

8-2020

## 2019-2020 Tallgrass Prairie Center Highlights

Tallgrass Prairie Center, University of Northern Iowa

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### Recommended Citation

Tallgrass Prairie Center, University of Northern Iowa, "2019-2020 Tallgrass Prairie Center Highlights" (2020). *Annual Reports*. 3.

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# FRIENDS OF THE TALLGRASS PRAIRIE CENTER



With 80 members, the Friends of the TPC is growing and helping to keep us strong and effective. The 20th Anniversary Open House in September attracted many old friends and former students, and even a few curious neighbors who had never been here before. Combined with the Dedication of Daryl Smith Prairie, it was a day to remember.

Before the COVID-19 virus changed everything, we held two well-attended Restoration and Management seminars. In January, Leland Searles presented "Prairie Pothole Wetlands: Reconstructing Vegetation from Roadside Surveys." In February, author Thomas Dean shared his artistic, spiritual and emotional ties to the prairie in "Tallgrass Conversations: in Search of the Prairie Spirit."

A handful of major gifts to the TPC Fund for Excellence increased our endowment by an astonishing four-fold. A gift from the estate of farmer John Miller (profiled in our Fall 2019 newsletter) reflected his lifelong commitment to conservation, and the importance of TPC's work to him. Proceeds from this endowment help us to pursue our mission, and provide students with a wide range of hands-on learning opportunities through our programs and projects.

## IN MEMORIAM



Photo courtesy of Bill Witt, Friend of TPC



A dear friend of the Tallgrass Prairie Center, Bruce Stiles, passed away in July 2019. Bruce was a self-employed horticulturalist and natural history interpreter who raised flowers at his home, managed a family-owned remnant prairie, and helped take care of Bennington Township Cemetery Prairie and Dunkerton Prairie. Along with Daryl Smith, he co-led many prairie walks for the local Sierra Club and Audubon Society chapters. We honor Bruce for the hours he spent introducing UNI students to the plants, the lore, and the human connections to tallgrass prairie. We are also grateful for his artistic floral arrangements, which were commissioned for several Tallgrass Prairie Center events.



Photo courtesy of Bill Witt, Friend of TPC



# FROM THE DIRECTOR

Laura Jackson

Google Map’s algorithm is convinced that the Tallgrass Prairie Center is a museum, but we have no exhibits or regular tours.

When we host the occasional class field trip, we temporarily resemble a nature center. The seminars and conferences we hold wouldn’t be out of place coming from a nonprofit conservation organization. We’re proud to be a part of UNI’s College of Humanities, Arts and Sciences, but we are not an academic department. When UNI students use our facilities for research, we function as a university field station. In the summer, the seed production plots look like a flower farm.

So, what is the Tallgrass Prairie Center? We are aspirational yet pragmatic. We balance education with action, applied research with community service. We support those who manage Iowa’s roadsides — 60% of Iowa’s public lands — for everyone to use and enjoy.

Our research has shaped federal Conservation Reserve Program policy; the Iowa-source foundation seed we release to commercial seed growers propagates the genetic heritage of the nearly extinct tallgrass prairie ecosystem. TPC educational materials can be found in schools, museums, government conservation offices and nature centers throughout the prairie states.

“Research and Extension for Prairie Restoration” comes pretty close to a good description.

We live in extraordinary times. We continue to work in our area of expertise, acknowledging that our mission is small in the sweep of history that includes catastrophic climate change, widespread social injustice, and a global pandemic. We find meaning and purpose in restoring the biodiversity and ecosystem resilience of our region so that future generations will have enough prairie to sustain clean water, abundant wildlife, healthy soil, and renewal of the human spirit.



## Never forget your roots

The Tallgrass Prairie Center was originally named the Native Roadside Vegetation Center, because of Iowa’s landmark legislation declaring it to be “in the general public welfare of Iowa and a highway purpose for the vegetation of Iowa’s roadsides to be preserved, planted and maintained to be safe, visually interesting, ecologically integrated, and useful for many purposes.”

Shown at left: The Iowa Roadside Program and Trees Forever teamed up to lead a series of workshops and “walkabouts” entitled “Stewards of the Beautiful Land.” This one was held on a Bremer County roadside.



