

Tallgrass Prairie

CENTER

Restoring a National Treasure

The Tallgrass Prairie Center restores native vegetation for the benefit of society and environment through research, education, and technology.



AUTUMN 2014



The Tallgrass Prairie Center Goes to Washington (and Missouri, West Virginia, and Colorado)

Laura Jackson, Director - laura.l.jackson@uni.edu

By now most people are familiar with the shocking decline of monarch butterflies and honey bees in the last few years. The monarch is a flagship species, but flying with it is a fleet of other invertebrates, no less important, that are also in trouble.

Ever since the TPC's milkweed seed production efforts were featured on the front page of the New York Times, I have been involved in some major efforts nationwide to understand what is going on and to reverse this decline. Despite the difficult subject, it has been heartening to see the energy and intelligence being poured into this cause. For more on these travels, see our new monarch recovery web page, coming soon.

The Tallgrass Prairie Center is working on several fronts to create more habitat for monarchs, like our roadside program, public education, and restoration research. Every year, the TAP seed program distributes thousands of dollars of native prairie seed, including two species of milkweeds and a nice long list of nectar plants, to counties across the state.

Meanwhile, here are a few things that citizens can do, in addition to planting prairie:

- Let county supervisors know that you support your local county roadside vegetation program. Tell your city parks director how much you appreciate the patches of habitat along the bike trails and parks. Encourage him or her to convert unused areas of turf to more useful habitat. The State Department of Transportation could use your words of encouragement too.
- Ask your local family-owned retail nursery to stock native milkweeds next spring for landscaping plants. Help them un-

derstand what you want and why natives are important. See our Plant Iowa Native website for more information.

- Keep monarchs in schools and daycare centers. Support local teachers; grow enough milkweeds to share with them in the Fall.
- Along with milkweeds, it's time to grow an appetite for collective action. Our agricultural landscape is part of a large food system. With cooperation and communication, we can help the agricultural communities in which we live and work to bring back the monarch—and many other animals flying under that orange, black and white flag.



2015 Iowa Prairie Conference
Mark your calendars for July 16-18.
The conference will be hosted by UNI.

ISAC Excellence in Action Award to UNI's Native Seed Distribution Program



West Des Moines, IA – The **Iowa State Association of Counties (ISAC)** will award its 2014 Excellence in Action Awards on Wednesday, November 12, 2014 during the General Session at the 2014 ISAC 50th Anniversary Celebration (Fall School of Instruction) at the Veterans Memorial Community Choice Credit Union Convention Center in Des Moines. Award winners will include the **University of Northern Iowa's Native Seed Distribution Program**, Story County's Strategically Planning: Building a Solid Foundation, and Melissa Bird, Keokuk County Recorder, Individual Achievement.

The Excellence in Action Award program is a competitive awards program that seeks to recognize innovative county government employees, programs, and projects. Nominations were reviewed and rated based on the following seven attributes: creativity, innovation, cost savings, replication, leadership, increased efficiency, cooperation with others, and perseverance.

ISAC AWARD next page

ISAC AWARD continued -

UNI's Native Seed Distribution Program

In 1988 the Iowa Legislature created Integrated Roadside Vegetation Management. The objective of Integrated Roadside Vegetation Management is to preserve, plant, and maintain vegetation of Iowa's roadsides to be safe, visually interesting, ecologically integrated, and useful for many purposes.

In 1998, the UNI Roadside Office at the Tallgrass Prairie Center implemented the Native Seed Distribution Program.

The Native Seed Distribution Program secures native, Iowa source-identified seed for county roadside management programs through the Federal Highway Administration's Transportation Alternatives Program and the Iowa Department of Transportation. For



Source-identified native seed being unloaded from semi's at the Tallgrass Prairie Center for distribution to county IRVM programs statewide.

about two decades, a concentrated statewide effort has been in place to increase quantities and varieties of Iowa's native plant species.

Eighty-two counties have participated in the annual native seed distribution since its inception in 1998. In 2014, one third of Iowa's counties will receive seed as a result of this program, with a value of \$250,000. The program has been a valuable partner to the counties and their citizens through the years. *If you would like more information about the Excellence in Action program please visit www.iowacounties.org or contact Robin Harlow directly at 515.244.7181 or email rharlow@iowacounties.org.*

(The Iowa State Association of Counties is a private, nonprofit corporation whose members are county officials from the 99 counties in Iowa. ISAC's mission is to promote effective and responsible county government for the people of Iowa.)

Editor's note: This award would not have been possible without the vision, dedication and hard work of former IRVM Program Manager Kirk Henderson, who embodied the seven attributes of the award in pursuit of transportation enhancement funding on behalf of Iowa's county IRVM programs over 15 years, beginning in 1998. And more recently, former IRVM Program Manager Rebecca Kauten and Rob Roman, Linn County IRVM, for shepherding this through the application process. Thanks Kirk, Rebecca, and Rob.



