



TALLGRASS PRAIRIE CENTER



Tallgrass Prairie
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TALLGRASS PRAIRIE CENTER

2022 – 2023 Highlights

UNI

University of Northern Iowa
College of Humanities, Arts & Sciences

Front cover: Big bluestem at dusk at Daryl Smith Prairie. Photo by Mallory Sage.

Above: A rusty-patched bumblebee on Joe Pye weed at the TPC seed production plots.
Photo by Laura Walter.

Back cover: AmeriCorps service member Bri Hull plays prairie bingo with young visitors
at the TPC. Photo by Anne Phillips.

Tallgrass Prairie Center

STAFF (September 2022 – August 2023)

Laura Jackson

Director

Kristine Nemec

Iowa Roadside Management

Justin Meissen

Research and Restoration

Laura Fischer Walter

Plant Materials

Andy Olson

Prairie on Farms

Mary Weld

Grants and Programming

Anne Phillips

Community Engagement

Daryl Smith

Professor Emeritus/Volunteer Advocate

AMERICORPS SERVICE MEMBERS

Bri Hull

Mallory Sage

Ethan Kober

Alison Peck

The Weekly Weeders

STUDENTS

Laura Spies – Research Assistant

Josie Hutchings – Research Assistant

Damien Lindsey – Research Assistant

Lucas Pistek – Research Assistant

Alex Hanson – Research Assistant

Tristan Murphy – Graduate Assistant





From our director

If you build it, they will come. Dickcissels, wild bees, common milkweed — even in our agricultural landscape, a few organisms native to the tallgrass prairie will take up residence in a newly available habitat, just as they did when the vast prairies were unbroken. But the list of prairie plants that are “at large,” independent and wild, is very short. In contrast, the Tallgrass Prairie Center grounds are teeming with such species.

The process takes time and seeds. During my 10 years as director, hairy wild petunia has expanded into the mowed lanes between plots, its long-necked lavender flowers peeking through the fescue. Seed production plots established back then — once neatly maintained, single-species beds — have long since dissolved into mixtures of other native species found on the property. Not prairie exactly, but definitely wild. Imagine if we could establish enough prairie to see this on a much larger scale? Until then, the TPC will empower people to value and restore diverse, resilient prairie.

Fifty years ago, **Daryl Smith** planted five species of grasses — all the seed that was commercially available — on the UNI campus.

To learn more about the Tallgrass Prairie Center, please visit tallgrassprairiecenter.org.

To support our important work through the Friends of the TPC, please visit tallgrassprairiecenter.org/friends, or call (319) 273-3836.

Prairie restoration has come a long way due to the collective efforts of landowners, prairie enthusiasts, native seed producers, contractors, land trusts, public land managers, and academic researchers. None of our efforts would be possible, however, without remnant prairies. They are our inspiration and the seed source for future prairie restoration. Remnant prairies need local champions if they are to survive another 50 years.

This year was marked by drought, but also by a flood of opportunities. Events such as the rededication of Irvine Prairie and two national conferences pulled us even closer together as a team. As ever, we took pride in contributing to UNI's mission, involving students in all of our programs and supporting their accomplishments.

I am excited to share this year's Highlights from the Tallgrass Prairie Center!

Laura Jackson



IOWA ROADSIDE MANAGEMENT

Enhancing our public roadsides



Interest in using an ecologically sustainable and economical approach to manage Iowa's county and city roadsides continued to grow. Fifty-six counties and 19 cities now have integrated roadside vegetation management plans, and Polk County increased their involvement by hiring a roadside biologist, **Ryan McPherren**, to focus on right-of-way management. Led by **Kristine Nemec** with assistance from **Bri Hull**, over the last year the IRM program had these accomplishments:

- A full-color, attractively designed and illustrated paper distributed to over 800 Iowa county and city officials entitled "Roadside Weeds, Brush, and Erosion: How Your County or City Can Manage Them to Create Safe, Healthy Roadsides and Roads."
- The annual roadside conference, held September 7–9, 2022, in Okoboji, in coordination with Dickinson County roadside managers **Douglas Todey** and **Tanner Bouchard**.

