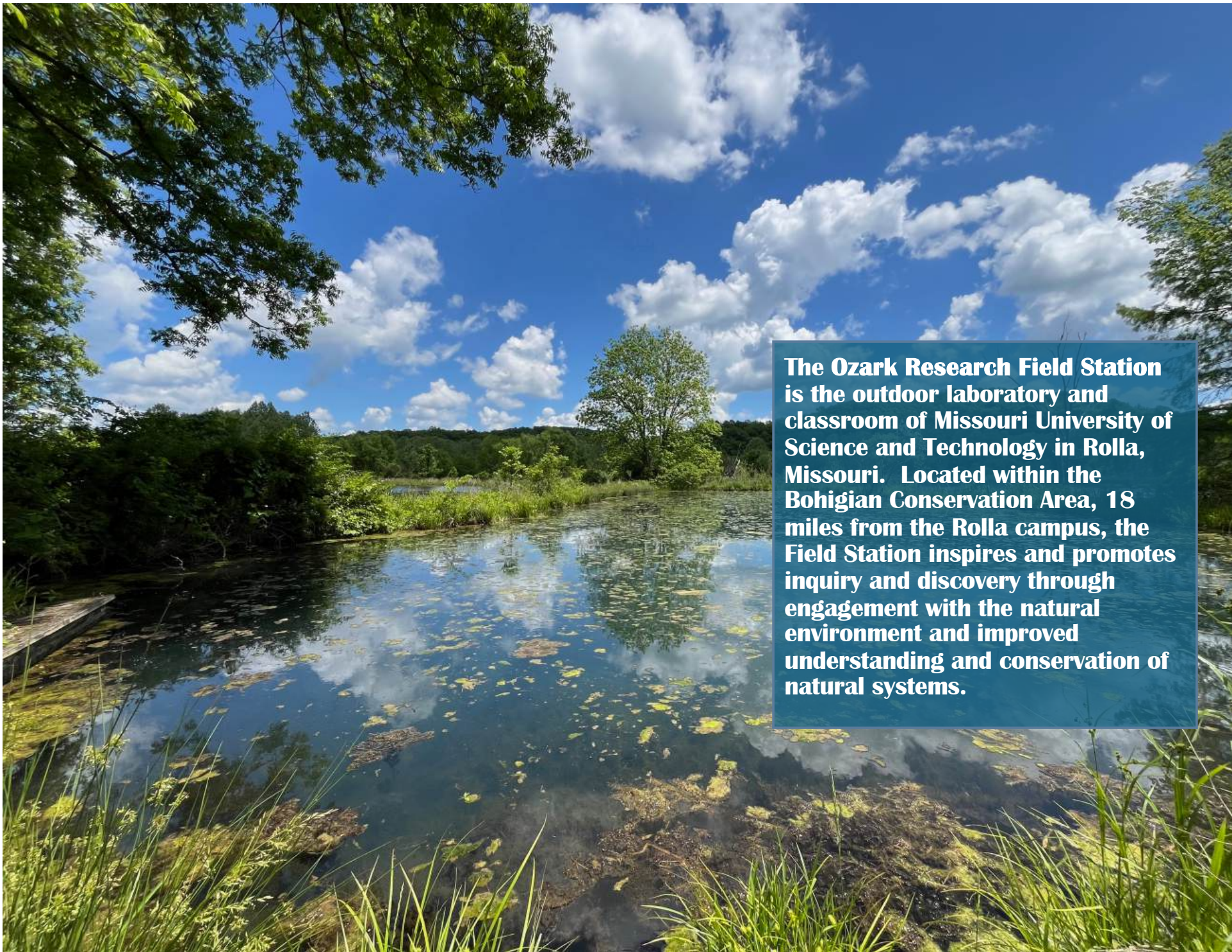


# **Ozark Research Field Station 2022-2024 Report**





**The Ozark Research Field Station is the outdoor laboratory and classroom of Missouri University of Science and Technology in Rolla, Missouri. Located within the Bohigian Conservation Area, 18 miles from the Rolla campus, the Field Station inspires and promotes inquiry and discovery through engagement with the natural environment and improved understanding and conservation of natural systems.**

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# Message from the Director: Building Our Future

The last couple of years have been important for the growth of our field station. Our 2023 activities were largely impacted by major construction at the field station, but we're excited to be back. We're over halfway through our first master plan (6 years and counting), and we have creatively leveraged our resources to make the field station a reality.

