284-307

Risser, P.G. 1988. *Diversity in and among grasslands in Biodiversity* Wilson, E.O. (ed). National Academy Press. pp. 176-180

IPN Winter Meeting

The Iowa Prairie Network (Central Iowa Region) Winter Meeting will be held on January 18th at DMACC–Ankeny campus. Watch the Iowa-Native-Plants discussion list for more details, or contact Deb Lewis, 515-294-9499 or dlewis@iastate.edu, for more info.

Minutes of the INPS Annual Meeting

28 September 2013, Hitchcock Nature Center, Pottawattamie County

The 2013 annual meeting was called to order by the INPS President, Linda Scarth, at 12:47 pm. Linda welcomed all who were in attendance, with a special welcome for the members of the Nebraska Native Plant Society who joined us for the day.

The minutes of the June 23, 2012, annual meeting were read by Dianne Blankenship, and were approved without corrections.

The Treasurer's report had been submitted by Peter Hoehnle/Lori Schrodemier. It showed a balance of \$9048.01 as the current, available balance, plus two CDs totaling \$5739.06. The Restore Iowa! grant account is tracked separately.

For the INPS grants – the call for proposals will come out soon on the Iowa-Native-Plants discussion list, in the fall issue of *Erythronium* and elsewhere. Deb Lewis mentioned the success of the Restore Iowa! grants in particular in engaging youth in the projects and capturing the interest of various audiences who've heard about them.

New business:

Linda announced that Dianne Blankenship will be this year's INPS Conservation Award recipient! The award recognizes an individual who demonstrates outstanding success in advancing the goals of INPS. It will be presented to Dianne at an upcoming meeting – watch for more details!

Linda reminded us of ways to encourage membership – the website helps, but we should distribute the new brochures in any appropriate places when they're available, continue to set up our display at appropriate meetings across the state, and publicize Iowa Wildflower Month taking place the whole month of May, and also Iowa Prairie Heritage Week in September.

Linda explained the need for separating the roles of secretary and treasurer and put out a call for volunteers or suggestions of those who might serve as INPS secretary.

Jack Phillips, a guest from Nebraska, asked whether we had a student membership rate. Linda explained that we didn't, and that our basic dues are only \$10 per year.

Pauline Drobney suggested that students (and other younger potential members) might be interested in a Plant ID Contest that had multiple levels and publicized the winner.

Deb Lewis has put together a PowerPoint presentation about the INPS that she is willing to share. Perhaps it can be linked to the INPS website this fall for anyone who might be interested in using it or modifying it for their own presentation.

Glenn Pollock announced his ongoing efforts to identify pioneer cemeteries and promote the knowledge about them, including by leading fieldtrips. He has found that this teaches the public that native plants are part of their heritage just as their ancestors are.

Bill Zales noted Chad Graeve's work in the Loess Hills for both natural areas restoration and management and education.

During the Iowa Prairie Conference, Bill Zales had witnessed that at one of the prairies that was visited, the managers had sprayed the native thistles and that the prairie was badly in need of being burned. He suggested that INPS should write a letter to them and cc it to the Iowa Natural Heritage Foundation who had initially purchased the property. The letter should indicate that the INPS makes a friendly suggestion, hopefully to improve the management of the prairie, and if they have any questions, they could contact someone in the INPS and/or the staff at Luther College. Bill's suggestion became a motion that passed unanimously that such a letter be sent.

Bill also pointed out the importance of promoting our fieldtrips, workshops and meetings to the staff and board members of the County Conservation Boards, The Nature Conservancy, the Iowa Natural Heritage Foundation and other organizations to hopefully encourage their attendance.

Attention was brought to the recent and ongoing research on filter strips and similar practices on ag lands. It was suggested that an article could be included in an upcoming newsletter about the STRIPS project in hopes that it would encourage the use of these practices more broadly.

continued next page...

More Useful Websites

Linda Scarth, our INPS President, included a list of useful websites in last December's (2012) issue in the article titled "Linking to Native Plant Information". If you missed it, the newsletter issue is online at <http://www.herbarium.iastate.edu/inps/newsletters/December12.pdf>

Here are some additional links listed alphabetically that may be helpful, especially for information about Iowa's plant species:

Flora of North America (technical reference, only partially completed) – www.efloras.org/flora_page.aspx?flora_id=1

Grasses of Iowa – www.eeob.iastate.edu/research/iowagrasses/

Iowa plants – <http://plantsofiowa.com/> (Thanks to Nick Stoyloff for getting this info online! More about this website in the next newsletter.)

