



Education Program
Annual Report 2021

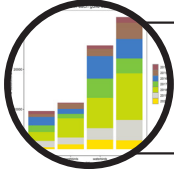


Our Mission



Conservation

To contribute to the conservation of birds and other wildlife through scientific research, education and community outreach, and conservation policy advocacy.



Science

To gather information about avian communities and habitat use that will assist state, federal, and private natural resource managers in their efforts to implement conservation programs.



Education & Outreach

To provide opportunities for people of all ages to get outdoors and learn about species and their habitats.



Advocacy

To advocate for sound, science-based conservation policies that benefit birds, other wildlife and environmental quality.

Staff

Dana Ripper Duke
Director/Founder

Ethan Duke
Director/Founder

Erik Ost
Field Project Leader

Jelisa Oliveras
Data Analyst

Paige Witek
Education Coordinator

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A Hybrid Year

For the Missouri River Bird Observatory, 2021 marked a challenging and exciting year of continuing with virtual programming while also easing back into doing outdoor in-person programs. We wanted to continue with the large audience scope that virtual programming allowed as well as bring people together in nature. We were able to maintain the quality of existing education programs while also developing a variety of new programs. The Missouri Young Birders Club had a 42% increase in membership. We had full registration for the in-person Young Explorers' Camp for the first time. We developed two new units of lesson plans for the Virtual Nature School. The annual Birds and Bees Festival resumed this year as a hybrid event providing both virtual tutorials and in-person guided experiences. We were able to hire both an Education and Outreach Intern for the summer and a Virtual Nature School Assistant Developer for the fall. We were able to strengthen our partnerships by participating in a variety of events and virtual meetings. All of this would not be achieved without our supporters. We thank you!

The Numbers

118 Total Events

87 Virtual
31 In-Person

3,720 Total Attendees

1,115 Webinar Attendees (Mixed)
1,947 K-12 Students
554 Adults
104 Educators

Breakdown

39 Weekly Webinars for Schools
20 Missouri Young Birders Club Events
18 Days of Young Explorers' Camp
11 Webinars hosted
1 Birds and Bees Festival - Hybrid

Core Values

MRBO states five values and philosophies that pervade all areas of the organization's work. They are:

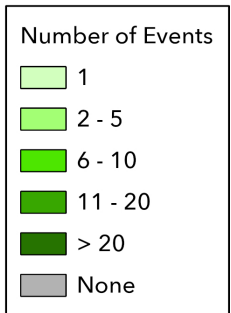
- Robust data and scientific integrity
- Time-and-cost-efficiency and use of technological innovations
- Fostering the formation of partnerships
- Embracing and encouraging equity, diversity and inclusion
- Empowering and providing opportunities for young people



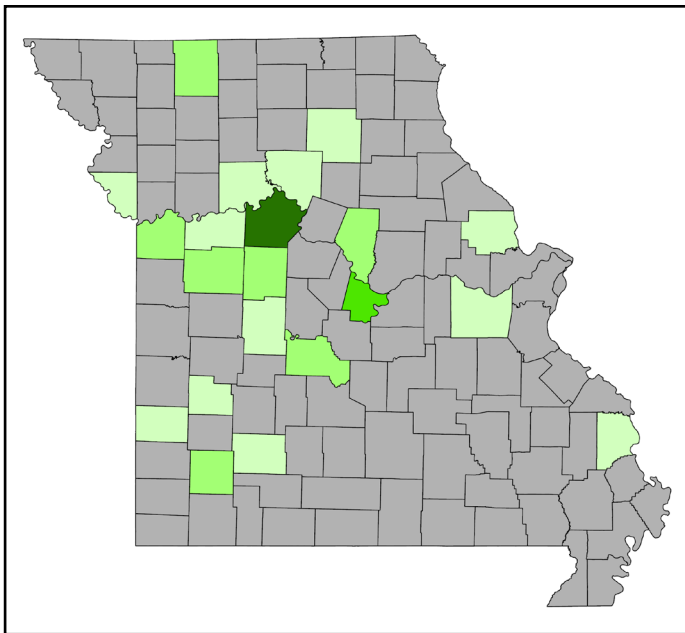
Education Scope Throughout the Years

The maps on the following pages show which counties MRBO reached through our education and outreach programs for each of the past six years. The color scale is based on the number events that occurred in that county. Please note that these maps do not include virtual events for which audience location is unknown.