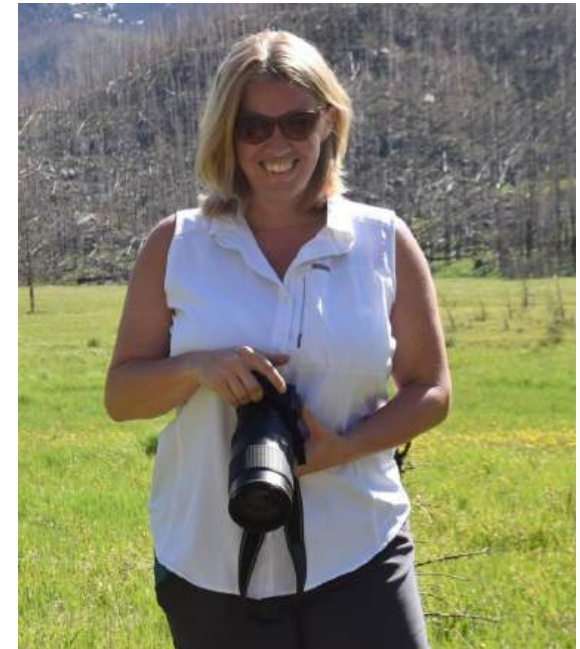
College students, high school students, researchers, and members of the community have been actively utilizing spaces for a variety of purposes- art, science, summer camps, biological and environmental research, community gatherings, and outreach education. We're proud of the continued support for the field station from the university and community, but we're committed to expanding our impact beyond its current sphere.

We want to hear from you- what can we do to support students or faculty in your program? Do you have ideas on how we can extend our reach in the community? Do you want to get involved or get your students involved?

Thank you for your sustained support of our mission and vision. We look forward to sharing our 2024 - 2025 academic year with you!

Best wishes,

*Robin Verble*



**We would love to hear from you.**

**Here's my contact info:**

**Robin M. Verble, Ph.D.**  
**Director, Ozark Research Field Station**  
**Director, Environmental Science Program**  
**Phone: 573-341-7274**  
**E-mail: [ozarkresearch@mst.edu](mailto:ozarkresearch@mst.edu)**

# Gift supports new bunkhouse

**Michael Haynes**, an alumnus from the Department of Chemistry, is an avid fisherman, former Eagle Scout, and conservationist. When he visited the field station in 2021, his vision aligned with ours, and we began the process of developing a plan for bunkhouses.

We're proud to be naming the first bunkroom after a local insect near and dear to Haynes: the stonefly.

The **Stonefly Room** houses ten students in bunks, is equipped with air conditioning, heat, and modern restroom facilities.



**Michael A. Haynes** is retired from The Dow Chemical Company. He is from St. Louis County and graduated from Affton High School in 1973 and returned to St. Louis when he retired in 2002. While at Missouri S&T, he was a member of the W.T. Schrenk Society and Alpha Chi Sigma professional fraternity. Michael and his wife Debbie contribute and donate to the Order of the Golden Shillelagh at Missouri S&T, the National Trust for Historic Preservation, and Trout Unlimited.



**Constructed in 2024, the bunkhouse architecture mirrors that of the original structure with a dogtrot feature that separates the accessible restroom from the sleeping quarters.**

# Researchers Examine Local Darters

Texas A&M University College of Agriculture and Science graduate student, **Taylor Black**, was the first visiting researcher of 2024. She works in the lab of Dr. Rachel Moran where she studies adaptive and mechanistic underpinnings of species diversification. Their work focuses on darters, a group of North American stream fish.

While at the field station, they conducted experimental work on darters using field station tanks. We look forward to the publication of the final work!



# New Moss for Missouri



**Lorie Hetrick** is a Natural Resource Specialist at Mark Twain State Park. She is one of Missouri's leading bryophyte (mosses, liverworts, hornworts) experts.

If you've visited the field station, you've probably seen the moss on the roof.

