

THE RECTRIX

Celebrating 15 Years
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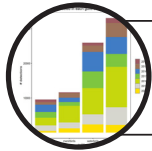


rectrix lek-triksl noun. (pl. -trices) any of the larger feathers in a bird's tail, used for steering in flight.

Our Mission



To contribute to the conservation of birds and all wildlife through scientific research, education and 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

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



Advocacy

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

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MRBO's Core Values

- 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



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*On the cover: Male
Pileated Woodpecker
by Tammy Simmons*



In this Issue of the Rectrix

Letter from the MRBO Directors 4

MRBO’s 15th BirdDay Party! 5

Science

Grassland Bird Project 6

American Kestrel Monitoring Project Update 8

Education

Meet MRBO’s new Plastic Pollution Educator, Stori Smith! 9

Upstream: Following the plastics crisis from marine debris to Missouri 9

Kansas City Region Education Update 11

Gardening for Birds, Bees and Butterflies – Parts 5 and 6 12

Mindful Birding and Nature Journaling 14

Little Nestling’s Corner 15

Outdoor Benefits and Resources 16

Advocacy

US EPA’s pesticide regulatory process: concerns and comments 17

Finding Your Voice for Conservation: Turning Concern into Action 18

MRBO in Action 19

Plastic Project Update. 20

Community News

Bird-Safe Windows: A Homeowner Testimonial 22

Helping Migratory Birds: as easy as flipping a switch! 22

Bird-friendly Communities Update 24

Environmental Justice: Reuniting with Our Source 25

Upcoming Events 26

MRBO’s partnership with Missouri Master Naturalists
Osage Trails Chapter 27

New Life Member of the Conservation Federation of Missouri 27

Thank you for your support! 27

Check out MRBO’s FY2025 report at:
https://mrbo.org/Reports/pdf/2025_Fiscal_Year_Report.pdf



Letter from the MRBO Directors

Dear MRBO supporters and friends,

Think back, if you will, to the long-ago year of 2010.

The Missouri Master Naturalist program was only six years old, with the Boone's Lick Chapter established in 2004, followed by the Confluence Chapter in the fall of 2005. The Monarch Butterfly winter monitoring program was 17 years old, and by 2010 the population was less than half of its 1993 level. Missouri's human population was not very different from today. About 400 Greater Prairie-Chickens were extant in the state. Atmospheric carbon dioxide was 390 parts per million in 2010 (it was 430 ppm as of May 2025). The Deepwater Horizon exploded in the Gulf of Mexico in April, causing the country's largest marine oil spill.



2010

In early 2010, the unnamed precursor to the Missouri River Bird Observatory was a tiny, rustic bird-banding station on the Missouri River at Grand Pass Conservation Area. We incorporated as MRBO with the Missouri Secretary of State in May of 2010, and our official IRS designation as a 501(c)3 nonprofit organization arrived in the mailbox on August 10th, 2010. In the spring of that year, we were hosting school groups at the Missouri River banding station, working with the Hi-Lonesome Master Naturalist Chapter, and engaging in partnerships with the Missouri Department of Conservation and other entities.

By spring of 2012, MRBO was surveying privately owned grasslands in three states as part of the Audubon Conservation Ranching program, and by 2013 we were conducting surveys on almost every remnant prairie in Missouri. From 2015 to 2021, MRBO also conducted a statewide wetland bird survey program on private lands, and from 2015 to 2018 conducted bottomland forest surveys in the Missouri bootheel. One of MRBO's 2017 wetland bird survey technicians, Erik Ost, returned for the 2018 season and eventually became the full-time Field Projects Leader for an additional four years. Throughout the 2010 – early 2020s period, we were also growing MRBO's education program and had a series of excellent seasonal educators, one of whom, Paige Witek, became the Education Program Coordinator for five years. In 2019, the MRBO staff developed a strategic framework and "lobbied" our Board of Directors to add advocacy as an organizational pillar – resulting in our contemporary mission of "conservation via science, education, and advocacy".