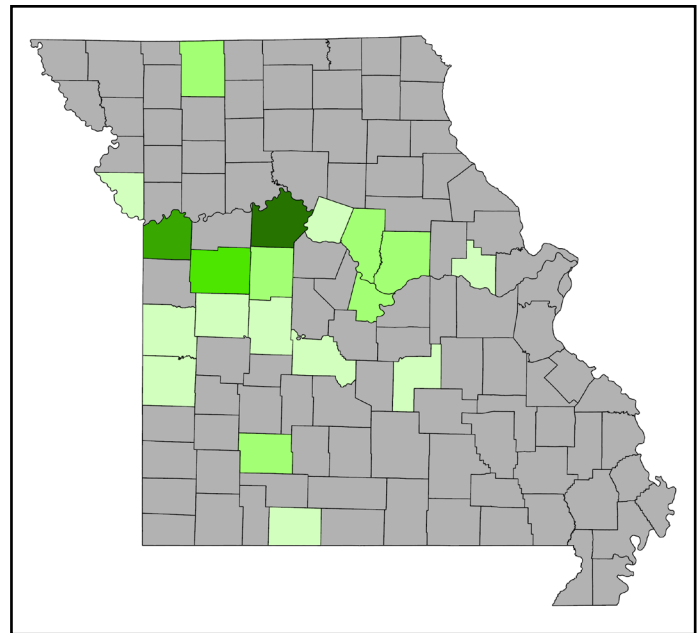
Legend



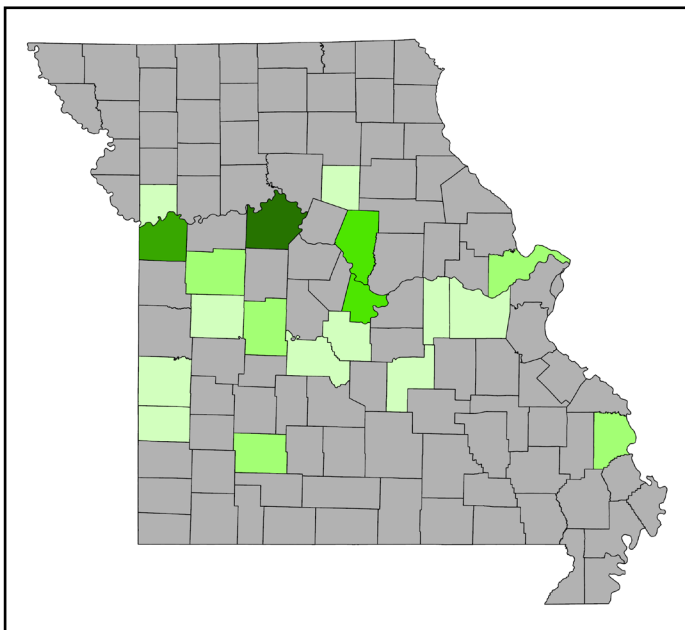
2016



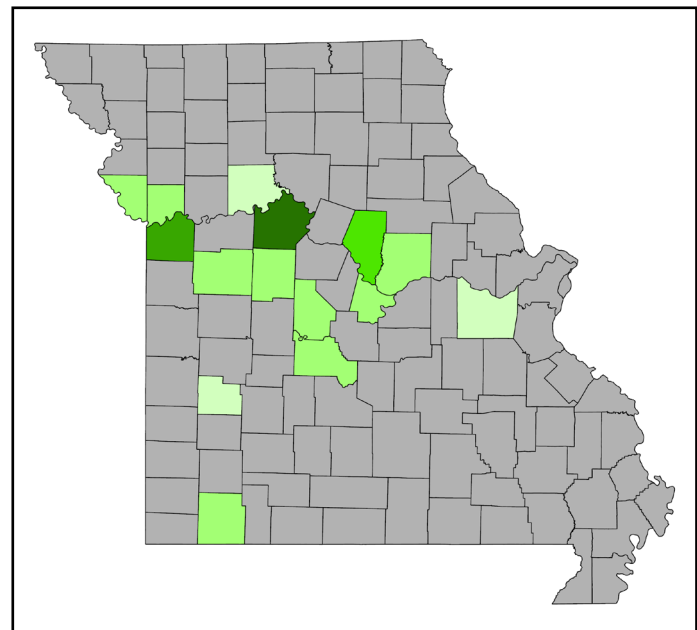
2017



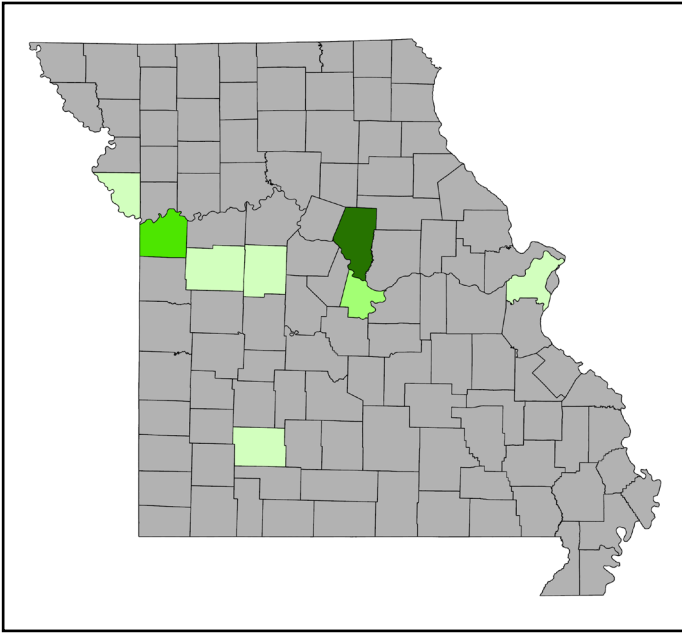
2018



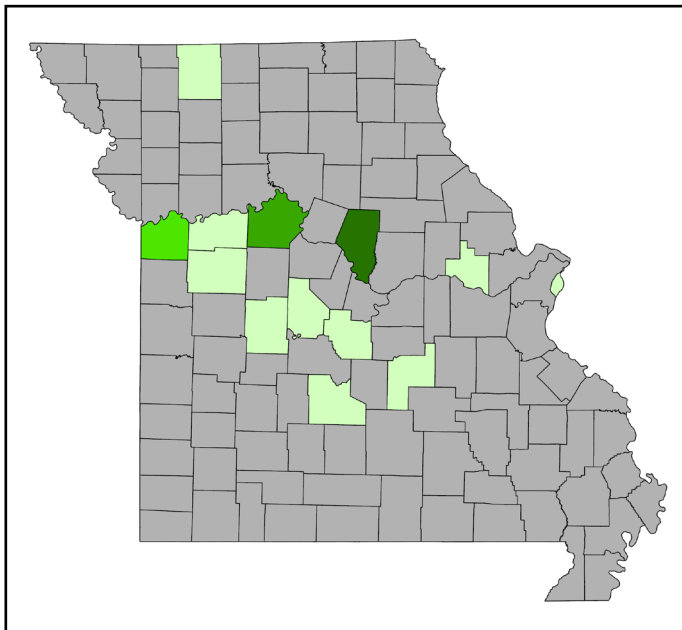
2019



2020



2021



A Few Takeaways

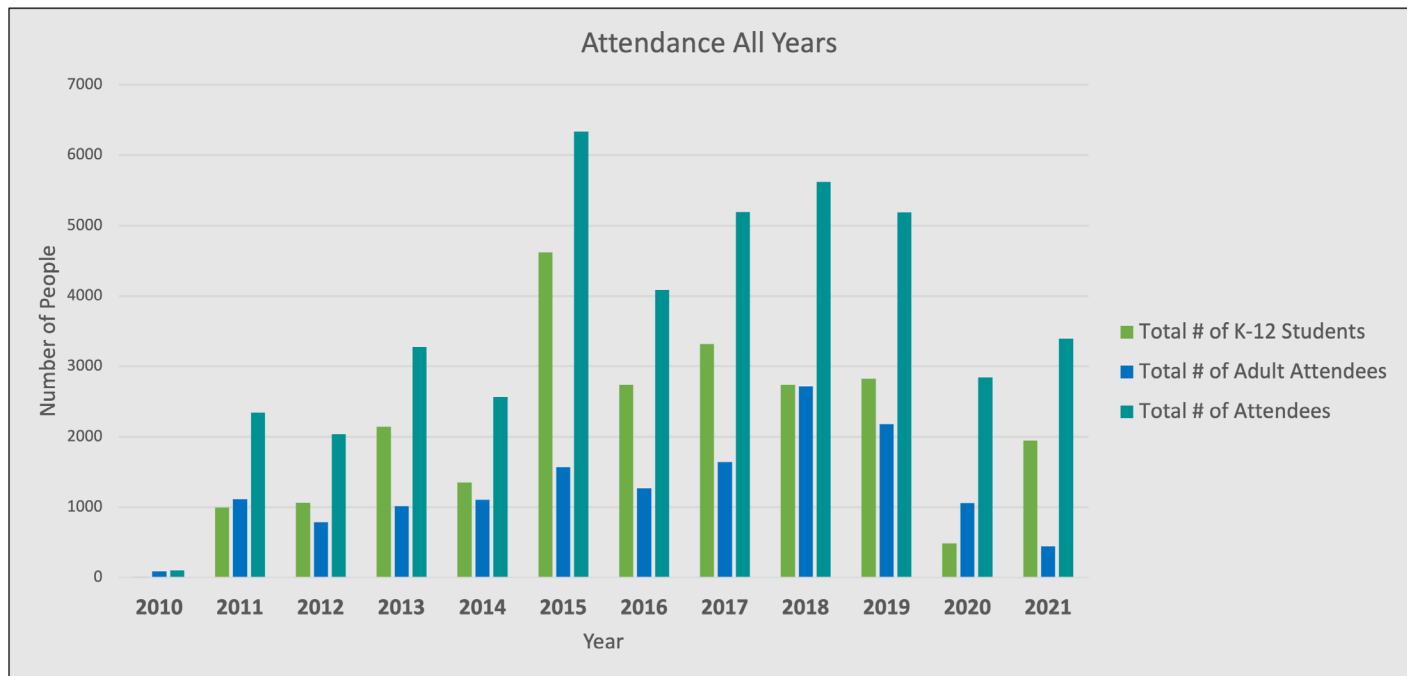
- The year 2020 was odd because, as stated in the introduction, these maps only show in-person events for which 2020 only had 15 events. The dark color in Boone County is because of our Weekly Webinars for Schools program through our Virtual Nature School.
- In 2021, we also had a number of virtual events which are not represented on the map.
- There are only three counties which we have served every year: Jackson Co., Johnson Co., and Boone Co.
- Our programs cover central Missouri and the greater Kansas City well, but we could improve outreach to the far northwest, the northeast, the southeast, and parts of the Ozark region.