When bryologist, **Lorie Hetrick**, made a visit to the field station as part of a group picnic, she wasn't expecting to make a scientific discovery; however, when she noticed a unique moss on the roof of the original cabin. It turns out that this moss, *Leptodontium flexifolium*, had never been observed in Missouri prior to this.

Hetrick confirmed the identification with the Missouri Botanical Garden and vouchered a specimen from the field station there that included reproductive parts, a first in their collection.

# Summer Camps Connects Art Students to Nature

Now in its fourth year, the newly renamed **Art in the Ozarks** summer camp continues to connect themes in art, environment, and nature. This year the camp was able to utilize the newly constructed bunkhouse, allowing students to stay on-site at the field station.

Ten high school students took part in the four-day camp, which culminated in showcase of their work.

Among the activities the students participated in were natural dying, plein aire painting, botanical printing, cyanotyping, and construction of the field station's first permanent art installation.

The students created an abstract backdrop to a mural featuring an egret's head that was placed on the large building near the property border. This installation merges modern artistic techniques with natural themes to create an eye-catching piece that complements the natural scenic elements of the property.



Opposite page: Camp participants and 2024 camp instructors, **Robin Verble** and **Theo Sumnicht**, are pictured in front of the mural. Right: Students demonstrate plein aire painting and cyanotyping.



# Go Green!

## Outdoor World Summer Camp



Students in the **Outdoor World Summer Camp** spent the night at the field station this year, learning techniques in field science, camping and orienteering skills, and all about the local ecosystem.

Led by **Courtney Jones**, this camp featured fun activities such as kayaking and s'mores in addition to science skills and a visit to a local mine.

For more information about Missouri S&T summer camps and all the opportunities available, visit [summer.mst.edu](http://summer.mst.edu).



In the top left photo, students from Outdoor World pose with **Dr. Joel Burken** after a visit to the Missouri S&T Greenhouse. In the bottom left photo, students in the camp learn how to use an increment borer, an instrument used to core trees to count rings without killing the tree. Photos on the bottom from left to right are a terrestrial snail, great spangled fritillary, a tulip tree blossom, and a bullfrog.





