

Missouri Natural Resources Conference

“Collaboration in Conservation-
Celebrating Differences and
Building Bridges”

February 19th, 20th, and 21st, 2025
Margaritaville Resort
Osage Beach, Missouri



“Collaboration in Conservation- Celebrating Differences and Building Bridges”

MISSOURI NATURAL RESOURCES
CONFERENCE

February 19th-21st, 2025

The Missouri Natural Resources Conference (MNRC) is an annual meeting organized and sponsored by the Missouri Chapter of the American Fisheries Society, the Missouri Chapter of the Society of American Foresters, Missouri Chapter of The Wildlife Society, and the Show-Me Chapter of the Soil and Water Conservation Society. This unique blend of disciplines, represented by the four societies, promotes wise use and management of **Missouri’s natural resources**. Each year the conference hosts about 800 people working in the natural resources field who meet to exchange information and ideas and encourage continued cooperation among resource professionals, agencies, and other natural resource stakeholders.

In Cooperation With:

Missouri Department of Conservation

University of Missouri School of Natural
Resources

USDA Forest Service

USDA Natural Resources Conservation
Service

Welcome to the 2025
Missouri Natural Resource
Conference

***“Collaboration in Conservation-
Celebrating Differences and Building
Bridges”***

The ability to collaborate with partners and celebrate the differences between generations and individuals is a key to effective conservation management implementation. Our theme "Collaboration in Conservation-Celebrating Differences and Building Bridges" acknowledges the professional side of collaborative conservation as well as the distinct need to build bridges between individuals to find common ground and achieve prevailing goals. This year's MNRC theme is a celebration of long established partnerships and subsequent personal relationships that were forged over the careers of conservation minded individuals and their commitment to carrying those goals far into the future.

Our plenary speakers Jim Richardson and Bill Wright will inspire us to see the ways that we have worked collaboratively together and can continue to build bridges within the private and public sector. While celebrating the differences between each of us that creates opportunities to build partnerships in conservation.

The mixer and breaks provide us the opportunity to meet with the exhibitors that help us **with our mission of managing Missouri's natural resources** and engage in lively networking.

With changes occurring in natural resources at an ever-accelerating pace, it is more important than ever for you to connect with professionals in your discipline. So, the four MNRC sponsoring societies, the Missouri Chapter of the American Fisheries Society, the Missouri Society of American Foresters, Missouri Chapter of The Wildlife Society and the Show-Me Chapter of the Soil and Water Conservation Society, continue to provide this conference for us to learn and network. We encourage you to continue membership or join the appropriate professional society for your own benefit and the benefit of your profession.

The planning committee has worked diligently preparing for you. We, and the four sponsoring societies, hope you enjoy this years conference.





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2025 MNRC Social Sponsors

Platinum Sponsors (\$1000)



Gold Sponsors (\$500)



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Silver Sponsor (\$250)



2025 MNRC Planning Committee Meetings

Wednesday, February 19th
10:00 am - 12:00pm MNRC Pre-Conference Meeting
(Windgate 63/64)

Friday, February 21st
12:30 pm - 1:30 pm MNRC Post-Conference Meeting
(Nautical Wheeler)

2025 MNRC Affiliated Meetings

Wednesday, February 19th

8:30 am -5:30 pm Sport Fish Coordination Team Working Group Meetings
(Nautical Wheeler)

9:00 am -4:30 pm Private Lands Summit Native Grasslands Workshop Round Table
(Paradise C)

10:00 am -12:00 pm Missouri Native Seed Association
(Windward 72/73)

12:00 pm -1:30 pm Quad Society Meeting
(Leeward 76/77)

1:00 pm -3:00 pm Missouri Prescribed Fire Council
(Leeward 74/75)

4:00 pm -5:30 pm Invasive Carp Regulations discussion
(Windgate 62)

2025 MNRC AGENDA

Wednesday, February 19th

2:00 pm – 7:30 pm Registration Open
(Paradise Ballroom Foyer)

4:00 pm - 11:00 pm Exhibits Open
(Windgate Hall)

5:30 pm –7:00 pm Conservation Career Expo
(Paradise B)

7:00pm –11:00 pm Mixer with Exhibitors
(Windgate Hall)

Join us Wednesday evening February 19th from 7:00 pm to 11:00 pm for awesome food provided by Margaritaville! The mixer is also a great venue to socialize, network, and interact with exhibitors and poster authors, and create lasting friendships with fellow Natural Resource Professionals! The posters will be on display all evening; however, the poster authors will be available for questions from 7:00 pm to 9:00 pm only.

Reminder: Name Tags are Required to Attend this event.



2025 MNRC Career Expo

Wednesday, February 19th

Career Expo

(Paradise B)

5:30 – 7:00 PM

Please join us for the 27th Annual Career Expo at the 2025 Missouri Natural Resources Conference on Wednesday, February 19th at Margaritaville Resort in Osage Beach, Missouri.

The conference is committed to continually improving the experience for all participants. The focus will be for undergraduate and graduate students as in the past, as well as offering activities for current employees. The Expo will have one-on-one resume review, interview skills, and networking that is critical to all employees seeking personal improvement and job opportunities. The conference welcomes all interested participants to the updated CAREER EXPO.

The 2025 Career Expo will include three different activities for students.