A BRIEF HISTORY OF MRBO'S EDUCATION PROGRAM



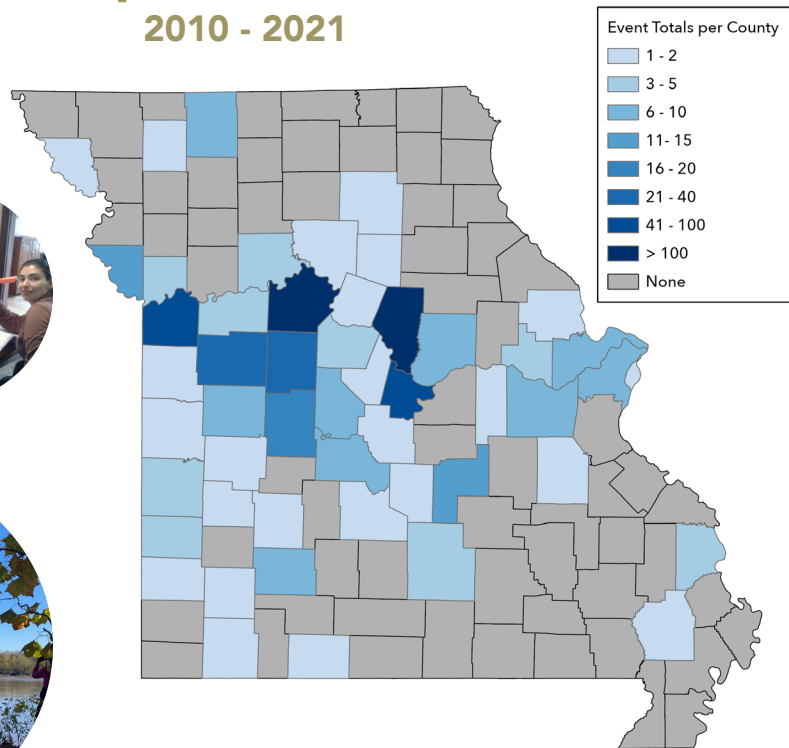
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Education Scope Throughout the Years



Note that part of the reason we see a decrease in overall numbers of attendees in 2021 is because of an increase in programs with the same individuals attending. By reaching the same individuals more than once, we have a greater impact on those individuals.

Map of All Years 2010 - 2021



Birds and Bees Festival

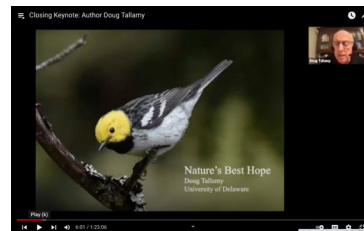
Our Annual Birds and Bees Festival was back for 2021 as a hybrid event with virtual aspects offered through the Whova event platform on May 6th - 8th and in-person guided experiences in Arrow Rock, MO on May 8th. Presenters from all across the state and even other states discussed a variety of topics related to the outdoors. The presentations consisted of 15 minute tutorials on different ways to enjoy nature and learn about birds, bees, and other wildlife. All of our virtual presentation recordings are available on MRBO's YouTube Channel.