Over 100 people attended, including county roadside vegetation managers, DOT employees, vendors, program managers from nonprofits and employees from six counties that do not have a roadside program yet, but wanted to learn more.

- The 2024 IRM wall calendar on the theme of "Celebrating Remnants." Monthly topics range from recreating in remnants to profiles of remnant plants.
- Information sharing about Iowa's history and approach to roadside management. A group of Minnesota residents who sought Kristine's assistance successfully encouraged the Minnesota legislature to create a Highways for Habitat program.



Right: Kristine Nemec presents at a Native Seed Stakeholders meeting.

Facing page: Butterfly milkweed blooms abundantly along a roadside in Black Hawk County.

Inset photo: Barry Stecker of Cerro Gordo County hydroseeds a roadside planting.

Photo courtesy of Lakota Kirst.



FUNDING

- Iowa Department of Transportation Living Roadway Trust Fund (LRTF)
- Federal Highway Administration Transportation Alternatives Program

RESEARCH and RESTORATION

Investigating successful methods for prairie restoration

Could restoration success be more widespread — and does it take an expert? Our restoration research program is constantly seeking out better ways to plant prairie and be successful at it on a large scale. **Damien Lindsey** (Biology) and **Lucas Pistek** (Geography) assisted Program Manager **Justin Meissen**:

- A 5-year-old experiment on seed mix design, planting time and mowing continues to teach new lessons after we burned it last spring. The plots that were mowed four years ago had fewer weeds, because the weeds weren't allowed to set seed.
- We assessed the methods farmers use to install habitat through the Conservation Reserve Program. The importance of suppressing the existing sod was confirmed by experiments in Floyd and Benton counties.
- Justin presented his studies of native seed price and availability at the **National Native Seed Conference** in

Alexandria, Virginia. He shared results of a study promoting forbs in prairie reconstructions at the **North American Prairie Conference** in Altoona, Iowa.

- Our research was shared at **Pheasants Forever** field days, the **Pollinator Friendly Alliance's Best Practices Summit** and the **Practical Farmers of Iowa Annual Meeting**.
- We started a project with the **USDA Farm Service Agency** and the **Xerces Society for Invertebrate Conservation** on factors affecting the cost and availability of native seed in the Upper Midwest and Great Plains.
- Cross-pollination with our other programs continued to stimulate fresh insights!



Right: Justin Meissen ignites a burn at the TPC grounds.

Facing page: Lucas Pistek, a UNI geography major, assists Justin with data collection in the TPC research plots.



FUNDING

- US Department of Agriculture Farm Service Agency
- Irvine Family Fund

PLANT MATERIALS

A prairie pedigree for Iowa's roadsides and beyond

When roadside managers began adopting a strategic approach to weeds and erosion in the late 1980s, they hit a major roadblock: native seeds of Iowa origin were sorely limited. The Plant Materials program lowers this barrier by collecting handfuls of seed from scattered remnant prairies, then carefully multiplying that seed while conserving genetic diversity. We share this genetic resource with native seed companies, who can scale up production and distribution.

In 2023, Program Manager **Laura Walter** and UNI students **Laura Spies** and **Josie Hutchings** managed 62 production plots of 45 species. Drought forced them to hand water hundreds of new transplants and keep the drip irrigation flowing. A few species like bracted spiderwort, growing outside of the range of irrigation, failed to set seed.

New wild strawberry plants sent out exuberant rose-colored runners, and swamp lousewort, a hemiparasite, formed a vigorous alliance with two host sedges. These were among

seven new species brought into production this year from remnant collections made in 2021–2022.

The TPC has achieved national prominence in the world of native seeds. In March, Laura Walter presented at the **National Native Seed Conference**, describing the evolving role of the Plant Materials program in stock seed production and stakeholder communication. Her contributions to the **North American Prairie Conference** included the entertaining presentation “Arthropod Friends, Foes, and Frenemies Among the Prairie Seed Plots.”



Right: Laura Walter at work on the Polaris.

Far right: Cardinal flower blooms at dusk in the TPC seed production plots.