When the Covid-19 pandemic hit, MRBO did not slow down, it just altered. It was April 2020 when we launched our webinar series, and in the years since we've provided more than 150 virtual programs. Field projects were continued within careful constraints, and a great deal of organizing around conservation policy moved to the online space. When education programs returned to in-person events, we continued online offerings but also averaged >100 events annually "in real life". In the policy realm, MRBO has been able to make an impact thanks to partnership with many local, state, and national organizations. In 2022, for example, Dana became the Conservation Federation of Missouri's delegate to the National Wildlife Federation, Ethan became a founding member of what is now the Collaborative Leadership for Environmental Accountability & Reform (CLEAR), and MRBO became an affiliate organization of Beyond Plastics. These are just a few examples of the many coalitions of which MRBO is now a part.

During the organization's 15 years of life, MRBO has employed over 80 biologists and educators. Some contractors, such as Hannah McFarland, and field technicians such as Josh Smith and Matt Longabaugh, have worked with MRBO intermittently for over six years. And from 2022 to present, the permanent MRBO staff has grown to encompass an exemplary team – Marlee Malmberg (2022), Tessa Poolman (2023), Isabelle Guthrey (2024), Kaylee Woefel (2024), Melina Matheney (2025), and Stori Smith (2025). We have also had an engaged and supportive Board of Directors, numerous volunteers, and many generous donors who have all had a critical role in building MRBO.

While conservationists have faced many disappointments over the past 15 years, there has also been nothing short of a tidal wave in partnership building, strategic thinking, and finally escaping the siloed-sector mentality (for example, environmental groups now work regularly with human health organizations). The network of conservation advocates is far more robust, with many more ways to engage, than it was in 2010. Nature education has become deeper, richer, and now reaches far more people. We are proud that the MRBO team has spent the past 15 years contributing to positive changes - passionately, ethically, and with great determination.

At this point, we are looking to solidify the organization's future. MRBO needs to keep its exceptional current staff and continue its successful program delivery within our focal areas of science, education, and advocacy. We also want the organization to grow – thoughtfully, organically, and within the areas of greatest conservation need.

These are challenging times to be sure. We face a decidedly anti-science and anti-conservation federal administration; destruction of wild places continues throughout the region; legislative support for what were once bipartisan conservation efforts has waned; citizens are understandably weary and preoccupied with kitchen table concerns that often take precedence over conservation matters. But the work goes on because it must go on. Wildlife has no awareness of politics, and our natural resources know no party affiliation. As one noted conservationist remarked, people protect what they love and they only love what they understand – and MRBO is an organization dedicated to helping our neighbors understand the critical importance of our region's ecological treasures.

I ask you to join us in this effort. Make a gift to support our work. Join us in a volunteer opportunity. Recruit a friend and attend one of our programs. We are dedicated to this critical endeavor, but we cannot do it alone. It will take all of us to do the tough work in the face of challenges – and to wake up and do it all again, day after day.

Sincerely,
Ethan Duke & Dana Ripper



2025

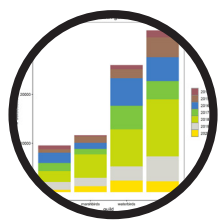


MRBO's 15th BirdDay Party - August 9th, 2025



Thank you to all who sent us "Bird-Day" wishes and to those 100+ who celebrated with us in Arrow Rock! It is an honor to have grown this organization alongside you.





Science

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

Grassland Bird Project

Taking Flight for Missouri's Grasslands

Missouri's prairies are some of the most beautiful - and most endangered - places in our state. They are also home to a remarkable chorus of life: Henslow's Sparrows, Bobolinks, meadowlarks, and dozens of other grassland birds. But across North America, these species are in crisis. Scientists estimate we've lost 700 million grassland birds since 1970 - one of the steepest population declines of any bird group.