Virtual Presentations

- Missouri Bumblebee Atlas
- Woodworking for Birds
- Attracting Orioles to Your Yard
- Artificial Light's Effect on Nature
- Birds Brained: Window Collisions and How to Prevent Them
- Just for Kids: Caterpillar Life Cycle Activity
- The 7 Simple Steps to Bird Conservation
- Native Bees of Missouri
- Creek Stompin': A Know Before You Go Guide
- Prairie Restoration in Missouri State Parks
- Native Americans and Nature
- Forest Management in Missouri
- Good for Quail, Good for Pollinators
- Best Birding Field Guides
- How to Make a House a Home for Birds
- Swallowtail Butterfly ID
- How to eBird
- Monarch Butterfly Conservation
- Spotting the Big 3 Pollinators
- Be an iNaturalist
- SEEK Out Nature
- Best Plants for Hummingbirds

Keynotes



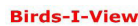
Guided Experiences



- Bird Walks
- Exploring the Missouri River Floodplain Forest
- Insect Explorations
- Wild Edibles
- Botany Walk

Event Sponsors

Organizational Sponsors



Individual Sponsors:

- Nicole Le Plante
- Steve & Anita Byers
- Meredith & Joe Donaldson
- Karen Miller
- Carol Davit & Mike Leahy
- Tom & Margaret Hall
- Diane Benedetti
- Doug & Barb Doughty
- Susan & Brian Johnson
- Patty Lindgren
- Whitney & Debbie Kerr Jr.
- The Dearth Family
- Wicky Sleight

Missouri Young Birders Club

This past year has marked tremendous growth for the Missouri Young Birders Club (MYBC) and its mission to bring together young people to enjoy, experience, and conserve Missouri's birds and other wildlife. Our members have been able to connect from all over the state during our virtual monthly meetings and socialize in a safe environment with other youth in their area with the same interests during our field trips. The club growth this year would not have been possible without the help of our adult chapter leaders Sara Scheil, Tammy Maples, and Kelly Smith. I also want to thank the MDC staff, the state park staff, Forest Park Forever, Magnificent Missouri, and my fellow MRBO staff who helped make the events possible. Lastly, I would like to extend a thanks to all the parents, grandparents, and guardians who help our young birders attend our events. Thank you! You can always learn more about what the Missouri Young Birders Club is up to and how to get involved by visiting our website moyoungbirders.org.



Numbers

20 events:
6 in-person, 14 virtual

167 total youth (8- 17 yrs)
attendees
45 new youth attendees
64 individual youth participants
25 adult Participants

10 new members in 2021 which
brought our total to 24 active
members! A 42% increase!



Milestones

Growth of St. Louis Chapter – Our St. Louis Regional Chapter was officially launched last year with the help of members of the St. Louis Audubon Society. In 2021 we gained four new members from the greater St. Louis area bringing the chapter to seven total members! We were also able to form partnerships with Magnificent Missouri and Forest Park Forever.

Growth of Central Chapter – This year we gained five new members to the Central Missouri Chapter bringing its total membership to 10 active members. This was in large part to our partnership with Missouri State Parks, specifically staff at Knob Noster State Park and Rock Bridge Memorial State Park.

Creation of a Youth Mentor Group - Last year we began the establishment of member leadership distinctions to help recruit older young birders to help guide the club, teach younger birders, and establish leadership skills. We now have four mentor members and four members designated as leaders. Our plan for the future is to hold regular mentor and leader meetings to guide the club and discuss advanced birding topics.

Donation Page on Website - Through the MRBO online store, we were able to set up a way for supporters to donate to the MYBC online. These donations will support equipment needs (Ex: field guides, binoculars, and scopes for people to borrow), field trip costs (ex: entry fees, snacks), and our scholarship fund.

Increased Engagement in Virtual Meetings - This year we have seen a noticeable increase in attendee engagement during virtual monthly meetings. We think this is in large part due to a greater amount of time spent storytelling and having members share their own knowledge.

Field Trips

Location

Greater St. Louis Chapter
[Peers Prairie Field Day](#) with
Magnificent Missouri in
Marthasville, MO

[Forest Park](#) with Forest Park
Forever near Steinburg Rink in
St. Louis, MO.

**Greater Kansas City
Chapter**
[Burr Oak Woods Nature Center
and Conservation Area](#) in Blue
Springs, MO.

[Anita B. Gorman Discovery
Center](#) in Kansas City, MO.

Central Missouri Chapter
[Knob Noster State Park](#) in Knob
Noster, MO.

[Rock Bridge Memorial State
Park](#) in Columbia, MO.



Species Highlights

Cliff Swallows, Warbling Vireo,
Prothonotary Warbler, Purple
Martins, and lots of Dickcissel

Red-breasted Nuthatch, Yellow-
bellied Sapsucker, Wood Ducks,
Belted Kingfisher, and huge
blackbird flock.

Olive-sided Flycatcher,
Mississippi Kite, Yellow-billed
Cuckoo

Canada Warbler, Nashville
Warbler, Brown Thrashers,
Northern Flickers, and funky
looking Northern Mockingbird

Red-tailed Hawk and three
beavers!