- Job Fair: Gather up current and future job announcements.
- Resume Critique: Bring a few copies of your resume for a professional review.
- Mock Interviews: Gain experience for your future jobs.
- 5 PM– 6 PM Windgate 60/61: How to Improve Your Interview Skills



Thursday, February 20th

7:00 am - 7:45 am Continental Breakfast with Exhibitors (Windgate Hall)

7:00 am - 8:30 am MNRC Prayer Breakfast (Island Room)

8:00 am - 5:30 pm Registration Open (Paradise Ballroom Foyer)

8:00 am - 9:30 am Welcome: Diane Bradley-Redden and Plenary Session: Jim Richardson (Paradise A & B)

9:30 am - 10:00 am Break with Exhibitors (Windgate Hall)

10:00 am - 11:00 am Plenary Session: Bill Wright (Paradise A & B)

11:00am - 1:00pm MNRC Student and Professional Luncheon (Taco Bar available for purchase for \$17.50, Students free with ticket) (Windgate Hall) (Rm 62/63/64)

1:00 pm - 3:00 pm Workshops & Contributed Papers

Monarch Butterfly Listing (Paradise A)

Pestilence in the Hills (Paradise B)

Invasives Control Need to Know (Paradise C)

Structured Decision Making (Rm 60/61)

Exploring Patterns in the Ozarks (Rm 62/63/64)

Volunteer Programs Benefits (Parasol II)

Thursday, February 20th

- | | |
|-------------------|--|
| 3:00 pm – 3:30 pm | Break with Exhibitors
(Windgate Hall) |
| 3:00 pm - 6:00 pm | Missouri Society of
American Foresters Meeting
(Parasol II) |
| 3:30 pm - 5:30 pm | Missouri American Fisheries
Society Meeting
(Paradise A) |
| 3:30 pm - 5:30 pm | MO Show-Me Chapter Soil &
Water Conservation Society Meeting
(Windgate 60/61) |
| 3:30 pm - 5:30 pm | Missouri Chapter of the
Wildlife Society Meeting
(Windgate 62/63/64) |
| 5:30 pm – 7:15 pm | Dinner (on your own) |
| 6:30 pm - 9:00 pm | Awards Social & Dessert Buffet
(Paradise C) |
| 7:15 pm – 7:30 pm | Welcome |
| 7:30 pm – 8:30 pm | Awards
Presentations |
| 8:30 pm – 9:00 pm | Dessert Buffet and
Raffle Drawings |

Awards Social & Dessert Buffet free to all registered attendees with a name tag. Cash bar available.



Thursday, February 20th
11:00am - 1:00pm

MNRC Student and Professional
Luncheon
(Windgate Hall)

You're invited to join the second annual MNRC Student and Professional Luncheon! MNRC will be hosting a luncheon to allow for an excellent networking opportunity. Students and professionals will be randomly mixed together at lunch tables with a room host facilitating table discussions. Each table will provide students the chance to make valuable contacts with professionals currently working in the field. Students will receive a free lunch ticket at registration. Taco bar available for purchase for professional attendees for \$17.50.

Contact Ben Havens at
Ben.Havens@mdc.mo.gov



Friday, February 21st

7:00 am – 7:45 am Continental Breakfast
For Registered Attendees
(Windgate Hall)

8:00 am – 10:30 am Registration
(Paradise Ballroom Foyer)

8:00 am - 10:00 am Workshops and Contributed
Papers

Fisheries Papers I (Paradise A)
Forestry Papers (Paradise B)
Wildlife Papers (Paradise C)
NRCS Practice Updates (Rm 60/61)
Missouri Prairie Conservation Status
(Rm 62/63/64)
Natural Resource Papers I (Parasol II)

10:00 am – 10:30 am Break with Exhibitors
(Windgate Hall)

10:30 am - 12:30 pm Workshops and Contributed
Papers

Fisheries Papers II (Paradise A)
Insect Conservation (Paradise B)
Applied Watershed Science in the Ozarks
(Paradise C)
Natural Resources Papers II (Rm 60/61)
Sustainable Farming (Rm 62/63/64)
Natural Resources Papers III (Parasol II)

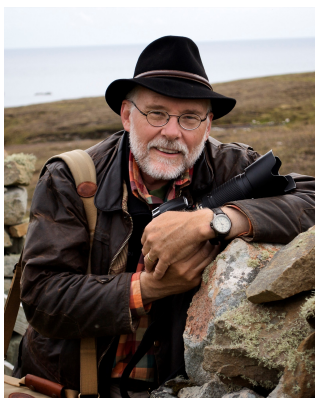


Welcome & Plenary Session

Thursday, February 20th

Jim Richardson

8:00 am — 9:30 am



Jim has built his photographic career around visual storytelling by creating groundbreaking work in documentary, resource issues, environmental photography and the critical concerns of feeding the planet. Before concentrating his working life at National Geographic for the last 35+ years he was noted for his innovative

documentary narratives of rural life and adolescence that won him special recognition in the World Understanding contest three times (1975, 1976, 1977) and the Crystal AMI for best multimedia presentation in the world in 1983. For National Geographic he pioneered fresh visual narratives of water issues in the **1990's before beginning his work on food, agricultural** development, and the problems surrounding feeding our growing (and hungry) world. Since his first story in 1984 (the flooding of the Great Salt Lake) he has photographed 32 NatGeo magazine assignments and another 20 for National Geographic Traveler. Besides teaching at the Missouri Photo Workshop, Summit Workshops, Santa Fe Photo Workshops and many others, he speaks world-wide on food issues and his longtime fascination with the culture and landscape of Scotland. Among his awards he is proudest that his fellow National Geographic photographers named him **their "Photographer's Photographer" in 2014 and that** the people of Cuba, Kansas (Pop. 186) named him their **"Honored Citizen."** **In 2017 Kansas State University** bestowed an honorary doctorate for his work in cultural and environmental communications. You can **find Jim's work at**