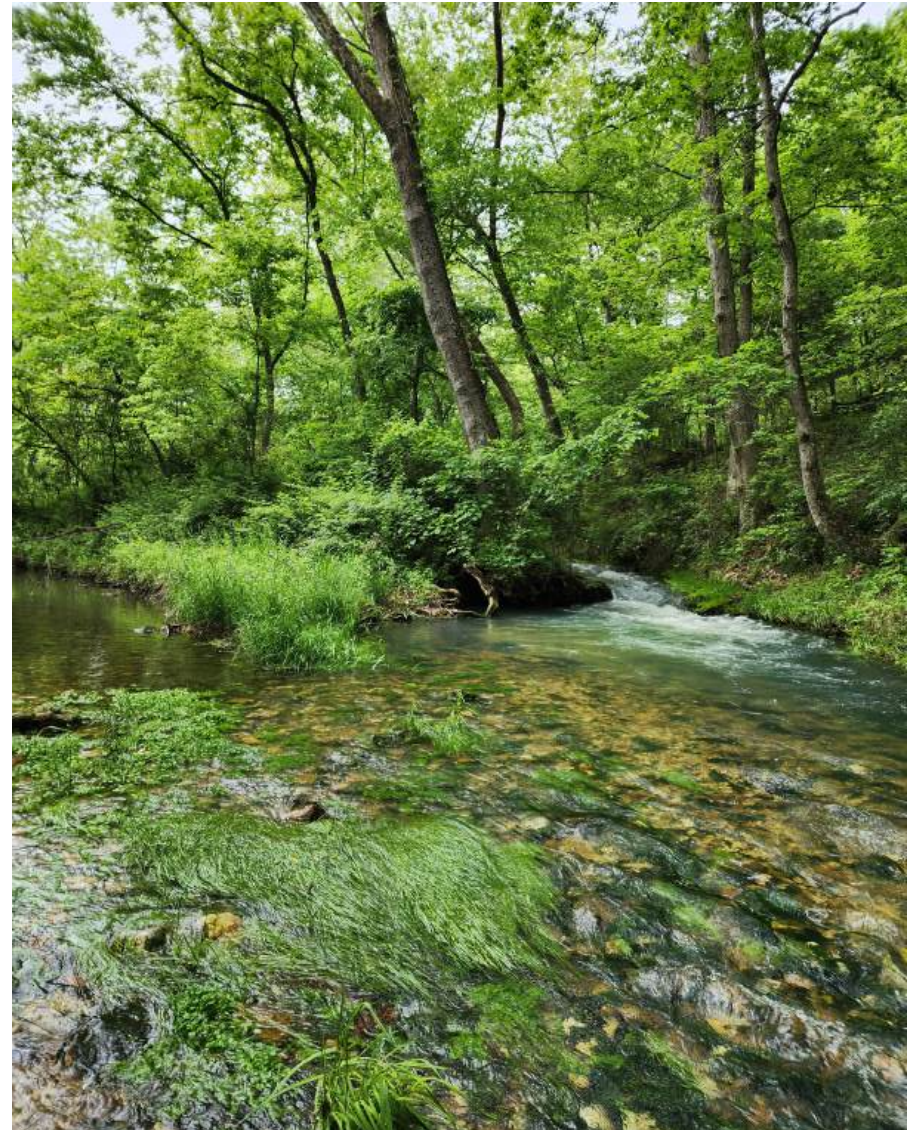
# Vegetation of the Ozarks

This year's **Vegetation of the Ozarks** class was taught by **Professor Theo Sumnicht** and **Dr. Robin Verble**. Students learned to sight-identify common Ozark trees, plant families, and about local fungi. At the end of the class, students produced botanical collections that included pressed and identified plants, creating a new resource for the field station and university: a fledgling herbarium. Students also learned to spore-print mushroom specimens for identification.



Top: Mushrooms for spore printing

Right: Lush vegetation growing around Mill Creek



# Insect Biodiversity Course



**Dr. Robin Verble's Insect Biodiversity** course ran for the 4<sup>th</sup> time this May. Students learned to pin, identify, and collect terrestrial insects across multiple ecosystems.

Students in the course are pictured collecting night-flying insects from a blacklight sheet (a favorite activity) and working on their collections in the field station classroom.

# Celebrating Natural Wonders

**Brood XII** of periodical cicadas emerged across Missouri this year. The emergence of periodical cicadas made this summer extra special at the field station. Students in Insect Biodiversity cooked up some tasty treats to celebrate the last day of class, and children visiting the field station were treated to a special serenade that continued into June.



Periodical cicadas rest on a leaf at the field station



Girl Scouts learn about cicada biology and ecology

# Station Hosts Teacher Workshop



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New Missouri S&T faculty member, **Dr. Katie Sharp** hosted a teacher workshop at the field station in Summer 2024. This workshop helped promote a new graduate certificate in **Teacher Leadership** that can be combined with an M.S. in Biology at Missouri S&T.



Sharp holds a joint appointment in Biological Sciences and Teacher Education. Her research includes situated learning experiences and how they influence science student learning outcomes.



# Field Ecology Courses

The field station is a perfect location for field ecology courses, with a diversity of ecosystems and wildlife. **Dr. Dev Niyogi** and **Amanda Lowe's Missouri S&T field ecology course** is the most popular of the summer field course series. Students in this course examine the processes and function of the ecosystem through independent projects.

**Dr. Samantha Kahl's** field ecology course (Blackburn College) visited in April 2023 as part of their biodiversity documentation project. Students in this course are required to document habitat, species identification, and where and when they found a specimen.

Right: Niyogi and student, Patrick Lynch take water samples at the field station dock.

***Our new bunkhouse makes it possible for us to house courses up to 40 people now in a variety of accommodations (bunkhouse, yurts, and tents).***



# Building Global Connections



**Theo Sumnicht**, field station manager, and **Dr. Gonzalo Rivas-Torres**, director of Tiputini Biodiversity Station present a poster (with Robin Verble, not pictured) at the 2023 Organization for Biological Field Stations meeting in La Selva, Costa Rica.

**Missouri S&T's Environmental Science** degree program began in 2022. Since then, it has grown to over 50 students. Environmental Science connects in obvious ways to the field station's mission of environmental education, conservation, and research.