FUNDING

- Iowa Department of Transportation Living Roadway Trust Fund (LRTF)

PRAIRIE ON FARMS

Making prairie practical

Iowa's rural landowners carefully consider land-use options for their property, especially when conservation practices involve removing tillable acres from production. Do the benefits of the practice outweigh the costs? Will the practice be successful? What kind of management is required and how much time will it take?

The Prairie on Farms program takes on these important questions.

- We monitored the dozen prairie strips and other CRP plantings we have established in collaboration with landowners and farm operators across eastern Iowa. We noted any challenges, such as woody invasion, herbicide damage, and poor establishment.
- We published a Prairie Seed and Service Providers list and the results of a new survey to determine the going rate for prairie-specific services. Costs for prairie services are generally higher than published custom agricultural rates.

- Program Manager **Andy Olson** answered questions and showed tile camera video under prairie strips at regional trainings for all USDA Farm Service Agency and NRCS county staff from every county in Iowa — 400 attendees in all.
- Prairie strips case studies and the tile camera results made the rounds at state and national meetings: the **Association of Farm Managers and Rural Appraisers, Iowa Farmers Union, Practical Farmers of Iowa Annual Conference, the Pollinator Friendly Alliance's Pollinator Summit, and the North American Prairie Conference.**



FUNDING

- USDA North Central Region Sustainable Agriculture Research and Education
- Bia-Echo Foundation/Iowa State University STRIPS Project



Inset photo: Wildflowers bloom in a prairie strip on a farm in Black Hawk County.

Above: Andy Olson leads a tour of Irvine Prairie. Photo courtesy of Ruby McAllister, North Tama Telegraph.



IRVINE PRAIRIE

Restoring a piece of the original Iowa landscape

Cathy Irvine astonished us by more than tripling the size of the Irvine Prairie project to 292 acres. Justin and Andy planted the first 30 acres in November 2022, but rare December rains washed out some of the newly planted seed, and others were buried by severe wind erosion. **Benton County Integrated Roadside Management**, community volunteers and AmeriCorps members helped us conduct a spectacular 25-acre burn in April.

In May, 80 **Union High School** students transplanted 2300 plugs of 21 species grown by **Laura Walter, Laura Spies** and **Josie Hutchings**. As the weeks went by without rain, we hand watered as many as we could. Abundant prairie violets and other forbs flowered in last year's planting, and for the first time our monitoring found 100 different plant species across the site.

A joyful rededication in early June featured remarks by **John Fritch**, dean of the College of Humanities, Arts &

Sciences, UNI President **Mark Nook** and Cathy Irvine, and traditional Native American dances by **Lennox Lasley**, champion dancer of the Ho-Chunk Nation. In July, we enjoyed a prairie-themed concert by Kansas singer-songwriter **Ann Zimmerman**. Visitors can now consult an information kiosk with a trails map and study interactive maps on our website.

UNI student **Lucas Pistek** monitored permanent photo points scattered throughout the prairie, and Biology Professor **Ai Wen's** students surveyed for bees.

Irvine Prairie trails are open year-round — come and explore!



Left: Cathy Irvine greets visitors at the dedication of the expansion of Irvine Prairie.

Inset photo: Students from Craig Hemsath's class at Union High School assist with transplanting native plants at Irvine Prairie.

PRAIRIE ROOTS PROJECT

A deeper appreciation of the prairie ecosystem

Much of the tallgrass prairie is invisible, underground. To stimulate conversation about what that means, we create specimens and life-size banners of prairie roots for display. The project is led by **Laura Walter** with assistance this year from students **Damien Lindsey** and **Lucas Pistek** and the **Green Iowa AmeriCorps Weekly Weeders**.

We start by transplanting greenhouse plugs into 10-foot deep pots, then tend them for two to three years. We harvest them in late summer, washing the Turface growth medium from delicate roots. The roots soak in a glycerine solution and then air dry for several months. The banner image is created immediately after harvest by arranging the whole plant on black velvet. Multiple pictures are taken and digitally stitched together.

We have been surprised by the strong demand for the banners from prominent science museums like Omaha's new **Kiewit Luminarium** and the Chicago **Field Museum**, as well as dozens of local nature centers. **Mary Weld** manages the inventory while **Anne Phillips** responds to questions and ships the banners.