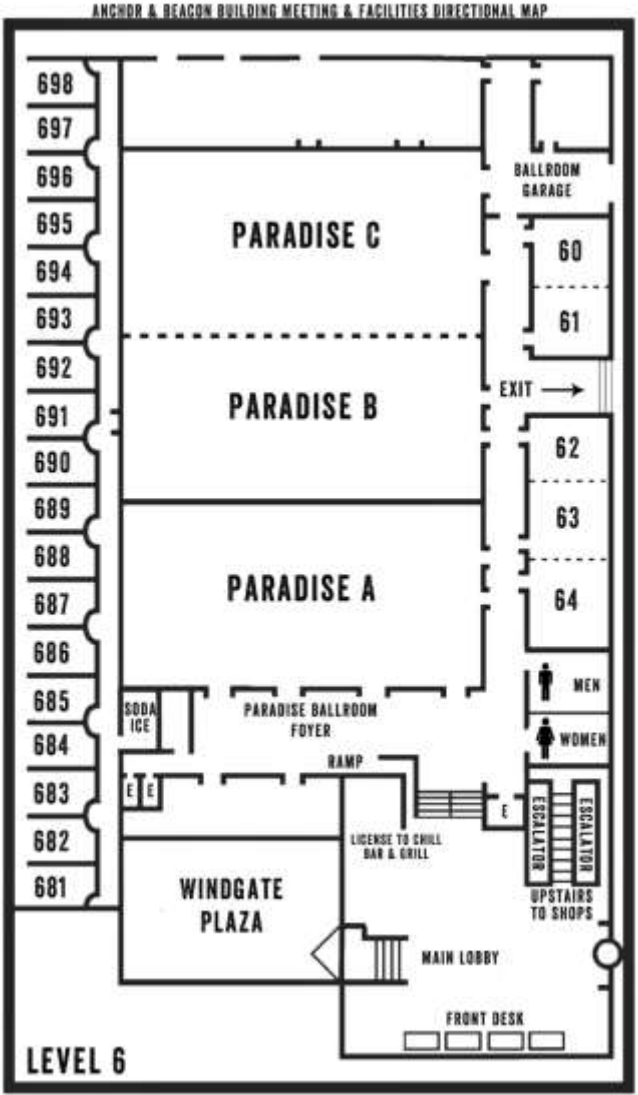
(<https://www.jimrichardsonphotography.com/index>)

Plenary Session
Thursday, February 20th
Bill Wright
10:00 am – 11:00 am

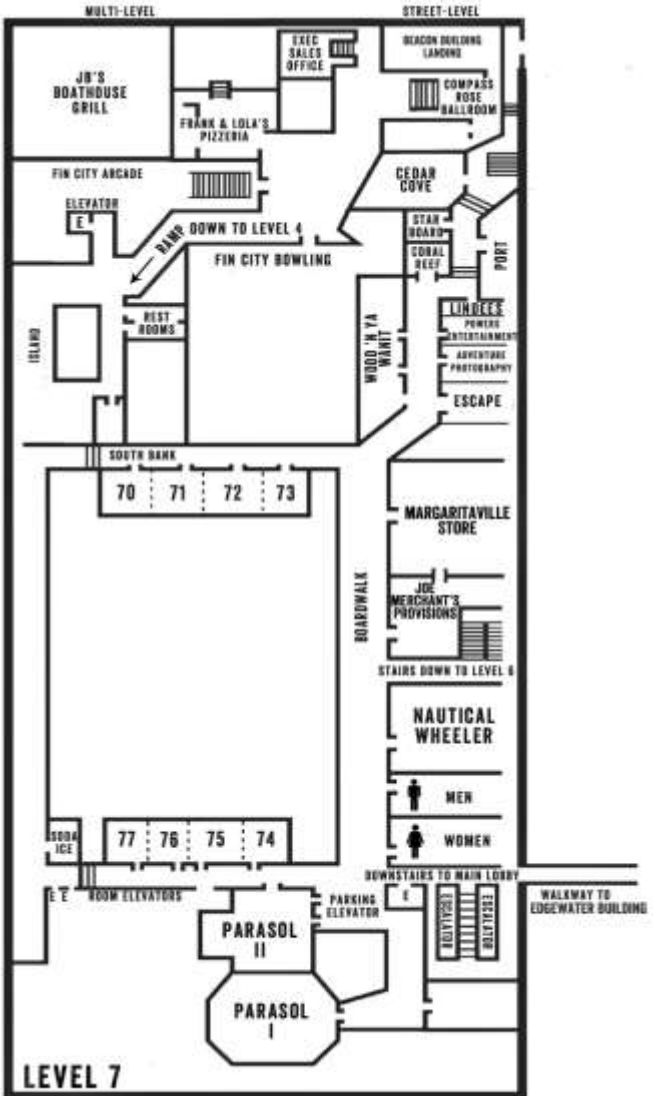
I am a veterinarian by vocation. I took undergrad courses in fisheries and wildlife at University of Missouri, Columbia and developed an interest in the outdoors with my college roommates who majored in wildlife and forestry. My hobby of training pointing dogs for field trials gave me exposure to gamebird management practices from Texas to Saskatchewan. We have put together adjoining acreage in Lincoln and Montgomery counties over the past 40 years that totals 700 acres. Our farm was initially 50 percent woods and 50 percent row crop and pasture. With the help of multiple federal and state programs we now manage it as restored prairie and savannah for wildlife habitat. All our acreage routinely sees fire and now several adjoining neighbors are doing the same. Our goals are to add more diversity to the prairie ground, keep a basal area of 60 or less in the woods and control any invasive species. Other hobbies include beekeeping, gardening and producing maple syrup.



2025 MNRC
 Anchor Building
 Meeting and Facilities
 Directional Map
 Level 6



2025 MNRC
 Anchor Building
 Meeting & Facilities
 Directional Map
 Level 7



Workshops & Contributed Papers
Thursday, February 20th
1:00 pm - 3:00 pm

Monarch Butterfly Proposed Listing -
Information and Discussion Workshop
(Paradise A)

Workshop Organizers:

NRCS and USFWS

A multi-agency led workshop, including representatives from USFWS, NRCS, MODOT, and MDC. Topics that will be covered include: a presentation on the proposed listing of the **monarch butterfly and USFWS's proposed actions** to protect the species under the Endangered Species Act; a review of the recently released National Conference Opinion that NRCS is working under and how it supports conservation planning in 2025; an overview of the Nationwide Monarch Candidate Conservation Agreement **with Assurances (CCAA), MoDOT's enrollment,** and what implementation looks like for their **agency. MDC will describe it's role at this stage in** the listing process and facilitate discussions amongst partners about the proposed listing and 4 (d) rule.