# BOTANY BEGINNERS

Partially in response to the COVID-19 pandemic, we held a free online course, "Botany Beginners: Exploring Iowa's Native Plants." The purpose was to help people learn the names of plants that are important to them, become comfortable using botanical language and field guides, gain appreciation of Iowa's natural areas, and connect with other botanists across the state.

We expected about 30 students and a few Friends of the TPC, but over 500 individuals participated!

The class consisted of webinars, virtual field tours, homework, quizzes, and a dedicated Facebook group ("Botany Beginners"). Webinar topics included: Introduction to Botany Beginners (Paige Shafer); Using Newcomb's Field Guide (Laura Jackson); Tips for Becoming an Expert Botanist (Laura Fischer Walter); CRP & Roadside Plants (Justin Meissen & Kristine Nemeck); Remnant Prairie Plants (Laura Walter & Justin Meissen); and Continuing your Botanical Journey (Paige Shafer).

Paige Shafer (bottom, right), AmeriCorps communications associate, organized the course webinars and coordinated with sponsor Practical Farmers of Iowa and TPC to design the course. TPC Outreach Coordinator Staci Mueller handled the registration and worked closely with the UNI IT department. Paige and Staci fielded hundreds of emails from students throughout the region and a lively Facebook group showed us there is a healthy appetite for botanical training. The recorded webinars, homework and quizzes are available for free at <https://tallgrassprairiecenter.org/botany-beginners>

**Funding:** Friends of the Tallgrass Prairie Center, Practical Farmers of Iowa, and Green Iowa AmeriCorps





# PROGRAM HIGHLIGHTS

## Research and Restoration

Between 2014 and 2017, Iowa farmers enrolled in the US Department of Agriculture's new Conservation Reserve Program Pollinator Initiative, eventually seeding a whopping 237,000 acres of farm ground in Iowa to pollinator-friendly native plants. Over 9000 acres was planted in Black Hawk County alone!

We were curious: how successful was the conservation program, and could the TPC's prairie restoration expertise or technical assistance help to make it better?

We teamed up with UNI Biology professors Ai Wen, Mark Myers, Mark Sherrard, and Kenneth Elgersma. For three summers beginning in 2017, this group plus TPC Director Laura Jackson trained 26 undergraduate students and 4 graduate students to conduct rigorous surveys of plants, bees, butterflies and floral resources. With farmer permission, students surveyed 46 sites, amassing one of the most detailed vegetation data sets ever undertaken for any CRP practice.

This year, UNI Biology M.S. student Corinne Myers began analyzing a data set that includes nearly 100,000 stems from 243 flower species, and >125,000 flowers from 88 species. She is finding a lot of variation from one field to the next. In another analysis, Program Manager Justin Meissen discovered that while most sites provide at least some pollinator habitat, only one of the 46 sites satisfied the program's strict

objectives of providing floral resources from three species in spring, summer and fall.

These results reinforce what we have learned from the four-year study at the Iowa State University Northeast Research and Demonstration Farm in Nashua, Iowa. In that experiment, we demonstrated that the forb-heavy pollinator mix that farmers were required to plant provided the most blooms for pollinators, but fell short in terms of suppressing weed invasion and erosion control when compared to more grass-balanced seed mixes (Meissen et al. 2020). Program Manager Justin Meissen says, "These CRP programs are heading in the right direction, but there is still lots of room for improvement."

Justin is currently replicating that experiment on a farm field owned by UNI, next to the Tallgrass Prairie Center, called the Prairie on Farms Research Station. In addition to this experiment, other demonstrations and pilot projects on site will help answer some key questions about prairie restoration in ag landscapes, as well as provide a space for learning about the process of reconstructing prairies using side-by-side demonstrations. He is assisted by UNI Biology Masters student Alec Glidden and TPC Program Assistant Jared Randall. In addition to peer-reviewed publications, results from our restoration research are shared widely through field days, website resources, and meetings.

### Research Assistant: Alec Glidden

Alec Glidden has filled many roles at the TPC since becoming a Biology major at UNI in 2016: summer intern, participant in the Summer Undergraduate Research Program, logistics coordinator for the pollinator habitat evaluation project, and research assistant for the Plant Materials program. He is co-author on the recently published *Restoration Ecology* paper on seed mix design (Meissen et al. 2020). After graduating from UNI in spring 2019, he was accepted into the Biology Masters program. His current research with Professor Mark Myers and Justin Meissen focuses on competition among weeds and native plants in establishing prairie reconstructions.