Enter seeding area (in acres or fraction of an acre) :						
Family	Grasses	Scientific Name	Moisture Class*	Habitat**	Iowa Distr	
4	POACEAE	Porcupine Grass	Hesperostipa spartea	D	S-P	Statew
5	POACEAE	Virginia Wild Rye	Elymus virginicus	WM-M	W-S-P	NW, NE
				WM-M	S-P	Statew

What You Sow Is What Will Grow
Dave Williams, Research and Restoration
 - dave.williams@uni.edu

Farmers know that what they sow is what will grow. Ask any Iowa farmer what they plant in their fields; they can tell you the hybrid variety of the seed, the viability of that seed, and the exact number of seeds they planted, based on weather forecasting for the upcoming growing season.

Those of us who plant prairie should have this same information, but often we don't. Things we should know for example, when developing a prairie seed mix include the following:

1. Every species included in the mix should match the soil moisture conditions of the planting site for which it is ideally suited. You wouldn't want to plant a species that prefers wetter soils like great blue lobelia (*Lobelia siphilitica*) on an upland dry soil. Likewise, you wouldn't want to plant a dry soil species like little bluestem (*Schizachyrium scoparium*) on wetter soils. Mismatched species to soil moisture conditions will not persist and weeds will likely fill the void.

2. Include some species from every plant guild. A complete prairie seed mix should include: warm-season grasses, cool-season grasses, sedges, legumes and non-legume forbs. This will ensure that the planting will be long-lived and less likely to be invaded by weeds. High quality prairie remnants include species from all these guilds and so should our planted prairies.

3. Determine an appropriate seeding rate for each species -and for the total seed mix. This is critical to maximize species diversity of the stand. Too many seeds of an individual species can "swamp out" or inhibit establishment of other species and a less diverse planting will be the result. Just like baking a cake, the ingredients have to be in the right proportions, otherwise disaster.

4. Always purchase certified (viability tested) seed. Each species in the seed mix should have a tag on the bag with germination test information. Pure live seed (PLS) weight is the most important piece of information. PLS is the total weight of only the live seeds. Dead seeds, unfilled seeds and all other plant debris in the bag is not part of the PLS weight. This is your assurance that if you ordered 5 oz. PLS of butterfly milkweed (*Asclepias tuberosa*) or 21,500 live seeds, you will get 21,500 live butterfly milkweed seeds from the nursery. In reality, only 5% - 10% of those seeds will develop into adult plants, but without having any germination test information you can expect the number of adult plants to be a much smaller fraction of that.



High-diversity ROW seeding, Fayette County IRVM, June 2012 (left). Hydroseeded in 2007 using seed from UNI's Native Seed Distribution Program. Low-diversity seeding, Cedar River Natural Area biomass research plot, Black Hawk CCB (right).

The Tallgrass Prairie Center is currently working on a prairie seed calculator to provide a way for folks to develop their own custom prairie seed mixes. The seed calculator will assist you with appropriate species selection for your planting site, help assemble a seed mix that includes all guilds, determine appropriate seeding rates and the quantity of PLS seed needed for each species in the mix, and give you a cost estimate of your mix (based on the current years commercial nursery retail cost). This web based program will be free and available on our website in 2015.



The effect of summer floods on plant and wildlife diversity in managed prairie plantings: observations from a “natural experiment” in the Cedar River floodplain

by Mark Myers, Associate Professor of Biology

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How are reconstructed prairies and the wildlife species that use them as habitat affected by floods? Few studies have addressed this question but it is becoming increasingly relevant as changes in Iowa’s land use and precipitation regime increase the likelihood of early summer floods.

In fact, since my students and I began studying wildlife community dynamics at the Tallgrass Prairie Center’s experimental Biomass Research Site, the Cedar River at Waterloo has experienced three floods cresting above 18 feet, placing these events in the top twenty historical crests. While these flood events have negatively affected some aspects of our research (and certainly made getting around the site much more challenging!), they have also created some interesting opportunities. For example, the June 2013 and 2014 floods created a “natural experiment” that allowed us to compare plant and wildlife dynamics in plots that were unflooded, moderately flooded (submerged by <50 cm of water for <3 days), or severely flooded (repeatedly submerged by >1 m of water for >3 days) during these events.



Flooding had direct and immediate effects on some wildlife species at our site. For example, in years without floods (2011-2012), we located ~60 active Dickcissel (*Spiza americana*) nests and observed ~3 individuals per hectare in diverse prairie plots across all soil types at our site. During flood years (2013-2014), we located only 6 nests, all of which failed due to flooding. Further, Dickcissels abandoned

the site and never re-nest-ed after the flood waters receded, resulting in a 98% reduction in Dickcissel density in both the moderately and severely flooded plots during flood years.