Brown Creeper and White-
breasted Nuthatch

Monthly Meetings



Topics:

Birding Gear
Bird Songs
Bird Calls
Warblers and Vireos
What is MRBO?
Bird Migration
Owls
Fun Facts

Guest Presenters!

Erik Ost, Field Project Leader with
MRBO, answered questions about
being a field biologist.

Kelly Koch, Interpreter at Roaring
River State Park, presented on bird
nests and led activity.

Evelyn Kirtley, MRBO Education
Intern, presented "All About
Parrots".

Young Explorers' Camp

Our fifth summer of our summer day camp brought new challenges and wonderful memories. Due to the success of "Young Explorers' Camp at Home" last year, we decided to continue with virtual camp. In addition, we brought back our in-person camp. It was challenging to meet COVID-19 protocols, but with our camp being almost entirely outdoors with a low maximum number of participants, we had great success. As with previous years, we received very positive feedback. The kids didn't want camp to end!



Numbers

In-Person Camp - 24 total campers!
First summer with full registration!

Virtual Camp - 12 campers

Total of 36 campers!

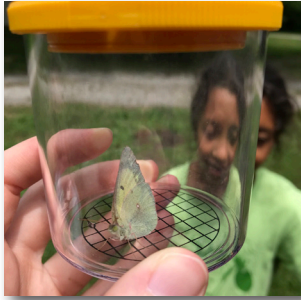


In-Person Camp

Our in-person camp was held during two weeks in June and had full registration! We hosted 24 young explorers (ages 8-11) at our offices in Arrow Rock, MO where we focused on exploration, improving observational and outdoor skills, encouraging critical thinking, increasing knowledge of Missouri's native species, physical activities, having fun, and building new friendships. Our activities fall under the Missouri Learning Standards and further reinforce concepts our campers are learning in school.

Observation by Camp Director:

"The campers this year seemed to greatly enjoy just being with each other. They seemed to not only enjoy learning about the nature that surrounds them, but also simply being around other kids who have similar interests."



Exploration Kits

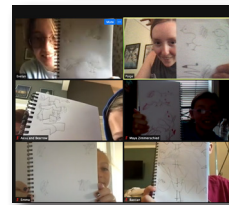
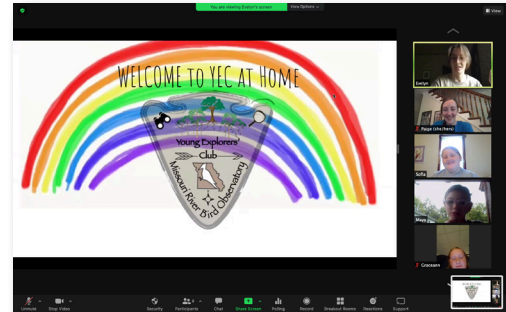
Both the in-person and virtual camp participants received their very own exploration kit!

The kits included:

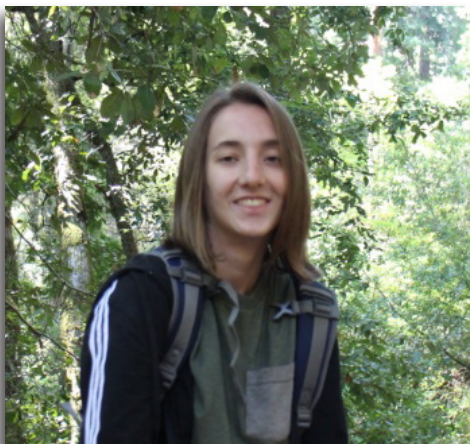
- Backpack
- MRBO Water Bottle
- Nature Journal
- Navigation Compass
- Butterfly Net
- Aquatic Insect Net
- Hand Magnifier
- Bug Observation Container
- Pencils and Eraser
- Pencil Sharpener
- Ruler
- Colored pencils
- Pencil Case
- Young Explorers' Club T-shirt

Virtual Camp

Our virtual camp was very similar in program focus, but was held at each campers' home for two weeks in July. Each of our 12 participants was sent an Exploration Kit in the mail, complete with everything they need, including activity instructions, to get outdoors and discover the nature around them. We also held virtual chat sessions every day to discuss what we discovered and get to know one another. These virtual chat sessions were led by MRBO's Education and Outreach Intern. Week 1 activities focused on adaptation and observation and week 2 activities focused on ecology and outdoor skills.



Summer Education and Outreach Intern: Evelyn Kirtley



Our Education and Outreach Intern for the summer of 2021 was Evelyn Kirtley. Evelyn is currently pursuing a degree in wildlife biology at the University of Central Missouri. She has a strong desire to learn more about conservation through education which led her to this position. The intern's main task is assisting the Camp Director with planning, organizing, preparing, and running both in-person and virtual camp. This internship is vital in making camp a great experience for all. Evelyn also assisted with various aspects of the Missouri Young Birders Club including helping further develop the youth mentor group.