Asked to name a highlight of the previous year, Alec says: "Throughout the previous summer (2019) I was most excited to see the restoration experiment sprout with life. The distinction between mowed and unmowed plots really jumped out to me. More specifically, the giant ragweed in non-mowed plots cast shadow on the native seedlings. I am looking forward to getting more data this summer on floral resources, species richness and light availability in different experimental treatments."





Above: UNI Biology students pose with landowners while surveying the pollinator habitat on their farm.



## TPC Program Assistant: Jared Randall

As a summer program assistant, Jared Randall (UNI Environmental Science B.A., 2019) has worked with Justin Meissen in maintaining 72 seed mix research plots, mapping various plot boundaries with the GPS, spring planting at Irvine Prairie, and troubleshooting and resolving equipment issues. He also manages the Root Pot Facility where we grow prairie roots using a fertigation system. Asked about his favorite experiences so far, Jared said: “Definitely working on the prescribed fire at Smith Prairie. Also, experience planting prairie with the native seed drill gave me a new respect for farmers’ patience and skill with much larger equipment.”

## Publications

Christina M. Boeck Crew, Mark C. Myers, Mark E. Sherrard, Kenneth J. Elgersma, Greg A. Houseal, and Daryl D. Smith. Stratification and perigynia removal improve total germination and germination speed in three upland prairie sedge species. *Native Plants Journal*, in press.

Justin A. Meissen, Alec Glidden, Mark E. Sherrard, Kenneth J., Elgersma and Laura L. Jackson. 2020. Seed mix design and first year management influence multifunctionality and cost-effectiveness in prairie reconstruction. *Restoration Ecology* 28(4): 807-816

Justin A. Meissen and Laura Jackson. 2019. Final Report: Seed Mix Experiments and Analysis of Native Seed Supply for the Pollinator Habitat Initiative. 2019. [https://www.fsa.usda.gov/Assets/USDA-FSA-Public/usdfiles/EPAS/natural-resources-analysis/Pollinators/pdfs/Tallgrass\\_Prairie\\_Center\\_Final\\_](https://www.fsa.usda.gov/Assets/USDA-FSA-Public/usdfiles/EPAS/natural-resources-analysis/Pollinators/pdfs/Tallgrass_Prairie_Center_Final_)

## Funding

Pollinator CRP habitat evaluation: USDA Farm Services Agency and Roy J. Carver Charitable Trust

Seed mix design research: Iowa Nutrient Research Center and USDA Farm Services Agency.



## Foundation Seed - 2019-20

**Growing:** 29 species, 41 ecotypes

**Seed produced:** 132 pounds of clean seed from 32 ecotypes

**Foundation seed released:** 38 ecotypes, to three growers

### Funding

Iowa Living Roadway Trust Fund

# PLANT MATERIALS PROGRAM

We produce foundation seed that is traceable to sources in remnant Iowa prairies. This promotes a competitive, local native seed industry that makes a diverse supply of regionally appropriate native seed available to seed consumers.

Established in 1992, the Plant Materials Program (formerly Iowa Ecotype Project) has accomplished much, but the basics remain the same. Each year we grow, harvest and clean native seed from several species and ecotypes, and get it inspected for the Yellow Tag program. We manage a seed bank of over 100 species, developed from over 3000 collections of seed from remnant prairies, and we release seed to verified commercial growers, who in turn produce certified Source-ID seed used in state and county roadside programs.

A major thrust of this program is service to stakeholders. The Plant Materials webpages have been completely overhauled (let us know what you think). There is a comprehensive list of species available for release, providing growers continuous access to this information.

We held the second Native Seed Stakeholders Meeting in early March, which was attended by about 30 seed producers, buyers, and policy makers. We also initiated a quarterly newsletter, the Native Seed Scoop, to provide practical information for native seed producers, service providers, and consumers.

A second major program element is stewardship of the foundation seed supply—the gene bank. As foundation seed sits in cold storage, some species gradually lose viability, while other lots remain viable for decades. Depleted or aging stocks must be refreshed through growing out seed reserved from earlier harvests. Producing fresh seed from these new plantings allows us to respond to grower requests with adequate quantity and quality. Knowing which seed lots in our seed bank need to be refreshed is an additional challenge that requires effective data management. This year we worked with an independent software consultant to develop a database that will simplify the process of updating the seed inventory, prevent errors, and make information easily accessible.