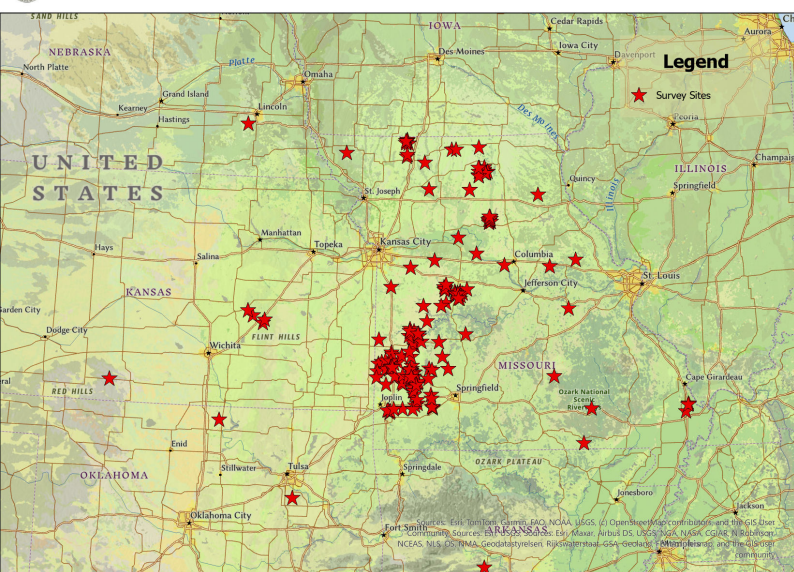
led by Shelton Memorial CA, which also improved.

- Upper Osage Grasslands: Bird-friendliness increased, a strong sign that restoration efforts are paying off.

Not every site is thriving — some properties showed declines for iconic species like Eastern Meadowlark and Grasshopper Sparrow. These findings help land managers target areas where fire, grazing, or invasive species control are urgently needed.



Sites surveyed since 2012



Above: Locations of all grasslands sites surveyed by MRBO since 2012.

At MRBO, we believe these losses are not inevitable. Through science, collaboration, and innovation, we are finding ways to turn the tide.

The Work on the Ground

Each spring, our field biologists lace up their boots, step into the dawn light, and walk transects across Missouri's grasslands - more than 227 miles of surveys in 2025 alone. This work yields tens of thousands of bird observations, which we use to measure the health of each prairie site through our Bird-Friendliness Index (BFI).

This year's results give us reason to be hopeful:

- Hi Lonesome Priority Geography: Bird-friendliness increased, with strong gains at MPF's Drovers' and Friendly Prairies.
- Golden Grasslands: Big increases in habitat quality,

Working With Farmers and Ranchers

Our surveys don't stop at public lands. Through the Native Forage Initiative (NFI) and Regional Conservation Partnership Program (RCPP), we're working alongside Missouri farmers and ranchers to restore prairie buffers and plant native grasses on working lands. In 2024–2025, we monitored 31 private lands projects and found nearly 100 bird species using these sites - proof that conservation and agriculture can work hand in hand.

Taking Conservation to New Heights

One of the most exciting parts of our work is the use of drones to monitor habitat health. In 2024, MRBO captured more than 2,700 acres of high-resolution imagery — giving us centimeter-level maps that can be used for accessing vegetation structure, tree encroachment, and even post-burn recovery. Even more work is planned for Fall of 2025.

This technology allows us to:

- Spot woody encroachment before it takes over prairies.
- Track changes after prescribed burns or grazing.
- Create accurate digital elevation models and vegetation maps that guide future restoration.

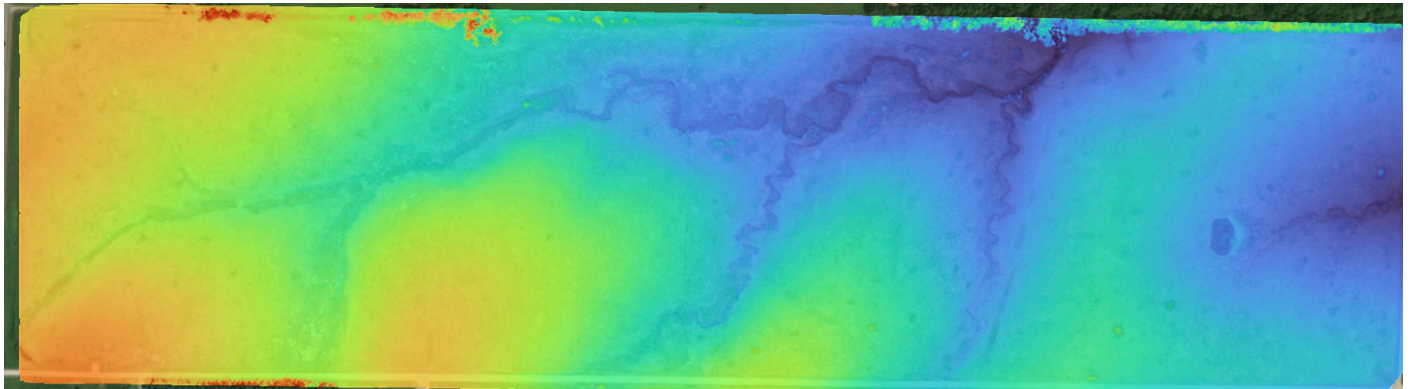
MRBO is on the leading edge as drones are transforming conservation science by making data collection faster, safer, and far more efficient than traditional methods. Where researchers once relied on time-consuming ground surveys or expensive manned flights, drones can quickly capture high-resolution imagery, multispectral data, and 3D point clouds over vast and difficult-to-access landscapes. This efficiency allows conservation teams to monitor habitats, map vegetation, assess restoration projects, and even detect wildlife in near-real time—all while reducing costs and minimizing disturbance to sensitive ecosystems.