Missouri Plants – www.missouriplants.com

USDA Plants – <http://plants.usda.gov/java/>

Wisconsin plants – <http://wisplants.uwsp.edu/wis-plants.html>

There are lots of others, but these, along with the Illinois wildflowers site that Linda included, are usually the first ones that I try when needing to track down information, photos, etc. (and are more reliable than a simple "Google Image" search).

Deb Lewis

Minutes of the INPS Annual Meeting

continued

Practical Farmers of Iowa will hold their annual meeting in January, and it would be good to have an INPS presence there.

Jack Phillips announced that he can grow locally collected acorns into saplings that can be returned to be used in conservation plantings. Anyone interested can contact him for more information.

After thanking Chad for hosting us and leading the morning and afternoon fieldtrips at HNC, the meeting was adjourned at 1:40 for the afternoon fieldtrips.

Lee Goldsmith (Director of Education and Outreach, Brenton Arboretum) received \$1000 for "Natives for Stormwater Management."

Now you see it, soon you won't! The Brenton Arboretum received a 2013 INPS Small Grant for training and education to educate public and municipal audiences about stormwater management. This self-led walking tour introduces the concepts of stormwater infiltration and erosion control as stormwater management practices. Native perennials, grasses and trees that help improve infiltration and prevent streambank erosion are indicated with blue markers. Visitors are led to markers where they can scan a QR code to learn about the plants they see before them. Improved knowledge of practical benefits of native plants can enable all to better manage stormwater and improve water quality. With simple modification in our landscaping philosophy, stormwater runoff we see today will soon disappear from sight, into the ground.



Your Help Is Requested!

Your time or thoughts or willingness to participate is needed for the following:

1) The INPS Board is seeking to fill various roles. If you wish to be more actively involved in INPS, please contact our INPS President, Linda Scarth (contact information is provided on page 2).

2) This spring, instead of Iowa Wildflower Week, we'll observe Iowa Wildflower Month. All kinds of activities – walks, workshops, readings, etc. – have taken place during the Iowa Wildflower and Prairie Heritage weeks in past years. If you or an organization you are affiliated with would like to participate and have an activity announced as part of IWM, contact Dianne Blankenship.

3) It is also not too early to be thinking about fieldtrips and similar activities for the 2014 season. Let Linda, Dianne or any other INPS Board member know of your ideas and willingness to lead and/or host a fieldtrip.

Thanks for your ideas, help and other support for INPS!

Have You Paid Your 2014 INPS Dues?

Native plants may be hibernating, saving their energy for a beautiful show next year. But before you settle in for the winter, please renew your membership (or join) the Iowa Native Plant Society. A membership form pdf is linked to this INPS web site:

<http://www.public.iastate.edu/~herbarium/inps/docs/membershipform.pdf>

Although any donation about your basic dues is greatly appreciated, various levels of contributions have been established: \$25 – Anemone; \$50 – Botrychium; \$100 – Calamagrostis; \$150 – Dodecatheon; \$200 or more – Erythronium. All contributions above the basic dues are tax deductible; the Iowa Native Plant Society is a 501(c)(3) non-profit organization.

Send your dues and any contributions to:

Peter Hoehnle,
IA Valley RC&D,
920 48th Ave
Amana, IA 52203

Remember that your membership supports the INPS Grant Program, among other activities!

INPS Grants for 2014 – Call for Proposals

Greetings to all you plant lovers and ecosystem managers –

INPS wants your application for an INPS grant!

We have 2 categories of grants:

Our small grants program, which has for several years funded efforts in these fields:

- Land acquisition
- Inventory, restoration, and management of quality native communities
- Native-plant-related research
- Native-plant-related training and education

Our “Restore Iowa” grants program, which started a few years ago, and is aimed at simultaneously restoring native landscapes and getting Iowa’s youth involved in doing so.

We encourage you to consider both types of grants. Applications are due by January 15.

Information and application instructions for both grants are described on our website:

<http://www.herbarium.iastate.edu/inps/grants.php>

These instructions should answer your questions, but if not, don’t hesitate to contact me. I’ll be glad to talk over your ideas with you and help you submit an application that includes what we need to know.

Thanks , Connie Mutel (INPS grant manager)

Connie-mutel@uiowa.edu

319-624-3798 (evenings, weekends)



View from a hill prairie visited during the 2013 Iowa Prairie Conference. Photo by Dan Mays

Book Review

Steyermark's Flora of Missouri, by George Yatskievych, Vol. 3, Dicots, Fabaceae (in part) through Zygophyllaceae. 2013 Hardcover. ISBN 978-0-915279-13-5. 1382 pages, 194 plates (also Vol. 1, Introduction Pteridophytes, Conifers, Monocots. 1999. and Vol. 2, Dicots, Acanthaceae through Fabaceae (first part). 2006.)