Thanks to the **Iowa Living Roadway Trust Fund**, we were able to distribute prairie root specimens free of charge to nature centers in Appanoose, Butler, Fayette, Grundy, Harrison, Howard, Polk, Scott, Washington, and Woodbury counties. Seven K-12 science teachers who have been adapting our lesson plans for their classrooms received banners.

Funding: Iowa Living Roadway Trust Fund
and sales of roots and banners



Inset photos: TPC staff and volunteers pulled seven root specimens in August. The specimens will find new homes in nature and science centers across the United States.

A HIDDEN GEM — UNI'S BIOLOGICAL PRESERVES

A legacy of service and partnership

In 1973, Professor **Daryl Smith** seeded prairie on the edge of campus, a part of UNI's 88-acre Biological Preserves. For many years he and his students battled brome and brush, and transplanted diverse native forbs. When the TPC was founded in 1999, UNI students and TPC staff began working side by side on campus prairie management.

Today the TPC continues the tradition of collaboration with the **UNI Biology Department's** Preserves Committee. Trails Manager **Stephanie Witte** and her **Botanical Center students** mow and clear almost six miles of trails. The TPC contributes equipment, technical guidance and the assistance of our Green Iowa AmeriCorps members, including a dedicated Volunteer Coordinator (this year, **Mallory Sage**).

In addition to the annual spring burn, we

- Organized a fall work day for brush control, involving five student organizations

- Created a new Preserves web page including a “get involved” section
- Published the first trails map in 15 years and installed six new trailhead signs
- Planned a community celebration, 50 Years of Prairie at UNI, for Fall 2023
- Explored design concepts for a new Smith Prairie entrance

In partnership with the UNI Biology Department, we are working to build up an endowment established by **Daryl** and **Sue Smith** so we will have the resources to care for this hidden gem for the next 50 years.

Funding: Friends of the Tallgrass Prairie Center; Daryl Smith Prairie Endowment Fund



Inset photos: Biology professor Ai Wen examines a bee at Daryl Smith Prairie, new trails maps and new signage for the preserves system.

GREEN IOWA AMERICORPS



Land and Water Stewards expand TPC capacity

Under the leadership of **Kristine Nemec**, Green Iowa AmeriCorps (GIA) members lent a hand in virtually every TPC endeavor. They staffed our display tables at statewide and national conferences, helped us host major TPC events, organized volunteer work crews and engaged the public with creative learning activities.

Communications Associate **Bri Hull** managed social media for the Iowa Roadside Management program. She designed the 2024 Iowa Roadside Management calendar and a publication for decision makers on the benefits of integrated roadside management. Through blog posts, selected readings and community discussions, she led us to greater awareness of the racial inequities in access to natural spaces.

Volunteer Coordinator **Mallory Sage** applied her landscape architecture degree to the UNI Biological Preserves. Her professional-caliber trail maps, metal signage and new web page are enticing more students, faculty and families to come

out and enjoy UNI's prairie and woodland trails. Bri and Mallory were a formidable team, mobilizing volunteers and wielding chainsaws to combat woody invaders on and off campus.

Summer AmeriCorps members **Ethan Kober** and **Ali Peck** helped transplant plugs into production plots, organized prairie seed for the annual seed pickup and provided logistic support for Irvine Prairie events. They joined summer research students for Botany Boot Camp and later conducted vegetation surveys of Prairie on Farms demonstration sites. Ali produced a botany guide, and Ethan wrote up a history of the Biological Preserves.

We are deeply grateful to the class of 2022–2023!



Inset photo: Green Iowa AmeriCorps service members Ethan Kober and Mallory Sage study a native grass in the seed production plots.

Funding: Iowa Roadside Management Program and Friends of the TPC



Above: Green Iowa AmeriCorps service members assist Laura Walter in transferring plugs of wild strawberries from the TPC greenhouse to the nearby seed production plots.