More importantly, drone-derived data is fundamentally new in both quality and scale. Orthomosaics, elevation models, and spectral indices from drone missions provide centimeter-level precision, offering insights that were previously impossible with coarse satellite imagery or small-sample field data. This level of detail enables truly adaptive management: conservation actions can be guided by accurate, spatially explicit information and adjusted rapidly as conditions change. By providing





Above: High resolution drone imagery of Paint Brush Prairie Conservation from the spring of 2024. Below: Derived elevation data from drone imagery at Paint Brush Prairie Conservation Area.



actionable data at the right resolution and frequency, drones empower conservationists to move beyond reactive management and toward a continuous, evidence-driven cycle of planning, implementation, and evaluation.

By pairing boots-on-the-ground bird surveys with cutting-edge aerial data, MRBO is giving land managers an unprecedented view of how their decisions affect wildlife — and empowering them to act quickly when habitat quality starts to slip.

For more in-depth science reporting check out:
<https://mrbo.org/Science/reports.aspx>

Why It Matters — and How You Can Help

Grasslands are among the most threatened ecosystems on the planet, but they are also among the most recoverable. Every acre we protect, every field we restore, and every prescribed burn we get right creates a stronger future for grassland birds — and for all of us who depend on healthy soil, clean water, and thriving wildlife.

MRBO's work is powered by supporters like you. Your donations, volunteer time, and advocacy help us keep scientists in the field, drones in the air, and data flowing to the managers who need it most.

Together, we can keep the song of the meadowlark alive for generations to come.



Above: Our most recent report on MRBO's grassland bird monitoring and drone work. Check it out at [MRBO.org](https://mrbo.org) under Reports.



American Kestrel Monitoring Project Update



This year, MRBO continued its efforts to track and support American Kestrels through our growing nest box monitoring project. With the help of landowners and volunteers, we monitored **26 nest boxes across 20 different properties**. These boxes were placed in a wide variety of settings - on poles, barns, sheds, trees, and even a snag - ranging in height from just 7 feet to as high as 15 feet off the ground. This diversity of placement offers us valuable insights into how kestrels adapt to different landscapes and nesting opportunities.

Of the 26 boxes, **eight housed active kestrel nests**, and **seven of those were successful**, fledging a total of **27 young birds**. We also documented **two active Eastern Bluebird nests**, a reminder that these boxes provide broader benefits for cavity-nesting species. In total, **18 female kestrels and nine males** were recorded using the boxes during the season.



The breeding timeline stretched across the spring and summer. The **first egg was laid on March 29th**, with most activity taking place in April and May. As is often the case, the **earlier clutches tended to be larger and more productive**, while later nests were smaller. Notably, we observed **two unusually late nests** this year, with the final eggs laid on June 24th. These broods fledged in August, enduring the peak of summer heat. Late-season nesting is relatively uncommon and provides us with important observations on how kestrels cope with challenging conditions.

As in previous years, **European Starlings remained a persistent threat**, attempting to take over several boxes.

The 2025 season once again underscored the value of collaboration. Without the generosity of landowners and the dedication of community partners, these efforts would not be possible. Every nest box adds to our understanding of kestrel

breeding success in Missouri and plays a role in conserving this charismatic little falcon. We are eager to carry these lessons forward as we prepare for the 2026 season.



Double Your Impact for Kestrels – Matching Donations Opportunity!