## Plant Materials Research Assistant: Kate Sinnott

UNI Biology major Kate Sinnott has helped with every aspect of seed production for the last two years, from the greenhouse to production plots to seed cleaning.

Kate's highlight of 2019-20: "Last year's success with *Asclepias incarnata*. We started with 24 grams of seed, and as we grew it out we had to learn how to deal with several obstacles - fungal issues in the seedlings, aphids in the field, pods maturing at very different times, removing milkweed fluff from such a large quantity of seed. Our efforts were rewarded by a harvest weighing in at 6.6 pounds of seed! It was exciting to see our problem-solving and care for these plants result in such a quantity of seed, especially knowing it contains the genetic material of several remnant populations."

Kate was recently awarded a Quinney Fellowship to pursue graduate studies at Utah State University, in the Wetland Ecology and Restoration Lab of Dr. Karin Kettenring, Department of Watershed Sciences. Her research will focus on enhancing native plant restoration in Utah Lake wetlands following Phragmites control.



# PRAIRIE ON FARMS

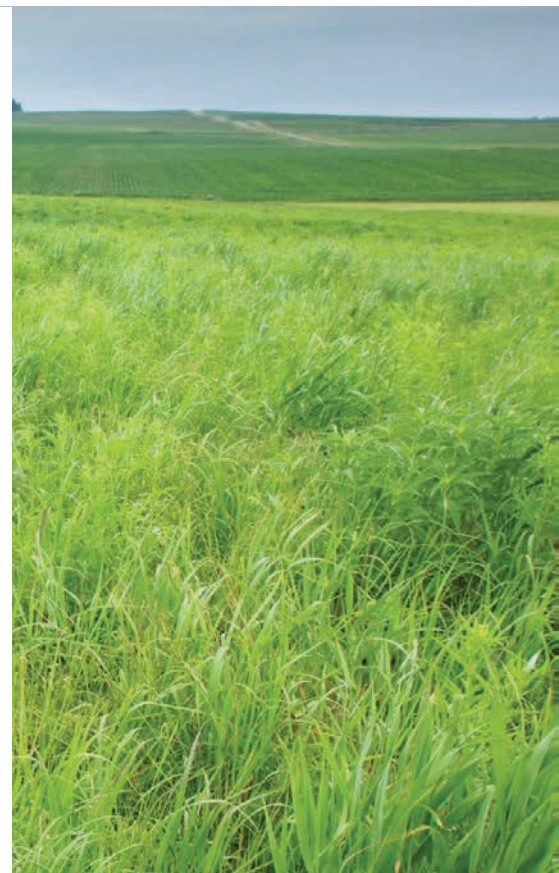
The Prescribed Fire Field Day, held in cooperation with Pheasants Forever and ISU STRIPS, attracted over 70 attendees to the Roadman Farm in Grundy County. UNI Biology alumna Ally Rath, Pheasants Forever, and Tim Youngquist, ISU STRIPS, helped coordinate the field day.

Prairie on Farms provides tailored technical support to watershed managers across Iowa as part of the Iowa Watershed Approach, a five-year project of the U.S. Housing and Urban Development Disaster Resilience Competition. While IWA watershed coordinators primarily sign up landowners to install farm ponds and other water control structures, they also need advice and resources on prairie as an excellent, water-infiltrating ground cover after the earth-moving is finished. Our latest effort is a state-wide listing of prairie seed and service providers, which can be found in the Resources section of our website.

Our latest project funded by the U.S. Department of Agriculture Sustainable Agriculture Research and Education - North Central Region will create a series of case studies to be used by NRCS field staff, farm advisors, and managers to help inform landowners and operators about the use of prairie on farms for conservation benefits.

We said farewell in February to Ashley Kittle, who jump-started and managed the Prairie on Farms program since its inception in 2015.

**Funding:** USDA-North Central Region – Sustainable Agriculture, Research and Education; US Housing and Urban Development Resilience Grant



## Prairie on Farms Program Manager: Andrew Dunham

Andrew Dunham (above, right) is our new Prairie on Farms program manager. Andrew brings a wealth of connections in the sustainable agriculture community, has run a successful farm business, and has extensive experience restoring pollinator habitat to his own land near Grinnell, where he lives with wife Melissa and their two children.