Virtual Nature School



The Virtual Nature School project arose out of a desire and a goal to provide schools, teachers, and parents support in adapting to the COVID-19 pandemic and provide new ways for students to learn about Missouri's flora and fauna. Since its inception in spring of 2020, the project has grown significantly to provide more standards-based lessons tied specifically to Missouri ecosystems into the classroom. The resources are split by grade level and are built to be used for in-person and virtual classroom settings, and at home. You can visit these resources by going to mrbo.org/virtualnatureschool/. This project is in partnership with the Missouri Department of Conservation.

Grades 6-8 Lesson Plans



Our middle school resources consist of virtual and in-person lesson plans. There are currently three units with five lessons each. Each lesson consists of an introductory video, a relevant activity that can be done both in the classroom and individually at home, additional video(s) to expand upon the lesson theme, and assessment materials. Each lesson is built around the Missouri Learning Standards and uses Missouri-specific examples for place-based learning. In addition to the three units below, we plan to have Unit 4: Urbanization available by the end of April 2022.



This unit explores the topics of natural selection, bird vocalizations, courtship rituals and mating displays, nesting, and how reproductive success is measured. Students will not only be able to construct explanations and interpret data, but also understand more about the ecology of birds and begin "thinking like a bird" in terms of habitat and resource needs.



This unit explores both structural and behavioral adaptation by covering the topics of bird feathers, wings, beaks, bird language, and migration. Students will learn how birds adapt to their environment and what makes a bird, a bird.



In this unit students explore how all species (including humans) within an ecosystem are connected and the actions of one can affect the survival of others. Students will learn what is required of a habitat, how to manage ecosystems to serve these habitat needs and how they can make a difference. Students will understand how scientists, land managers, individuals and communities can use science ideas to conserve birds and their habitats.

Grades 3-5 Weekly Webinars

The project for teachers and students in grade levels 3-5 consists of what we call “Weekly Webinars”. Each webinar discusses a certain topic related to birds that ties into the Missouri Learning Standards and uses Missouri-specific examples when appropriate. Teachers have three options for how they would like to utilize the Weekly Webinars in their classrooms. The first and recommended option is to watch the webinar recordings posted on the website with their class ahead of time and schedule a separate 20-minute Question and Answer (Q&A) session with MRBO’s Education Coordinator via Zoom to answer any questions the students have and to learn more about birds. The second option is to schedule a live virtual presentation and Q&A session with MRBO’s Education Coordinator. The third option is to watch the webinar recording and have discussions with their class on their own. These three options allow the teachers flexibility with using this resource in a way that best fits their classrooms.



Numbers

Spring 2021

29 Total Webinar Sessions

6 Classrooms: 4th & 5th Grade

111 Total Students

Fall 2021

10 Total Webinar Sessions

4 Classrooms: 4th & 5th Grade

77 total Students

Webinar Titles and Topics:

- Bird Beaks
- Awesome Adaptations
- Bird Migration
- Bird Communication
- What makes a bird, a bird? (Feathers)
- Marvelous in the Middle: Common But Awesome Birds in Missouri
- Woodpeckers
- Have to Have a Habitat
- The Nesting Cycle
- Avian Digestive System
- Avian Musculoskeletal System
- Avian Respiratory System
- Avian Circulatory System
- Bird Flight
- Bird Vision
- BONUS! Avian Intelligence

Virtual Nature School Assistant Developer - Brittney Cade



For the development of the Virtual Nature School, we were able to secure funds for an assistant developer and we were excited to bring on Brittney Cade to the project. Brittney L. Cade is currently a Human Dimensions of Natural Resources Doctoral student at the University of Missouri - Columbia. She is researching the possible cause(s) of Screwbean Mesquite Tree decline throughout the North American Southwest using community science. Brittney was essential for the thoughtful development of our Virtual Nature School resources. She assisted with editing Unit 2: Adaptation, the development of Unit 3: Ecosystems, and workshopped the idea for Unit 4: Urbanization.

Webinars

In 2021, MRBO hosted a variety of webinars including presentations by MRBO staff as well as valued partners. We also presented webinars for various groups throughout the state.