How Volunteer Programs Benefit You
(Parasol II)

Workshop Organizer: Cara Coates

Join MDC's volunteer affiliate unit staff for a workshop session on how to use volunteers to **your organization's benefit. Learn how to recruit,** what goes into asking a volunteer to commit, and **how to get more done when you don't necessarily** have an abundance of staff at your disposal.

Workshops & Contributed Papers
Thursday, February 20th
1:00 pm - 3:00 pm

SAF Sponsored Workshop

Pestilence in the Hills!
Issues of forest health for Missouri in the
21st century
(Paradise B)

Workshop Organizer:
Dr. Jim Guldin

The 21st century has brought some different challenges for resource managers than those that were found in the second half of the 20th century. The health and productivity of forest ecosystems in Missouri are vulnerable to variability in weather and climate, which are becoming more pronounced in recent decades. Our first keynote presentation will review these historical trends, and those anticipated in the future. The effects of these climatic forcing factors in forest ecosystems include earlier leaf-out and later leaf drop, and wetter wet and drier dry periods. Related to this are higher humidity and increased spring rainfall, milder winters, and increased fall and winter drought. All of these factors drive stress in forest ecosystems, the effects of which are uncertain but can be seen in issues with forest health. Our second keynote presentation will review these. Finally, the workshop will include presentations on several new and recently observed issues of forest health involving post oak, red oak decline, and others. The session will conclude with an open forum so that attendees can ask questions of the presenters.

Thursday, February 20th
1:00 pm - 3:00 pm

Invasives Control Need-To-Know:
Four Quick Talks on New Herbicide
Regulations & Formulas, Invasive Carp
and More
(Paradise C)

Workshop Organizers:
Carol Davit

With invasive plants and animals as the second greatest threat to wildlife and habitats locally and globally, all natural resource professionals need up-to-date and practical information to carry out their work. Attendees of this workshop will learn about newly revised Application Exclusion Zone (AEZ) standards issued by the United States EPA, which will affect all herbicide applicators. Also to be presented will be information about the change in active ingredients in many general-use Roundup brand products, which have higher soil mobility and longer persistence, with potentially more severe environmental fates than glyphosate. Attendees will also learn about inspiring, innovative efforts to market invasive carp for human consumption in Missouri, the United States, and the world. Finally, the workshop will provide talking points for attendees to use when interacting with the general public about the problem with invasive plants and also the use of herbicide as a control method.



Thursday, February 20th
1:00 pm - 3:00 pm

An overview of Structured Decision Making
for Natural Resources
(Rm 60/61)

Workshop Organizers:
Brielle Thompson

Fish and wildlife management involves making difficult decisions concerning natural resource problems. Familiar natural resource problems may include decisions on how many acres of land must be protected, how an endangered species should be reintroduced, whether an agency should conduct more monitoring of an invasive species, etc. The field of decision analysis offers tools such as Structured Decision Making (SDM) to help frame, structure, and identify solutions for such problems. Various Federal and State fish and wildlife agencies are increasingly using SDM to ensure a streamlined, fair, unbiased, and organized decision-making process. This workshop will provide an introduction to SDM and its key components: framing the natural resource management problem; articulating objectives; developing management actions and alternatives; using forecasting tools to evaluate the consequences, or outcomes, of alternatives; and using tradeoff methods to identify management alternatives when decisions involve multiple competing objectives. Throughout the workshop the instructor will provide real world case study examples and offer opportunities for participatory discussion.



Thursday, February 20th
1:00 pm - 3:00 pm

Exploring Patterns in Biodiversity, Invasive
Species, and Forest Health in the Missouri
Ozarks
(Rm 62/63/64)

Workshop Organizers:
Keith Jones

This study highlights student-led research on biodiversity, invasive species, and ecosystem health in the Missouri Ozarks. Our research on *Quercus alba* (white oak) mortality examines patterns of decline through field observations to assess canopy loss and forest health. Drone surveys monitor turtle populations in Indian Creek, identifying species distributions and informing conservation efforts. We conducted an epicuticular wax survey of native plants in the western Ozarks to evaluate environmental stress indicators. Invasive species research includes habitat trapping to monitor the spread of *Faxonius neglectus* and growth rate analysis of *F. longidigitus* to understand its ecological impacts. Behavioral ecology studies focused on the influence of katydid vocalizations on bat foraging behavior, using acoustic monitoring to assess hunting activity. Additionally, surveys of local salamander populations investigated the prevalence of *Batrachochytrium dendrobatidis* (Bd) and *B. salamandrivorans* (Bsal), with implications for amphibian conservation. Together, these projects represent a multifaceted approach to understanding the challenges and dynamics of ecosystems in the Ozarks, preparing students to engage in ecological research and stewardship.

2025 MNRC
Workshops & Contributed Papers
Friday, February 21st
8:00 am - 10:00 am

Fisheries Papers I (Paradise A)

8:00 am - 8:20 am *Trends in population status and range-wide geographic patterns of genetic variation for the federally petitioned Bluestripe Darter* – Brittany Harried

8:20 pm - 8:40 pm *If you kill it, will they come back? Assessing fish communities in the lower Nishnabotna River, seven months after a large-scale fish kill* – Tom Boersig

8:40 pm - 9:00 am *Informing early detection efforts for the next carp invasion in the Missouri River Basin* – Brielle Thompson

9:00 am - 9:20 am *Assessing behavioral responses of native fish to sound: Implications for grass carp management in the Sandusky River, OH* – Christina M. Mackey

9:20 am - 9:40 am *Lake Sturgeon Spawning Event in the Osage River* – Levi Umland

9:40 am - 10:00 am *Big and Small, We Sample Them All: An Assessment of Missouri's Flathead Catfish (*Pyiodictis olivaris*) Fisheries to Guide Management and Sampling Efforts* – Robert Weber



Friday, February 21st

8:00 am - 10:00 am

Forestry Papers

(Paradise B)

8:00 am - 8:20 am *Exploring the Relationship between Stand Density of Declining White Oaks (Quercus alba L.) and Soil Properties across the Eastern United States*
– Saaruj Khadka, PhD