# PRAIRIE ROOTS PROJECT

Over 150 root banners, 40 displays of actual prairie roots, and root-themed interpretive materials and lesson plans, continue to reach tens of thousands of people across the prairie region. Lesson plans can be found at:

<https://tallgrassprairiecenter.org/lesson-plans>



## IOWA ROADSIDE MANAGEMENT



Roadside Program Manager Kristine Nemec and AmeriCorps Communications Associate Paige Shafer coordinated with Shive-Hattery to create a dynamic, modern new logo for the program.

Kristine and Paige partnered with Trees Forever to implement Stewards of the Beautiful Land, a series of remotely held workshops held in summer 2020. Attendees are learning about Iowa's native plants, ecosystems, and wildlife. The workshops include more discussion about the benefits of native vegetation in roadsides. In spite of the remote format, we have incorporated action items to engage attendees with both the natural environment and local officials.

The 33rd annual roadside conference was held September 11-13, 2019 in Pella, Iowa with the theme of Roadsides and Recreation. One popular speaker was Dan Boelman with Zanfel Laboratories, who talked about poisonous plants and distributed product samples. Field trips included tours of Red Rock Lake and Vermeer Corporation's forestry equipment plant. The winter Association for Integrated Roadside Management meeting was held on March 11, 2020 at the Gateway Center in Ames. Guest speakers included Nathan Pohlen (Iowa Department of Transportation), who discussed Iowa DOT's approach to weed control, and Plant Materials Program Manager Laura Walter, who talked about the basics of native seed sourcing.

In May 2020 Kristine submitted information on the 6,483 acres of Iowa county roadsides that were planted between 2014-2019 to the national Monarch Conservation Database. These acres of native county roadside plantings will be among many considered as part of the decision to list the monarch butterfly as a threatened species, to be made in December 2020.

**Funding:** Iowa Living Roadway Trust Fund



# IRVINE PRAIRIE PROJECT

As of March 2020, we had planted 47 of the 77 acres that will eventually comprise Irvine Prairie. The segments planted in 2018 and 2019 are starting to show some serious color. It is thrilling to drive over the hill and spot the prairie amidst the sea of corn and soybeans from a half mile away. Dickcissels and meadowlarks are nesting in the grass, and monarch caterpillars are munching on four species of milkweed. We have spotted two long-distance, short-term visitors: an upland sandpiper and a bobolink.

On a chilly November day last year, Craig Hemsath (UNI Biology M.S., 2007) brought students from Union High School in LaPorte City to help us scatter native seeds on two acres of the project. This was a pilot study to look at the success of bulk harvested seeds (diverse prairie species harvested from a mixed planting), purchased from Diversity Farms near Jefferson, Iowa. We hope these students will return next year to see how their planting turned out. In 2020, UNI Biology majors Jacey Meier and Isabella Betzer (pictured below) started a project to study the role of seed predation in planting success. Professor Ai Wen enlisted the help of Biology major Taylor Murray to study the pollinator community.

Visit Irvine Prairie, 1173 55th St., Dysart, Iowa, or read more here: <https://tallgrassprairiecenter.org/irvine-prairie>

**Funding:** Mrs. Cathy Irvine





# GREEN IOWA AMERICORPS

## Green Iowa AmeriCorps Land and Water Stewards help boost capacity

Tallgrass Prairie Center programs and projects result in substantial impacts on the landscape – but we have had limited capacity to communicate about what we do. This past year for the first time, we were able to expand that capacity by serving as a host for two full-time Green Iowa AmeriCorps service members – Rowan McMullen Cheng and Paige Shafer – who would join our team for 11 months as our first communications associates.

Under the direction of Prairie on Farms Program Manager Ashley Kittle, Rowan McMullen Cheng created a brochure series and eye-catching tabletop displays for the Prairie on Farms program. She constructed analytics to develop a digital media strategy for our website and Facebook page. Rowan has also led the launch of a new quarterly e-newsletter for the Plant Materials Program. Prior to COVID-19 she tabled at annual conferences of Leadership for Midwestern Watersheds, Women Food and Agriculture Network, and Green Lands, Blue Waters. Rowan also organized a broadcast seeding event at Irvine Prairie involving local high school science students, and created observation guidelines for the birds, wildflowers and grasses of Irvine Prairie. Rowan is moving on to begin her M.A. in the Hubbard School of Journalism and Mass Communications at the University of Minnesota.