STUDENT ACCOMPLISHMENTS

Hands-on experiences at the TPC lead to new adventures

- **Laura Spies** wrote her honors thesis, “The effect of gibberellic acid on *Gentiana andrewsii* germination,” while helping **Laura Walter** work out methods for this notoriously tricky genus. After a stint with Vermont State Parks, she now works for Prairie Moon Nursery.
- **Jacey Meier Snyder** wrote her honors thesis, “Developing methods to assess the role of *Lumbricus terrestris* on seed predation in prairie restoration.” She is in the physician assistant program at Des Moines University.
- **Tristan Murphy** completed his master’s thesis, “Assessment of Conservation Reserve Program enhancements at contract renewal: Impact on monarch butterfly (*Danaus plexippus*) habitat.” He is pursuing a PhD in the Ecology, Evolution and Behavior program at the University of Nebraska-Lincoln.
- We shared field space and equipment with Professor **Tilahun Abebe** and his students **Ammar Shaikh**, **Thomas Manternach** and **Kyran Hines**. They measured agronomic characters and conducted genetic analysis on accessions of the cereal grain teff (*Eragrostis tef*).
- Students in Laura Jackson’s **Restoration Ecology lab** produced plugs of native plants for transplanting at Irvine Prairie and helped conduct prescribed burns on and off campus.
- **Alec Glidden**, who finished his master’s thesis in spring 2022, is now pursuing a PhD at Kansas State University.
- **Kate Sinnott**, a former research assistant, finished a master’s in ecology from Utah State University and completed her thesis, “Overcoming barriers to aquatic plant restoration: Addressing gaps in species identification and planting techniques in the Intermountain West.” She now works for the Minnesota Crop Improvement Association in St. Paul.



PUBLICATIONS, OUTREACH and AWARDS

PUBLICATIONS

- **Glidden, A., Sherrard, M., Meissen J., Myers, M., Elgersma, K., and Jackson, L.** 2023. "Planting time, first-year mowing, and seed mix design influence ecological outcomes in agroecosystem revegetation projects." *Restoration Ecology*, 31(4):e13818.
- **Meissen, Justin.** "Enhancing CRP for monarchs using mid-contract management," *Iowa State University Research and Demonstration Farms Progress Reports*.

OUTREACH

- **Native Seed Stakeholder Meeting** – On March 8, we brought together the network of seed growers, policymakers and other consumers of native seed to share information and address issues of common concern.
- **Prairie on Farms Stakeholder Group** – A project funded by the North Central Region - Sustainable Agriculture Research and Education (SARE) program; this committee of landowners, farmers and farm managers has guided the production of five case studies on prairie strips.

AWARDS

- **Daryl Smith:** Honorary Alumni Award from the UNI Foundation; Lifetime Achievement Award – Prairie Advocate, from the North American Prairie Conference.
- GIA AmeriCorps members **Bri Hull** and **Mallory Sage** were the recipients of the Iowa Governor's Individual Volunteer Award from Volunteer Iowa.
- **Green Iowa AmeriCorps** was named the 2022 Outstanding Program of the Year by the America's Service Commissions.
- **Cathy Irvine** was awarded the 2022 Environmental Heroes Among Us award from Mercy One Waterloo and Cedar Falls Foundations.

FRIENDS OF THE TPC

Critical support for the TPC Mission

Growing financial support from the Friends of the TPC helped us to inspire, educate, and plant more prairie:

- The Restoration and Management Seminar Series drew over one thousand attendees. Speakers were landscape designer and author **Doug Tallamy**, Director of Science for the Nature Conservancy in Nebraska **Chris Helzer**, and **Chris Taliga**, whose family has gradually restored tallgrass prairie to their 160-acre farm.
- Friends provided half of the funds to host four Green Iowa AmeriCorps members this year, and helped us replace the decrepit Ford Ranger with a versatile new John Deere Gator.
- We were a major sponsor of the North American Prairie Conference (NAPC) and sent three UNI students, **Josie Hutchings**, **Lucas Pistek** and **Ali Peck**, to learn and make professional connections.
- We hosted **Chan Dolan**, a former UNI undergraduate researcher and now at the University of Minnesota, to present her master's research in the Biology Department's weekly colloquium.
- With over 30 years of experience in prairie restoration, **Maria Urice** fields inquiries from the public on seeds and

seed mixes, planting techniques, weed issues, where to find services such as prescribed fire, and strategies for managing savanna remnants. Maria's Help Desk frees TPC staff to focus on their grant-funded projects.