Hosted & Presented

Winter Brrrding &

Spring Bird ID with MRBO's Dana Ripper and Sarah Kendrick with the Missouri Dept. of Conservation. Also, in partnership with Missouri Birding Society

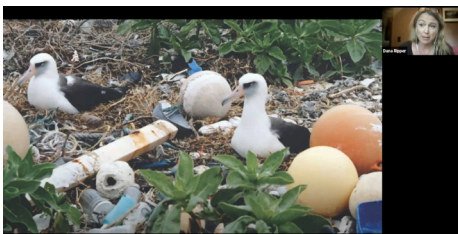
This is MRBO Science

Owls of Missouri

Avian Mating Displays & Rituals

Waterfowl of Missouri

Break Free From Plastic Pollution



Hosted

eBirding with Guest Panelist, Mary Nemecek

The Missouri Big Year with Guest Panelists Kendell Loyd and Dave Haenni

20 Years of Connecting People to the Missouri River with Missouri River Relief

Threatened and Endangered Species of the Missouri River by Trisha Crabill with the US Fish and Wildlife Service

Motus: Tracking Birds with New Technology by Sarah Kendrick with the Missouri Dept. of Conservation

Everything You Need to Know About Microplastics by Mary Gustavus from Utah State University

Presented

Grassland Birds for Columbia Audubon Society

The Case for Birds for Interface Conference

Owl Expert Program for Columbia Public School Classroom

Avian Acoustics for Columbia Audubon Society

About Being an Animal Scientist for Olathe Northwest High School Special Education Class

Backyard Bird Sounds for Daniel Boone Regional Library

Bird Migration for Rolla Missouri Master Naturalists

Ornithology Training for Osage Trails Missouri Master Naturalists

Built For It: Missouri's Woodpeckers for Daniel Boone Regional Library and Anita B. Gorman Discovery Center

Partner Events



Arrow Rock Heritage Festival



Birds at Fort Osage National Historic Landmark



Band with Nature at Columbia Audubon Nature Sanctuary



Dunn Ranch Prairie Days



Ozark Prairie Master Gardeners Field Day

Missouri Prairie Foundation's Prairie Day Event

Marshall Summer School Program

Nature School

In 2021, we have made headway toward the establishment of the Arrow Rock Nature School by receiving direct grant support for the project from the Patterson Family Foundation. MRBO's objective in establishing a Nature School in Arrow Rock is to create a place-based education center serving local school districts in our rural communities. This education center will serve students in Saline and surrounding counties with outdoor experiences that align with Missouri Learning Standards through local natural and cultural history perspectives. Place-based learning is about students building an understanding of both the ecological and anthropogenic characteristics of where they live.



Loveland Family Foundation

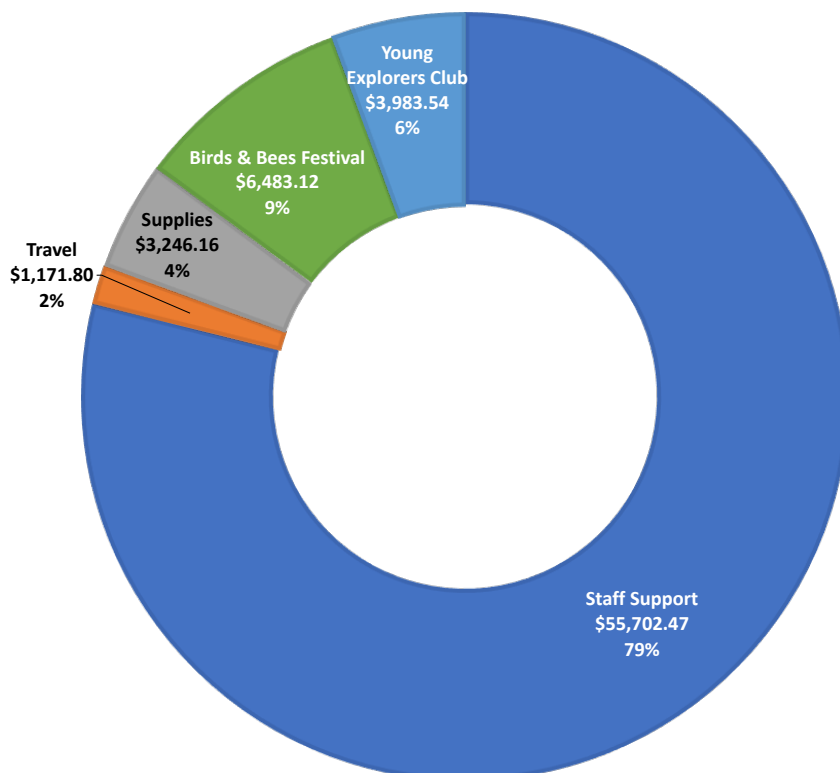


Location

Historic Lawless House and Grounds in Arrow Rock

This ca-1900 farmhouse and outbuildings are adjacent to a 30-acre prairie and provide a great location for students to explore the outdoors as well as cultural history. The site is owned by the Missouri Dept. of Natural Resources - Arrow Rock State Historic Site and leased in partnership between MRBO and the Friends of Arrow Rock.

2021 Education Program Financials & Sponsors



Arrow Rock Improvement Committee



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