Environmental Science students have been enthusiastic participants in field station courses, research, and service opportunities. As we expand this program, we're expanding our connections to other field stations, including Tiputini Biodiversity Station in the Ecuadorian Amazon.

Students and faculty from Missouri S&T traveled to **Tiputini Biodiversity Station** in 2023 and 2024 to conduct research and establish biodiversity monitoring plots. Graduate students will also be establishing parallel plots at the Ozark Research Field Station.

As this program grows, students and faculty will continue to monitor leaf litter arthropod biodiversity at both sites. Temperate and tropical insect biodiversity are declining globally, and this study will provide an opportunity to monitor long-term trends at two stable sites.

# Promoting Field Safety

Field station director, **Dr. Robin Verble**, has been working as a leader in a team of scientists determined to make the field a safe place. The team recently published a paper on best practices to create safe, equitable, diversity-friendly field stations.

## Best Practices to Promote Field Science Safety

Kristen Yarincik<sup>\*</sup>, Anne Kelly<sup>\*</sup>, Terry McGlynn<sup>†</sup> and Robin M. Verble<sup>‡,§,¶</sup>

<sup>\*</sup>Executive Director, IOOS Association, Silver Spring, MD 20910, USA; <sup>†</sup>The Nature Conservancy, Arlington, VA 22203, USA; <sup>‡</sup>Director, California Desert Studies Consortium; and Professor of Biology, California State University Dominguez Hills, California State Dominguez Hills, Carson, CA 90747, USA; <sup>§</sup>Associate Professor of Biological Science, Director of Environmental Science Program and Ozark Research Field Station, Missouri University of Science and Technology, Rolla, Missouri 65401, USA

The first two authors made equal contributions to this publication.

From the symposium “Envisioning a Diverse, Inclusive & Safe Future for Field Biology” presented at the annual meeting of the Society for Integrative and Comparative Biology virtual annual meeting, January 16–March 31, 2023.

<sup>¶</sup>E-mail: [verbler@mst.edu](mailto:verbler@mst.edu)

**Synopsis** Interventions are necessary to address the ongoing epidemic of sexual harassment and assault in field settings. An evidence-based approach to identifying specific interventions will be most effective at promoting the safety of scientists. We present the results of a workshop conducted by experts in field biology and the study of sexual harassment and assault that identified a comprehensive set of best practices for individuals and organizations. These recommendations are grounded in peer-reviewed scholarship and are separated into four topics: culture change, accountability, policy development, and reporting. The resulting report of the workshop recommends 44 practices, categorized by the resources required for implementation, the time frame of implementation, and the level of organization responsible for implementation. The best practices that we present are designed to support individuals and organizations in the development of field safety plans.

# Eagle Scouts Bring Projects to Field Station



**David Harrell** completed his Eagle Scout project at the field station. In conjunction with station leadership, he identified picnic tables as a need. David produced two cedar picnic tables that have been used in station events and will be available for years to come. David was awarded the rank of Eagle Scout in a ceremony in 2023.

**Alex Harrell** also completed his Eagle Scout project at the field station in 2024. He constructed an amphibian pond that can serve as a refuge for juvenile frogs, toads, and salamanders that are threatened by ephemeral habitats.

You may have noticed that both boys have the same last name. They, and Chris Harrell, another Eagle Scout who completed his project at the field station in 2021, are all brothers. Their mother, Jennifer Harrell, is a PhD student in the Department of Biological Sciences



# Environmental Engineer Organizes Girl Scout Visit



**Jane Yates** has been visiting the field station since she was in high school. She attended one of our first art camps. Now, she's a student on Missouri S&T campus as an Environmental Engineering major.

Jane coordinated and organized a day of educational and fun events for the Girl Scouts that included time on campus with environmental engineers and biologists.

At the field station, Girl Scouts explored on a nature hike and created pit-fired pottery and enjoyed a bonfire and s'mores.

Left: Field station manager, Theo Sumnicht, instructs Scouts on how to scavenge materials for pit firing.

Right: Jane Yates and two Scouts check out the new bunkhouse.



# Student Club Socials

**Phi Sigma**, the Missouri S&T biological honor society, hosted multiple social events for students and faculty at the field station in 2023. These included a kayaking trip (right), a hike, and an autumn bonfire.