Under the direction of IRM Program Manager Kristine Nemecek, Paige Shafer surveyed stakeholders and then worked closely with consultants to re-imagine the program’s 25-year-old logo, name and tagline. She organized the 2020 IRM calendar, and expanded IRM’s social media presence on Facebook and Instagram. She tabled for the IRM program at events organized by the Iowa County Engineers Association, Practical Farmers of Iowa, Iowa Association of County Conservation Boards, Iowa Weed Commissioners Association, and the Association for Integrated Roadside Management. After COVID-19 disrupted other plans, she pulled together a team of TPC staff and led the Botany Beginners online course. Paige will be leaving at the end of her term to pursue new opportunities.

The same AmeriCorps program provides us with two part-time summer positions. Last summer, UNI students Zach Fuller (Geography) and D.J. Brooks (Environmental Science) helped with GIS mapping and botanical surveys in roadsides and prairie strips plantings. This work was continued in summer 2020 by Ethan Evans, a Grinnell College graduate with a keen interest in creative writing, and Kari Wellman, a UNI student majoring in Earth and Environmental Science.





# SCIENCE TEACHING EXTERNS

## Science Teacher STEM Externs bring prairie back to the classroom

This past year, Plant Materials Program Manager Laura Walter began hosting middle and high school science teachers for six weeks, through the Iowa STEM Teacher Externship Program. The teachers receive a stipend from the Iowa Governor's STEM Advisory Council to work with us, and to complete an independent project related to their teaching. In 2019, we hosted Paul Muga from Waverly-Shell Rock, and Logan Mork from Cedar Falls High School. In summer 2020, Kelsy Knebel, from Hoover Middle School in Waterloo joined us.

The teachers assist with a variety of seasonal tasks, rubbing elbows with student employees and the Weekly Weeders (a group of AmeriCorps Land and Water Steward service members who help us out in the seed production plots). Meanwhile, they are brainstorming about how to connect the natural history of tallgrass prairie to core

concepts in biology and earth science they will be teaching. Last fall, students in Paul Muga's Science Issues class harvested seeds of a dozen prairie species for use in an overseeding experiment aimed at increasing diversity in a prairie restoration at WSR Middle School. Paul applied skills learned through his externship - plant identification, restoration management techniques, and seed harvest/cleaning procedures - to provide this experience to his students. Logan Mork investigated the creation of Outdoor Learning Environments (OLEs) and their potential for the new Cedar Falls High School campus.

We love this program because the experiences gained by science teachers at the TPC will influence their science classrooms year after year, for potentially hundreds of kids.



# TPC STAFF

**Laura Jackson, Director**

**Andrew Dunham, Prairie on Farms Manager**

**Justin Meissen, Research & Restoration Program Manager**

**Staci Mueller, Outreach Coordinator**

**Kristine Nemecek, Roadside Program Manager**

**Jared Randall, TPC Program Assistant**

**Kate Sinnott, Plant Materials Research Assistant**

**Daryl Smith, Volunteer Advocate**

**Laura Fischer Walter, Plant Materials Program Manager**

**Mary Weld, Grants and Programming Coordinator**

## AMERICORPS SERVICE MEMBERS

**D.J. Brooks**

**Paige Shafer**

**Ethan Evans**

**Kari Wellman**

**Zach Fuller**

**The Weekly Weeders**

**Rowan McMullen Cheng**

## UNI STUDENTS

**Alec Glidden - Grad Assistant**

**Mary (Corinne) Myers - Grad Assistant**

**Jacey Meiers - Summer Undergraduate Research Program**

**Isabella Betzer - Biology Honors Program**



Tallgrass Prairie Center Highlights is an annual publication of the University of Northern Iowa Tallgrass Prairie Center. This issue was edited by Laura Jackson and designed by the UNI College of Humanities, Arts and Sciences.

To subscribe to TPC Highlights, or our monthly e-newsletter featuring timely news and upcoming events, contact:

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