8:20 am - 8:40 am *Assessing the Impact of Greentree Reservoir Water Management on Red Oak Growth and Anatomy in the Lower Mississippi Alluvial Valley*
– Sarah A. Malone

8:40 am - 9:00 am *Honoring History: [Saying Goodbye to the] State Champion American Beech Tree*
– Jennifer Behnken

9:00 am - 9:20 am *White oak (Quercus alba) advance reproduction under uneven-aged management in the Missouri Ozark Highlands: stem and root age distributions, establishment trends, and growth rates*
– Ryan Gross

9:20 am - 9:40 am *Changes in Forest Understory Plant Communities in Response to the Establishment of a Forest Farm* – Raelin Kronenberg

9:40 am - 10:00 am *Fire and shortleaf pine historical ecology: increasing understanding from sites to a landscape-scale* – Michael Stambaugh



Friday, February 21st
8:20 am - 10:00 am

Wildlife Papers

(Paradise C)

8:20 am - 8:40 am *Infrared insights: assessing small mammal species identification using cameras in variable environments* – Daniel M. Wolcott

8:40 am - 9:00 am *River otter status in the United States. Decades of otterly successful conservation* – Nathan Roberts

9:00 am - 9:20 am *Overview of Canine Distemper Virus Surveillance in Mesocarnivores in Missouri from 2023* – Samantha Maywald

9:20 am - 9:40 am *Giant river cane and Swainson's warblers: Implementing innovative monitoring techniques for species of conservation concern* – Gabriela Carroll

9:40 am - 10:00 am *Enhancing Molecular Detection of Tick-Borne Pathogens of Wildlife and Public Health Importance* – Elias Mendenhall



MNRC 2025 Ses

	Paradise A	Paradise B	Paradise C	
Wednesday				
		Career Expo		
Thursday				
7:00-7:45	Continental Breakfast with Exhibitors			
8:00-9:30	First Plenary			
9:30-10:00	Break with Exhibitors in Windgate Hall			
10:00-11:00	Second Plenary			
11:00-1:00	Lunch: Student/Professional Luncheon in Windgate Hall			
1:00-3:00	Monarch Butterfly Proposed Listing	SAF Sponsored Workshop	Invasives Control Need-To-Know	Structural Engineering for Natural Resources
3:00-3:30	Break with Exhibitors			
3:00-6:00	MO American Fisheries Society Meeting			
7:15-9:00				Annual Meeting
Friday				
7:00-7:45	Continental Breakfast with Exhibitors			
8:00-10:00	Fisheries Papers I	Forestry Papers	Wildlife Papers	Missouri Significance
10:00-10:30	Break with Exhibitors			
10:30-12:30	Fisheries Papers II	Insect Conservation Workshop	Applied Watershed Science in the Ozarks	Natural Resources



Session Schedule

Rm 60-61	Rm 62-64	Parasol II	Nautical Wheeler
Exhibitors in Windgate Hall			
Windgate Hall. Taco Bar: \$17.25/Student Free with Ticket			
Structured Decision Making Natural Resources	Exploring Patterns in the Missouri Ozarks	How Volunteer Programs Benefit You	
Exhibitors in Windgate Hall			
	MO Chapter of the Wildlife Society Meeting(63/64)	MO Society of American Foresters Meeting	MO Show-Me Chapter of the Soil & Water Conservation Society
Towards Banquet			
Lunch with Exhibitors in Windgate Hall			
Missouri Prairie Conservation Significance & Status	NRCS Practice Updates for Wildlife and Forest Management Planners	Natural Resources Papers I	
Exhibitors in Windgate Hall			
Natural Resources Papers II	Sustainable Farming and Exploring Pollinator Use and Carbon Credit Programs	Natural Resources Papers III	



Friday, February 21st
8:00 am - 10:00 am

Natural Resource Papers I (Parasol II)

8:00 am - 8:20 am *On Demand, Custom, Topographic Maps with topoBuilder* – David Nail

8:20 am - 8:40 am *Grazing and Microinvertebrates* – Jen Mittelhauser

8:40 am - 9:00 am *Women in Agriculture: Breaking the Stigma* – Fiona Hosty

9:00 am - 9:20 am *Interactive tools for enhancing conservation: Landscape Recovery and SWAP Visualization Tools* – Lacy Dolan Todt

9:20 am – 9:40 am *Federal Hiring Authorities and Internships* – Abigail Manners

9:40 am – 10:00 am *Truth In Advertising for Environmental Sustainability* - Aidan David-Pennington



Friday, February 21st
8:00 am - 10:00 am

Updates for Wildlife and Forest Management Planning (Room 62/63/64)

Workshop Organizers:
NRCS

Join NRCS State Forester Angela George and NRCS State Biologist Jason Sykes to hear about the recent changes to the planning requirements for some of the NRCS-funded forestry and wildlife management practices in Missouri. On the forestry side, these updates include more user-friendly Implementation Requirement guides for planning forest stand improvement, rehabilitating trails and log landings, and planning firebreaks. We will also introduce the new prescribed burn plan templates. On the wildlife side, these include Implementation Requirements for several new practices, a new Wildlife Habitat Appraisal Guide for evaluation of Urban / Small-scale Ag operations, brief update on a listed bat biological assessment, and funding options for wildlife and related practices in EQIP. We will also discuss changes to how the Inflation Reduction Act Climate Smart funds can be used.



Friday, February 21st
8:00 am - 10:00 am

From the Soil Microbiome to Prairie Fish &
Salamanders: Missouri Prairie Conservation
Significance & Status
(Room 60/61)

Workshop Organizer:
Carol Davit

Tallgrass prairie is one of the most threatened terrestrial communities on earth. Despite the small amount of intact, scattered acres of prairie remaining in Missouri (roughly 45,000 acres left of the original 15 million), these old-growth remnants harbor incredible natural diversity at community and species scales. Learn about the current conservation status of the prairie soil microbiome from MU Soil Scientist Sam Lord, of rare prairie communities from MDC Natural Community Ecologist Mike Leahy, of prairie stream life from MDC Science Unit Supervisor Darren Thornhill, and of threatened amphibians and reptiles of Missouri's prairies from State Herpetologist Dr. Jeff Briggler. The information you receive will help guide your professional efforts to safeguard native grassland habitats and wildlife.