**Ecominers** also hosted a documentary screening and bonfires throughout the year.



# Writing Workshop

In April 2024, the field station hosted a writing workshop by award-winning nature author **Janisse Ray**. The workshop, entitled “Writing What Grounds You and Frees You” was a one-day opportunity for participants to write creatively and refine their craft.

Pictured, back row, are Dr. KC Dolan, Janisse Ray, Dr. Ryan Cheek, and front row are Dr. Agnes Voijta and Amanda Lowe. Not pictured, but in attendance were Katy Aleshire and Dr. Robin Verble.

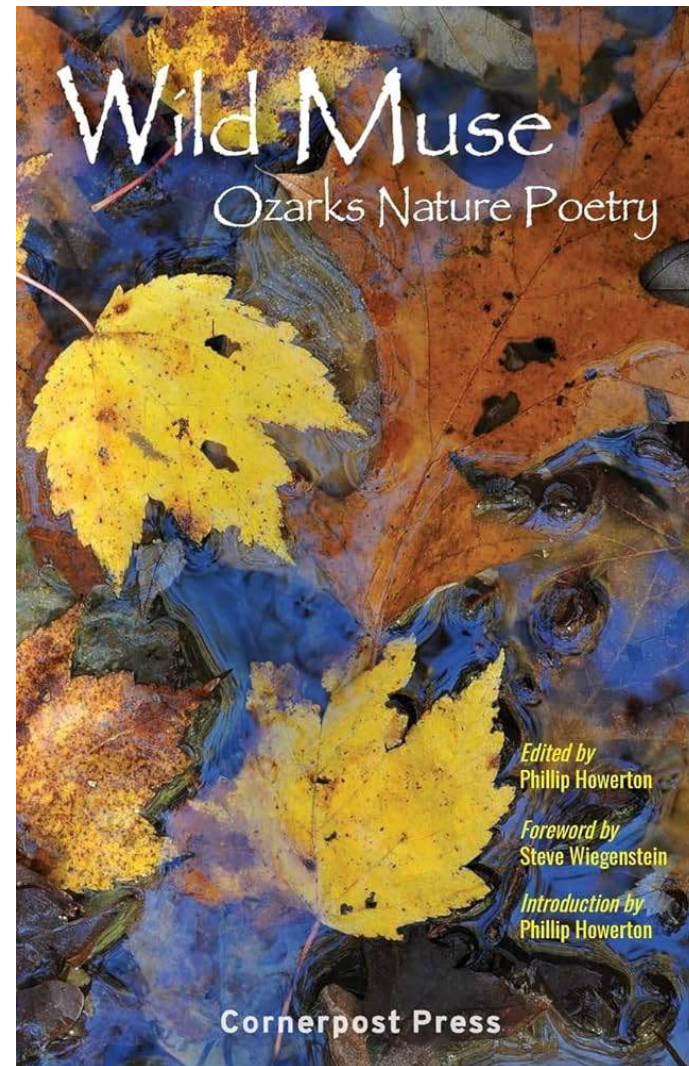


# 2023 Conservation Heritage Lecture

The 2023 Conservation Heritage Lecture morphed into a collaborative poetry reading that fit the ethos of the lecture, incorporating nature themes into a broader perspective.

The living authors of **Wild Muse**, a chapthology with selections from multiple authors, conducted a lovely reading on the back porch of the field station. The authors include Missouri S&T physics professor, Agnes Voijta; C.D. Albin, Wendy Taylor Carlisle, Paulette Guerin, John J. Han, Phillip Howerton, Gerry Sloan, Mark Spitzer, and Amy Wright Vollmar.

Thunderstorms surrounded the field station during the event, but the fellowship was unforgettable.



# 2024 Conservation Heritage Lecture



**Janisse Ray**, acclaimed author of New York Times best-selling autobiography, *Ecology of a Cracker Childhood*, gave the 2024 Conservation Heritage Lecture.

Ray's lecture, *Ten Things You Can Do for the Environment*, addressed her vision for an environmentally sustainable future.

As part of her visit, Ray visited courses in English and Technical Communications and Environmental Science.