We're thrilled to announce a special opportunity to make your support go even further for MRBO's American Kestrel Nest Box Monitoring Project. **Susan Lordi Marker**, who purchased the very first kestrel nest box for this project and celebrated the first ever successful clutch, has generously offered to **match donations up to \$10,000**.

Your contribution will directly support the ongoing placement and monitoring of nest boxes across Missouri. These boxes provide safe, secure nesting sites for kestrels, one of Missouri's most endearing and declining raptors, helping them successfully raise their young in landscapes where natural cavities are scarce. Every dollar donated goes toward nest box materials, maintenance, monitoring, and efforts to reduce threats like predators and European Starlings.

Matching donations mean **your gift is doubled**, instantly increasing your impact. Your support helps us continue vital long-term monitoring, gather important data on kestrel populations, and provide opportunities for community members to engage in hands-on conservation.

By contributing today, you're not just helping build and maintain boxes, you're giving kestrels a fighting chance in a world where safe nesting sites are limited, and you're joining a growing community dedicated to raptor conservation. Together, we can ensure that these beautiful falcons continue to thrive across Missouri for generations to come.

Donate now to make your gift count twice!

<https://www.paypal.com/ncp/payment/LGNJXHNVGU65J>





Education

To contribute to conservation by providing opportunities for Missourians of all ages to spend more time outdoors and to learn about species and habitat conservation.

Meet MRBO's new Plastic Pollution Educator, Stori Smith!



Stori grew up in North Texas surrounded by a menagerie of domestic animals, an enchantment with wildlife, and an early-onset determination to protect them. She followed this passion to Montana State University where she earned a B.S. in Conservation Biology & Ecology. After graduation, she moved to Washington where she spent nearly three years in veterinary medicine and became a volunteer sanctuary guide for Wolf Haven International. Most recently, she served two terms as an AmeriCorps Environmental Education & Stewardship Specialist with NOAA's Olympic Coast National Marine Sanctuary. This position instilled in her an unwavering respect for federal conservation work, community action, Indigenous stewardship, and the way water connects us all.

In 2021, Stori joined Saving Animals Facing Extinction (SAFE) Worldwide as a remote volunteer writer and artist for creative conservation projects. She continues to volunteer with them as a board member and Education & Communications Strategist. This keeps her in touch with international wildlife issues and even allows for periodic travel to anti-poaching projects in Africa!

Stori's ultimate goals are to encourage people to understand their role in ecology, inspire their respect for other species, and empower them to act on behalf of their shared home. She loves learning science communication strategies, filling environmentalists' accessibility gaps, and finding solutions that address both human and animal welfare. Her role as MRBO's Plastic Pollution Education Coordinator brings together all those things, and she's excited to be part of the team!

Outside of work, Stori loves to read, write, draw, learn local lore, pretend she is still a competitive athlete, and do anything with dogs.

Upstream: Following the plastics crisis from marine debris to Missouri

By Stori Smith

All photos by Stori unless credited otherwise.

This time last year, I was shivering on a remote beach in Washington, scooping up sand samples to examine for microplastics and preparing for a beach cleanup. I spent two years as an Environmental Educator and Stewardship Specialist with Olympic Coast National Marine Sanctuary in Washington State. In many ways, my life feels different now working as a Plastic Pollution Educator with Missouri River Bird Observatory. While it may seem like a random leap from the ledge of the Pacific Northwest to the middle of the country, the more I think about my ocean experiences, the more this new position and place feel like a natural next step to protecting the wildlife I know and love.

Before working for the National Marine Sanctuary System in 2023, I didn't know it existed. Now I will not stop talking about it. It provides federal protections for American waters that are culturally and ecologically significant. There are currently eighteen sanctuaries spanning the Great Lakes, East Coast, the Gulf, West Coast, and out in the Pacific Ocean. Olympic Coast National Marine Sanctuary (OCNMS) is the northernmost part of the system along the outer coast of Washington. It is over 3,000 square miles devoted to protecting intertidal, kelp forest, open ocean, sandy seafloor, and deep sea canyon habitats that, in turn, support some of the greatest biodiversity on Earth. Its official stewards include the National Oceanic and Atmospheric Administration (NOAA) and the four Coastal Treaty Tribes—Hoh Tribe, Makah Tribe, Quileute Tribe, and Quinault Indian Nation—who have lived there since time immemorial. It also shares a boundary with Olympic National Park. Community members who live near the Olympic Coast rarely go a day without dodging a seagull, eating salmon, or squinting at the sea hoping for an orca to breach. Agencies and individuals alike are bonded to these species and to each other by the mantra "water connects us all."