2025 MNRC
Workshops & Contributed Papers
Friday, February 21st
10:30 am - 12:30 pm

Fisheries Papers II (Paradise A)

10:30 am - 10:50 am *Summary of the 2024 Long Term Resource Monitoring Fish Component Sampling on the Mississippi River* — Andrew Glen

10:50 am - 11:10 am *Tracking of the Woodland Crayfish (*Faxonius hylas*) invasion in the upper St. Francis River drainage* — Wesley Fitzsimmons

11:10 am - 11:30 pm *Characterizing Aquatic Biota and Habitat Across Thermal Gradients to Enhance Resource Management in Missouri Streams* - Natalie Coash

11:30 am - 11:50 am *Assessing Instream Habitat Through the Use of Sonar Technologies* — Tyler Hessler

11:50 am - 12:10 pm *Built to Last? Evaluating the Condition of Fish Habitat Structures in Missouri's Ozark Reservoirs* — Tyler Ham

12:10 pm — 12:30 pm *Phenotypic homogenization and potential fitness constraints in Ozark endemic Neosho Bass (*Micropterus velox*) following introgression of non-native Smallmouth Bass (*M. dolomieu*)* - John Gunn



Friday, February 21st
10:30 am - 12:30 pm

Insect Conservation (Paradise B)

Workshop Organizer:
Dan Marschalek

Due to their incredible species richness, insects provide important ecosystem functions in our natural areas. Ecosystem integrity and stability rely on the pollination, decomposition (nutrient recycling), predation, and food sources that are provided by insects. This workshop will include six 20-minute presentations on research projects **involving Missouri's insects: Missouri's prairie butterflies over the last 30 years, Characteristics of prairies associated with the regal fritillary butterfly in Missouri, Pyric pollination, Effects of cattle disturbance on aquatic macroinvertebrates in Missouri farm ponds, A collaborative conservation story: Returning American burying beetles to southwest Missouri, and Informed conservation: The necessity of inventory & monitoring for protecting Missouri's pollinators**



Friday, February 21st
10:30 am - 12:30 pm

Applied Watershed Science in the Ozarks:
Exploring Natural Resources and Ecosystem
Management
(Paradise C)

Workshop Organizer:
Marc Owen

Natural resources and ecosystem management requires an understanding of natural processes, impacts of past and present human disturbances, along with advances in available technology and techniques to achieve specific management goals. This is sometimes challenging in the Ozarks, where research and information can sometimes be lacking for resource managers. These data gaps offer opportunities for scientists to engage in applied research to help provide information to better conserve, restore, and protect natural resources. This multidisciplinary workshop aims to showcase current projects in the Ozarks by Missouri State University researchers in the College of Natural and Applied Sciences specializing in the fields of geomorphology, geospatial science, and biology. Presentations include the use of drone technology to capture high resolution remotely sensed data, investigating the impact of invasive species on reservoir water quality, understanding river channel evolution since Euro-American settlement, restoring giant river cane along Ozarks waterways, the use of LiDAR derived digital elevation models (DEMs) and machine learning to map sinkholes, and quantifying water-borne pathogens in an urbanized karst-spring system.

Friday, February 21st
10:30 am - 12:30 pm

Natural Resource Papers II (Room 60/61)

10:30 am - 10:50 am *Public Perceptions of the Nuclear Industry in Callaway County*— Jhonathan Ordinola

10:50 am - 11:10 am *Planning Three-Dimensionally: Partnering to Protect Karst in a Growing Community* – Dave Woods

11:10 am - 11:30 pm *Urban Trail Stormwater Management Utilizing Infiltech™ System of Devices* - Kathleen M. Trauth, Ph.D., P.E.

11:30 am - 11:50 am *The Impact of Endocrine-Disrupting Chemicals in Plastics on Human Health*— Cameron Gromek

11:50 am - 12:10 pm *Addressing the many facets of the plastic pollution crisis: a call to action*— Dana Ripper

12:10 pm—12:30 pm *Multimedia Campaign to Improve Awareness and Prevention of Tickborne Disease* - Christie Darby



Friday, February 21st
10:30 am - 12:30 pm

Sustainable Farming with the Next
Generation and Exploring Pollinator Use
alongside Carbon Credit Programs
(Rm 62/63/64)

Workshop Organizers: Abby Stevens, Jennifer Eggemeyer and Seth Spire

The Stevens family are a great example of being Stewards of the Land. They promote educating youth and promoting agriculture, participate in USDA programs, and are involved in their community. Abby Stevens farms alongside her husband, **Luke, on his family's third generation farm** in Montgomery County. They raise corn, soybeans, and wheat while practicing sustainable farming techniques to preserve the land for the next generation. Mrs. Stevens will be discussing those sustainable practices they use on their operation including pollinators, cover crops, and carbon credits.

In addition, Seth Spire, Sustainable Systems Agronomist from the Bayer Carbon program, and Jennifer Eggemeyer, CEO of Heartland Seeds, will discuss program objectives & technical questions about carbon credits and pollinators.