## **Previous Conservation Heritage Lectures**

**2022 – Dr. Rob Connoley**

# 2022 Friend of the Field Station: Dev Niyogi



**Dr. Dev Niyogi** is one of the field station's long-term supporters. He served as interim director prior to Verble's hiring in 2018. He wrote the original planning grant that was funded by the National Science Foundation.

Niyogi organizes summer courses at the field station, teaches a popular field ecology course, and conducts research on-site. Dr. Niyogi is a Professor of Biological Science at Missouri S&T where he studies aquatic ecosystem function, nutrient contribution, and decomposition.

We're thrilled to honor him as the 2022 Friend of the Field Station.

# 2023 Friend of the Field Station: Gregory Snelson

Construction of a new building really takes a village. From architectural planning to needs assessment to the physical laying of bricks, no one person is able to accomplish it alone. Our bunkhouse construction has been supported, coordinated, and fueled by the energy that **Mr. Gregory Snelson** brings to the work.

Mr. Snelson is a Construction Project Manager in Design and Construction Management at Missouri S&T.

We're grateful for his commitment to this project and proud to name him as the 2023 Friend of the Field Station.



# Looking Ahead

We're entering the 2025 academic year, and we're looking ahead with anticipation. This year, we plan to expand our course offerings with a professional science course in Summer 2025.

We also will be hosting social events including an autumn bonfire. Consider this your invitation!

We're actively pursuing funding to further our international collaborations. We're excited to reach our university community as a resource and expand our connections within the region.



Keep up with us all year long  
online at:  
[facebook.com/ozarkresearch](https://facebook.com/ozarkresearch)



We'd like to extend a heartfelt congratulations to field station manager and caretaker, Theo Sumnicht, and his bride, Katy Aleshire. They were married at Mill Creek Chapel, down the road from the field station in May 2023.




## **Previous Friend of the Field Station Honorees**

- 2018– Dr. Dave Duvernell**
- 2019– Dr. George Bohigian**
- 2020– Mr. Mark Dean**
- 2021– Dr. Steve Roberts**

# Annual Data

Metric	FY24	FY23	FY 22	FY 21	FY 20	FY 19
User Days	605*	293*	643	811	267	459
Universities represented at the field station	3	1	7	9	4	2
Conference/ invited presentations from field station data	5	3	4	1	2	6
Courses taught exclusively at the field station	3	3	4	3	3	3
Courses utilizing the field station	6	4	5	6	4	3
FTE	0.5	0.5	1.0	1.0	1.0	0.5
Charitable Donations	\$10,000	\$5,000	\$300	\$48,000	0	0
Annual university budget	\$15,000	\$15,000	\$15,000	\$15,000	\$25,000	0
Revenue from grants and programs	\$6,500	0	\$9,500	\$3,600	0	0
Total awarded grant funding since 2018 (cumulative)	\$213,950	\$213,950	\$213,950	\$175,496	\$25,500	\$25,500
Dollars requested in competitive grant proposals	\$1.3 million	\$600,000	\$3.01 million	\$898,614	\$425,000	0

*\*The field station's activities were largely ceased from 7/1/2023 – 4/1/2024 during construction of the new bunkhouse due to heavy machinery activity in the primary station spaces.*

The background is a textured, painterly illustration of a natural landscape. It features a dense forest of trees with varying shades of green and brown, suggesting different species and foliage. In the foreground, a stream flows through the scene, with a small, dark, arching structure, possibly a bridge or a natural rock formation, crossing it. The overall style is reminiscent of a watercolor or oil painting on a coarse fabric or canvas, with visible brushstrokes and a rich, layered color palette.

## Become a Supporter Today

Talented students are engaging in authentic research, experiencing the joy of outdoor education, learning to connect with nature, developing a sense of place, and become ambassadors for conservation through our programming. The background to this page was created by Cecilia, a high school student who participated in the 2024 Art of the Ozarks camp.

Please, consider supporting the field station through volunteering, connecting with us, or a financial donation today. Your generous support can further our mission and extend our reach. For more information on how to give, contact **Michelle Shults**, College Development Director, 118 Fulton Hall, 301 West 14<sup>th</sup> Street, Rolla, MO 65409, or go online to <https://case.mst.edu/giving>



**Ozark Research Field Station  
16300 County Road 7550  
Newburg, Missouri 65550 USA**