Stewardship is simply Olympic Coast culture. This tradition, along with the overall small human population and OCNMS' added protections, creates a mostly uninterrupted coast. There are no tanker ships or oil rigs. The beaches are often quiet and without a single human structure in sight. People still research, recreate, and harvest from the sea, and the region has, so far, been spared from industry. For the most part, the largest things in the water are the whales.

Unfortunately, while the Olympic Coast remains undeveloped, it is not unscathed. One of OCNMS' partners is the beach cleanup organization Washington CoastSavers, and in just the three cleanup days I attended, we removed over 30,000 pounds of debris.

For all its love of the ocean, the Olympic Coast creates plenty of trash. Derelict fishing and crabbing gear float throughout the water column and the national park contains caches of single-use trash left by visitors. There are two local polluters that stand out. One, the shellfish growers who raise oysters in the ocean on polypropylene rope that nearly every local has seen later washed up on a beach. Two, the Fourth of July. Washington's outer coast lacks the fireworks regulations of Oregon, California, and even Puget Sound, so, every year, revelers from the three



Ruby Beach within NOAA's Olympic Coast National Marine Sanctuary.

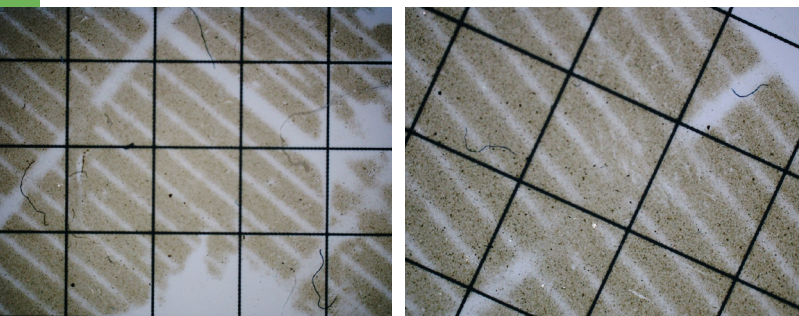


states swarm the beaches, set off their fireworks, and, all too often, leave them behind. On July 5th, 2024, across about 100 miles of coastline, Washington CoastSavers collected over 129,000 pounds of fireworks and related debris.

Exceeding these two bad habits is the trash that washes in from far away. Garbage generated across the Pacific Rim—which spans four continents—may eventually settle in the sanctuary. Trash from other places in Washington, other states, and other countries regularly rolls in with the tide. The most dramatic example of this is the 2011 tsunami that carried massive amounts of debris and infrastructure from Japan to the Pacific Northwest. Remnants of this event are still washing in with today's garbage.

In terms of plastics, multiple longtime beach cleanup volunteers told me they've noticed less trash in recent years. Local shellfish growers have been shifting their strategies to reduce rope loss, and the amount of tsunami debris is declining. But is that enough to account for this anecdotal decrease in debris? Is there really less trash on the Olympic Coast or is it simply harder to find?

One of my most interesting and disappointing responsibilities with OCNMS was filtering sand samples for microplastics. I collected seemingly clean sand from over ten beaches within and beyond the sanctuary, ran each sample through a filtration lab to isolate microplastics, and examined them under a microscope. Every single sample contained microplastics. The most common were microfibrils—fragments of synthetic materials like nylon and



Filtered sand samples from Kalaloch (left) and Ruby Beach (right) with microfibrils and microplastic particles.

polyester—which appear as hair-like strands.

I even examined sand collected from the deep sea around the year 2008. Upon opening the container, I took a moment to cradle a handful and attempt to recognize how special it was to touch a piece of the deep. After all, more people have been to outer space than the deep sea. Unfortunately, filtration revealed we visit the ocean's depths all too often, just in a different form. This sample held the second most microplastics of all.