The floods also had pronounced long-term effects on vegetation composition and structure, which affected butterfly use of the plots. In the severely flooded prairie plots, big bluestem (*Andropogon gerardii*), indiagrass (*Sorghastrum nutans*), and prairie forb cover decreased dramatically, while switchgrass (*Panicum virgatum*) became increasingly dominant.

Floral resource availability in the severely flooded plots dropped dramatically and was seasonally delayed. These changes in the plant community affected butterfly use of the flooded plots. While butterfly abundance declined site-wide in 2013 and 2014 compared to previous years, the magnitude of decline was lowest on the unflooded sandy loam (~39%), intermediate on the moderately flooded loam (~65%), and greatest on the severely flooded clay loam (~80%).



Dickcissel density declined by 98%



Photo of the author (above and opposite) at the study site.



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<https://www.facebook.com/tallgrassprairiecenter>



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NEWSLETTER

This newsletter is published electronically twice per year. For subscription information or questions, contact the editor: gregory.houseal@uni.edu
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Ecological Restoration Seminar

Over 40 people attended the *Tallgrass Prairie Center’s Ecological Restoration Seminar* presentation on Oct. 29th by John Pleasants, ISU Adjunct Professor. Dr.

Pleasant provided ample evidence for concern about the decline of the monarch butterfly population in the mid-west and Mexico. Pleasants provided a thorough outline of this multi-faceted problem, discussed causes of the decline and posed suggestions to help resolve the problem. The presentation will be archived at <http://www.tallgrassprairiecenter.org/natural-areas-and-ecological-management-seminars> along with previous presentations in the seminar series.

Friends of the Tallgrass Prairie Center

by Daryl Smith, Advocate - daryl.smith@uni.edu

The Friends of the Tallgrass Prairie Center Group was launched September 6, 2014, with a celebration of Iowa Prairie Heritage Week at the Tallgrass Prairie Center.

As the Center has grown and flourished in prairie reconstruction, roadside vegetation management and education over the past two decades, the Center staff has formed strong ties with prairie proponents, prairie restorationists, conservation agencies and landowners. The time is right to initiate a group to help promote and support the work of the Tallgrass Prairie Center throughout the state and Midwest. It is anticipated that the enthusiasm generated and support provided by the Friends of the Tallgrass Prairie Center will enhance its mission.

We envision the Friends becoming involved in the Center mission and activities as volunteers for special events, helping promote Center activities, participating in seminars and workshops, as well as assisting in advocating for the tallgrass prairie and the Center.



Open house guest enjoy a tram ride through restored prairie at the Center, interpreted by Ben Hoksch, Biology Graduate Student.

Five levels of membership are offered for those who want to become Friends of the Tallgrass

Prairie Center: Prairie White-Fringed Orchid-\$1000, Shooting Star-\$500, Prairie Smoke-\$250, Compassplant-\$100, and Bluestem-\$50. Twenty memberships were received in the first month of the launching the group. Anyone who joins during the first year (Sept. 6, 2014-Sept. 5, 2015) will be considered a charter member.

Opportunities for Friends of the Tallgrass Prairie Center include the following:

- Quarterly meetings with short business meeting and a featured speaker on topics related to prairies
- Open invitation to Tallgrass Prairie Center seminars, workshops, and classes
- Discount on Tallgrass Prairie Center publications
- Discount on workshops and conferences hosted by the Tallgrass Prairie Center
- Field trips to local prairie remnants guided by Center staff
- Volunteer host for Tallgrass Prairie Center events
- Tallgrass Prairie Center newsletter
- Participation in prairie workdays, e.g. seed collecting, prairie restoration, prairie management



Lt. Governor Kim Reynolds visited the Tallgrass Prairie Center in July as part of a tour of UNI. Receiving a bouquet of native prairie from Director, Laura Jackson.

New Grad Student/Employees

Jessica Riebkes, Cedar Falls, IA
B.A. Biology, Central College, Pella, IA



Jessica graduated from Central College in May 2014. While in college she worked as an intern for Stantec Consulting, surveying for Iowa's endangered Indiana bat, and for Chicago Botanic Garden doing research on seed viability testing. Jessica's graduate thesis project will be on seed predation in roadside native prairie plantings, working with two IRVM managers. "After graduation, I want to work in conservation, helping people to restore native plants and sustainable practices to their land."

Staci Mueller
Marketing Coordinator



Staci accepted the position of Marketing Coordinator in October and is focusing on the Plant Iowa Native initiative through July. With goals of educating and creating awareness of natives, she will also work directly with selected retail nurseries to increase their sales of Iowa native plants. Staci is a lifelong resident of northeast Iowa, and is enthusiastic about promoting the PIN project. "My family has farmed for generations and my husband and I are raising our children in a farming community. I respect the importance of land stewardship and preserving our heritagethrough the Plant Iowa Native initiative, I am able to contribute and have a positive impact on what I value most."



Name that plant?



Answer: Geranium maculatum, Wild geranium. Catapult type seedhead in sun-mer and flower and foliage in spring.