Friday, February 21st
10:30 am - 12:30 pm

Natural Resource Papers III (Parasol II)

10:30 am - 10:50 am *Missouri Women Owning Woodland* — Joni Harper & Sarah Higgins

10:50 am - 11:10 am *Can Missouri Pheasants and Missouri Agriculture Coexist* — Todd Higgins

11:10 am - 11:30 pm *The effects of thinning on crown class and diameter growth in the Missouri Ozarks* - Tyler Bradford

11:30 am - 11:50 am *Disturbance drives heterogeneity of temporal occupancy for a federally threatened plant species at Wilson's Creek National Battlefield* — Shelby Mead

11:50 am - 12:10 pm *In-channel sediment deposition patterns along the Gasconade river* — Kayla May

12:10 pm — 12:30 pm *Spread of invasive Potamogeton crispus after drawdown in an Ozark spring-fed pond* - Daphne Miles



2025 MNRC
Posters
February 19th - February 21st
(Windgate Hall)

Cultivating Skills in Fisheries, Communication, and Conservation: Interning at Roaring River Fish Hatchery through the Johnny Morris Institute of Fisheries, Wetlands, and Aquatic Systems
Rachel Suttmueller

Biochar in Sustainable Agriculture: Short-Term Impacts on Soil Properties, Nutrient Dynamics, and Greenhouse Gas Emissions in Different Midwest Missouri Farmlands
Bani Kumar Biswas

Sustainable Tillage Approaches for Improving Tomato Yield, Soil Health, and Pest Resistance in Missouri's Organic Agriculture
Arindam Mandal

Microbial composition of rhizosphere and bulk soils in areas of the Missouri Tri-State mining district
Ophelia Pettington

Variation in butterfly composition at the Kickapoo Edge Prairie
Daniel Castillo

Arthropod Visitors of American Elderberry Across Cultivar and Flowering Season
Katelin Meek

Evaluating Introductory Adult Conservation Programming at Prairie Fork Conservation Area
Melanie Cohen

Subject Matter Focus of State Fish and Wildlife Conservation Magazines
Ashley Hrdina

Posters
February 19th - February 21st
(Windgate Hall)

*Exploring Disparities in Environmental Education and
Its Impact on Environmental Justice: A Conceptual
Overview*
Jannah Klein

*Fishing Guides as Citizen Scientists? Insights into
State Licensing Requirements for Freshwater Fishing
Guides*
Sarah King

*Small mammal community composition and diet in
Southwestern Missouri prairies*
Kaitlyn J. Bebensee

*Zoonotic disease and diet surveys of raccoons (*Procyon
lotor*) across urban-rural gradients in St. Louis and
Kansas City, Missouri*
Yonah Bennett

*Eastern Fox Squirrel (*Sciurus niger*) Occupancy in a
Southern Missouri Woodland*
Daniel Garten

*Plethodontid salamander diversity and abundance in a
popular Missouri show cave*
Gabrielle Campbell

*Monitoring American Kestrel Nesting Success:
Insights on Box Monitoring, Tracking Reproduction
and Habitat Use*
Marlee Malmberg

*Demographic assessment of habitat quality for the
Mississippi Kite in a landscape of energy development*
Lucky Atabo

Posters
February 19th - February 21st
(Windgate Hall)

Theileriosis (Theileria cervi) causes mortality in white-tailed deer fawns
Lanissa Post

Estimating Historical Erosion and Deposition Patterns in Missouri's Gasconade River with Mean Streambed Elevation Changes
Calvin Burdess

The Azolla apocalypse? Appearance, spread, and impact of the nitrogen-fixing species in Lake Springfield, MO
Anna Faust

Does Exposure to Cold Temperatures Influence Azolla Biomass?
Jaslyn Johnson

Influence of Sequence Stratigraphy on Karst in Mark Twain National Forest, Missouri
Sarah Sommer

Studying the impacts of southern pine beetle on loblolly pine in the Homochitto National Forest using remote sensing
Sasha Goodnow

Untapped Potential: American Sycamore and Black Walnut Sap Production Characteristics Compared to Sugar Maple
Karen Klug

Bridge to Biodiversity: An Effort to Restore MO's only Native Bamboo, Giant River Cane (Arundinaria gigantea)
Lyndsey Rightnowar

Posters
February 19th - February 21st
(Windgate Hall)

*Defining old-growth characteristics of upland, xeric
pine-oak forests in the Interior Highlands*
Jacob Vitale

*From the cradle: genetic diversity of the central
Missouri endemic Niangua darter (Etheostoma
nianguae)*
Leah K. Berkman

*Developing complementarity-based conservation
priority ranks for Missouri's aquatic natural
communities based on fish and crayfish distributions*
Joshua Bruegge

*Occurrence and Abundance of Microplastics
Accumulated in Missouri Stream Fishes*
Quin Gray

*Measuring the Impact of Elevated Nitrate on Stream
Health, Diversity of Fishes, and Rainbow Trout
(Oncorhynchus mykiss) as a Sentinel Species*
Matt McNaney

*Prairie plant species' vulnerability to biological
invasions: velvet bean (Mucuna pruriens)
suppresses big bluestem (Andropogon gerardii) growth
and development*
Csengele Barta

*Using Occupancy Modeling To Inform Management
Decisions On A Restored Tallgrass Prairie*
Tyson Cook

*The large and medium sized mammal communities at
Bull Shoals Field Station*
Kali Rouse

Posters
February 19th - February 21st
(Windgate Hall)

The Missouri Western State University's John Rushin Teaching and Research Prairie: the first four years of prairie reconstruction and multidisciplinary biology research in an outdoor Applied Learning laboratory
Cary Chevalier

Mapping and Mitigating Bird Collisions: A Volunteer-Driven Initiative in Kansas City
Tessa Poolman

Birds of Morris Prairie Conservation Area: Species response to restoration
Katie Leonard

*Spatial Ecology of Blanding's turtle, *Emydoidea blandingii*, Using Radio Telemetry and GPS Tracking Data on Loess Bluffs National Wildlife Refuge, Northwest Missouri*
Grace Allen

Examining the Effectiveness of Voluntary Surveillance for CWD in White-tailed Deer in Missouri
Danielle McQueen

Schooling dynamics of juvenile Grass Carp in response to sound
Kendall Smith

Hyporheic community sampling in Ozark streams: Determining if well installation is a disturbance
Connor Bruemmer

Applied Learning through professional internships: Natural Resource Management Internship in land management. My experience with the Missouri Department of Conservation
Autumn Shull

Posters
February 19th - February 21st
(Windgate Hall)

Evaluating the influence of sound on utilization distributions of native fishes in a tank: A comparative study of ostariophysan and non-ostariophysan responses to a boat motor sound

Avery Zenke

Extending pasture-based sheep and goat production information to the farmers through Train-the-Trainer program