I initially used the original *Flora of Missouri* by Julian Steyermark (1963) when I was taking my first undergraduate plant taxonomy and dendrology classes in the late 1970s at Arkansas Tech University. To a budding botanist, such a tome was impressive! Like Iowa, Arkansas did not have a state flora, so we had to use other state's floras for our plant identifications. Admittedly, Steyermark's *Flora of Missouri* was not our first choice, although we had it in our lab as a reference book. Instead, for our identification text, we used the *Manual of the Flora of the Carolinas*. Why? While the species were beautifully illustrated in *Flora of Missouri*, there were no morphological descriptions of the plant families, genera or species – or rather such descriptions as there may be were included in the keys. Thus the keys were cumbersome and difficult for a “newbie”, and other plant features that might confirm the identity were lacking. Still, we often referred to this *Flora* for its maps (did the species come close to Arkansas?), extensive habitat descriptions, notes on plant uses, and other interesting information, along with those wonderful illustrations.

I have used the original *Flora of Missouri* more often for identifying Iowa species (especially those from southern Iowa) since moving to Iowa in 1984 with much more taxonomic/keying experience under my belt. But I started this review with these complaints about this classic text in order to contrast it with the three-volume (each hefty, a combined total of 3500+ pages) revision by George Yatskievych, the final one of which is hot-off-the-press after two decades of hard work since the project's inception.

Unlike the original, the revised volumes include taxonomic descriptions at all levels – family, genus and species, and thus simpler keys since fewer characteristics need to be included in each couplet of the keys. This makes the revision much more approachable for beginners or those with little experience in keying. It is also more easily used by both beginners and those

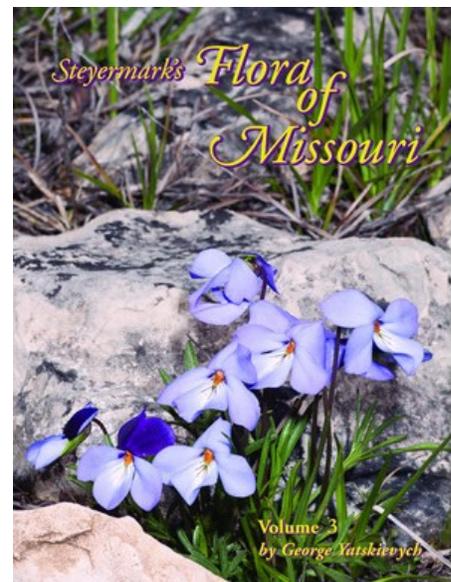
simply looking up information more efficiently in having the taxa largely arranged alphabetically.

But like the original, there are still the extensive and very helpful notes, Missouri distribution maps, and great illustrations. And all of these features, including the accepted taxonomic changes and new additions to the state's known flora over the intervening half-century since the original, are updated to provide current information. For example, I couldn't resist checking my favorite “group”-- Scrophulariaceae in the broad/traditional sense. Indeed, Dr. Yatskievych has followed recent journal publications in the “disintegration” of this large family into smaller, segregate families as a result of a better understanding of the relationships. And some of you may recall an *Erythronium* newsletter article (Vol. 12, #3, October 2006) about similar changes within “Aster” – that information in the article about the changes for Iowa species was almost completely drawn from Dr. Yatskievych's compilation for Missouri.

A down-side may be the cost: at the Missouri Botanical Garden Press, they are, for volumes 1 to 3 respectively, \$38, \$48 and \$65. But considering their in-depth contents, they are worth the price.

Thus, in summary, although titled as *Steyermark's Flora of Missouri*, Dr. Yatskievych has taken the *Flora* far beyond a simple revision. If Iowa only had such a work covering our own flora! But although there are a number of Iowa species not included, particularly of the northern 1/3 of the state, most of them from the southern 2/3rds are, and these volumes will prove to be very useful here in Iowa!

Deb Lewis



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

Send with your dues to: Peter Hoenle,
IA Valley RC&D,
920 48th Avenue
Amana, IA 52203

Additional information or special interest for member directory entry _____

___ Check here if you do not wish to have this information published in the INPS member directory. 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.

NEWSLETTER

Iowa Native Plant Society

c/o Deb Lewis

Department of EEOB

Iowa State University

340 Bessey

Ames, IA 50011-1020