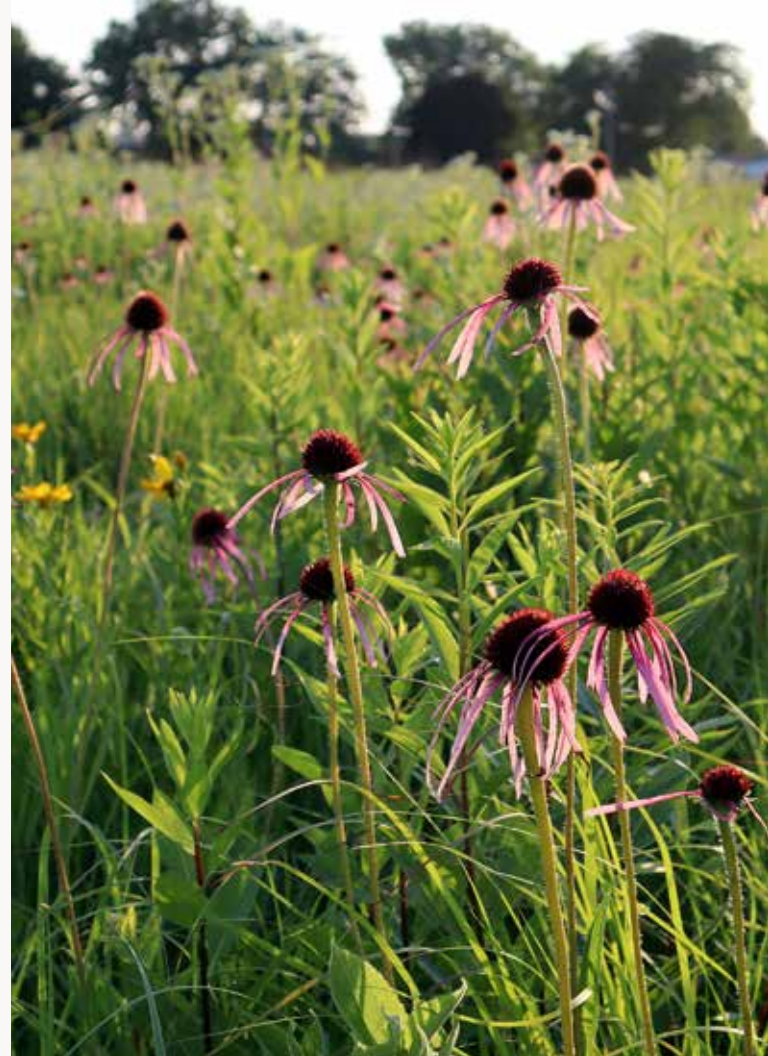
- Each spring we say goodbye to graduating students and welcome summer students and AmeriCorps with a pizza lunch. Small acts of gratitude and hospitality make the Center a better place to work and learn.

You can become a part of the Friends of the TPC by visiting our website, clicking on the Friends menu option and selecting the Friends group in the link's drop-down menu.



RESOURCES

- For information on all things related to the TPC, visit our website at tallgrassprairiecenter.org. A new website is under development!
- To find qualified prairie seed and service providers, visit tallgrassprairiecenter.org/seed-service-providers. This list is updated annually.
- We post regularly on the TPC page on **Facebook**. Look there for updates, particularly on timely events.
- Our **YouTube** channel features more than 100 videos, including our popular Botany Beginners lessons and instruction on prescribed burning techniques.
- To subscribe to Roader's Digest, the Iowa Roadside Management monthly newsletter, email Kristine at kristine.nemec@uni.edu.
- To subscribe to the Native Seed Scoop newsletter, visit tallgrassprairiecenter.org/native-seed-stakeholders.
- If you are interested in visiting the TPC, please let us know ahead of time. Because of the seasonal demands of our work, staff may be busy with fieldwork and the building may be locked during typical hours of operation. If we are not here and you need to reach us, please contact TPC Director Laura Jackson at laura.l.jackson@uni.edu.





Tallgrass Prairie CENTER

The Tallgrass Prairie Center Highlights is an annual publication of the University of Northern Iowa Tallgrass Prairie Center.

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