Mohan Acharya

Optimizing Germination Rates in Black Walnut (Juglans nigra): A Comparative Study of Walnut Curing and Stratification Methods for High Production Cultivars

Kyra Bunch

Bird-friendly Communities Program

Kaylee Woelfel

Odonate Abundance and Diversity in Ponds of an Urban University Campus

Camrin Peaslee

Wetland Management Internship at Loess Bluffs National Wildlife Refuge

Falcon Turner

Pollinator Habitats in North Dakota's Grasslands: Tracking Bee Diversity and Habitat Preferences of Populations in Managed Areas

Sonja Weber

Breeding success of the Red-winged Blackbird validates bottomland hardwood forest restoration efforts in

Southeast Missouri

Christopher Kirchhofer

2025 MNRC Exhibitors
(Windgate Hall)
February 19th – February 21st

Missouri Chapter of American Foresters

The Missouri Chapter of the Wildlife Society

Missouri Chapter of the American Fisheries
Society

Soil and Water Conservation Society

Quail Forever & Pheasants Forever in Missouri

NativState

MDC – Safety and Employee Development Unit

Hamilton Native Outpost

Scenic Rivers Invasive Species Partnership

Section 319 Nonpoint Source Program – MO
DNR

Ducks Unlimited

Missouri Wildflowers Nursery LLC.

USDA MO Farm Service Agency

Truax Equipment Company

Stream Teams United

Native Landscape Solutions

Webster Groves Nature Study Society

Institute of Botanical Training

2025 MNRC Exhibitors
(Windgate Hall)
February 19th – February 21st

Saint Louis Zoo Wildcare Institute

Tomahawk Live Trap

Visit Springfield

Aquatic Control

Taylor Creek Restoration Nurseries

Land Learning Foundation

Nutrien Solutions

Conservation Corp Minnesota & Iowa

University of Missouri– Center for Agroforestry

Lincoln University– Natural Resources
Management Lab

USDA APHIS Wildlife Services

Conservation Federation of Missouri

Pig Brig Trapping Systems

EcoCredit Marketing

Infiltronics Environmental LLC

The New Territory Magazine



2025 MNRC Exhibitors
(Windgate Hall)
February 19th – February 21st

Voss Signs

Missouri Prairie Foundation

Pure Air Natives

Missouri Department of Health and Senior Services- Bureau of Environmental Epidemiology

Lakes of Missouri Volunteer Program

Missouri Conservation Heritage Foundation

Forest Keeling Nursery

Oak Woodland & Forests Fire Consortium

Mitico LLC

Society of Wetland Soil Scientists
Central Chapter

National Wild Turkey Federation



2025 MNRC Sponsoring Societies

SHOW-ME CHAPTER, SOIL AND WATER CONSERVATION SOCIETY

Soil and Water Conservation Society (SWCS) is a nonprofit scientific and educational organization -- founded in 1945, with six charter members from Missouri -- that serves as an advocate for natural resource conservation professionals and for science-based conservation practice, programs, and policy. Our work targets conservation of soil, water, and related natural resources on working lands.



To learn more, visit their homepage at:
<http://www.moswcs.org/home/>

Contact: Kimberly Schroeder
kimberly.schroeder@usda.gov

MISSOURI CHAPTER OF THE WILDLIFE SOCIETY

The Wildlife Society, founded in 1937, is an international, non-profit scientific and educational organization serving and representing wildlife professionals in all areas of wildlife conservation and resource management. Our goal is to promote excellence in wildlife stewardship through science and education.



To learn more, visit their home page at:
<https://wildlife.org/missouri-chapter/>

Contact: Ted Seiler
ted.seiler@mdc.mo.gov

MISSOURI SOCIETY OF AMERICAN FORESTERS

MOSAF is the Missouri state unit of the Society of American Foresters, a professional society with the following objectives: to advance the science, technology, education, and practice of professional forestry in America, and particularly in Missouri, and to use the knowledge and skills of the profession to benefit members of the society in particular and the public in general to provide an opportunity for better communication among the individual members, their regional representatives, and the society.



To learn more, visit their homepage at:
<http://www.mosaf.net/>

Contact: Kristen Goodrich
Kristen.Goodrich@mdc.mo.gov
Phone: **573-406-3084 Extn. 3827**

THE MISSOURI CHAPTER OF THE AMERICAN FISHERIES SOCIETY

The Missouri Chapter of AFS is a scientific and professional organization dedicated to conservation of aquatic resources. Our goals are to: advance the conservation and wise use of aquatic resources for optimum use and enjoyment by people; facilitate distribution of information regarding aquatic sciences; promote and evaluate educational, scientific, and professional aspects of the aquatic sciences; provide an organizational structure that equitably represents its members; and develop opportunities for effective leadership.



To learn more, visit their home page at:
<http://www.moafs.org/>

Contact: Ben Havens
Ben.Havens@mdc.mo.gov

2025 MNRC Planning Committee

Show- Me Chapter Soil & Water Conservation Society

CHAIR: Tammy Teeter

PUBLICITY: Lauren Stamp

TREASURER: Katy Hulsey

REGISTRATION: Sarah Szachnieski

POSTERS, PRESENTATIONS AND WORKSHOPS:
Tammy Cody

PROGRAM: Todd Higgins

ARRANGEMENTS: Diane Bradley-Redden

SOCIAL: Kim Schroeder

AUDIO-VISUAL: Kyle Francka

Career Expo: Ben Havens

EXHIBITS AND SPONSORS: Steve Wilson

WEBSITE: Kat Lackman



THANKS FOR ATTENDING THE 2025
MISSOURI NATURAL RESOURCES CONFERENCE

SEE YOU NEXT YEAR!

<http://www.mnrc.org>

Soil & Water Society: Tammy Teeter (2025 Chair)
American Fisheries Society : Mike Allen (2026 Chair)
Wildlife Society : Jordan Meyer (2027 Chair)
Society of American Foresters : Sam Kosark (2028 Chair)

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MNRC 2026

“Innovations in Conservation”



February 3-5, 2026

Margaritaville
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