While I don't know how much microplastic accounts for the Olympic Coast's current pollution levels, it's clear there is way too much, especially considering how much life happens at a microscopic scale. The region's biodiversity comes from an astonishing amount of plankton that we'd never see without a microscope. Plankton are the marine food web's foundation and feed the Olympic Coast's iconic filter feeders—sea stars, anemones, clams, even baleen whales. These animals eat whatever drifts their way. I can only imagine how many microplastics that means. Many filter feeders are food themselves, passing on their pollution until every strand of the food web is contaminated.

Every national marine sanctuary has a plastics story. Aside from OCNMS, I'm most familiar with those from Hawaiian Islands Humpback Whale and Papahānaumokuākea National Marine Sanctuaries where the Pacific's nonstop conveyor belt of marine debris deposits so much trash on the islands that animals are often entangled and birds are full of plastic.

I led an education program for kids to dissect albatross boluses from Papahānaumokuākea, which includes the most remote island chain in the world. Boluses - a mass of indigestible material that

albatross chicks regurgitate to lighten their load before fledging—should include squid beaks, fish eggs, and other hard bits of otherwise healthy food. Unfortunately, we found much more than that. Fishing nets, toothbrushes, markers, pocket lighters, shards of unidentified plastic...

items that floated on the sea surface and soaked in the odors of the ocean so that they looked and smelled like the food albatross parents wanted to feed their chicks. The saddest part of this dissection activity was knowing my students may be among the last to do it. Some albatrosses are now so full of plastic they cannot form a bolus. They are living landfills who, heartbreakingly, cannot live so long.

Microplastics in the food web, individual species suffering—these are not consequences we can afford. Plastic is not cheap or convenient. It costs way too much.

Most people care about marine debris, but it means more when you've held it in your hands, come to know some of the albatrosses affected by name, and worked alongside people who - try as they might - cannot save the ocean with beach cleanups. That's what pushed me to seek out a job like the one I have now with MRBO. I want to go beyond telling people how bad things are and start following through on preventing pollution in the first place. Plastic may stick around forever, but our support for the plastics industry doesn't have to. A world with cleaner beaches, healthier animals, and less plastic is not just imaginable but something most adults can remember.

I want to learn Missouri's plastics story. Why are single-use items so prevalent? What stands in the way of changing that? What motivates people to take action?

In my few weeks here, I've seen many people moved by plastic's health impacts. Multiple people mentioned that becoming plastics-reduction advocates fulfills a responsibility to their children and grandchildren. I came from a place that taught me water connects us all, and here I've learned plastic does too. I feel it most in the form of struggling wildlife, others see it in their communities' lack of cleanliness, and many now know plastics are in their own bodies. No matter what part of plastic pollution hits us hardest, we're all now working together to change the way the story goes.

I'm grateful to join this effort, and while I do miss the Olympic Coast, I know I didn't really move away, just upstream—from ocean to rivers, from cleanups to prevention. I'm looking forward to organizing Plastic Free Lunch Days at schools, performing plastic audits, and helping people become advocates to reduce single-use items in their communities. By this time next year, I hope to stand on a riverbank in Missouri and know the water working its way to the sea contains a little less plastic because of me.



Contents of three albatross boluses and a tray of trash collected from an albatross nesting site in Papahānaumokuākea National Marine Sanctuary. There is an intact bolus at the top right.



Albatross with a new chick in Papahānaumokuākea National Marine Sanctuary. Credit: Ann Bell/USFWS

Kansas City Region Education Update

As summer comes to a close, MRBO reflects on the work and education shared across Kansas City. This season brought many stories, new experiences, and—most importantly—more connections with nature. Here are a few highlights from MRBO education in KC this summer:

The season began with the annual Discover Nature Field Days at James A. Reed Memorial Wildlife Area. Over four days, every chapter of the Boys and Girls Club of Greater Kansas City rotated through a full day of outdoor learning. This marked MRBO's second year participating, and the first year that Conservation Educator Tessa Poolman served as station lead for Birding 101. Designed for the youngest students (K-2), the station introduced binocular use and basic bird identification. Young birders put their skills into practice spotting Great Blue Herons, Canada Geese, Turkey Vultures, and even a juvenile Bald Eagle.

Later in the summer, MRBO partnered with Global One Urban Farms, a nonprofit that grows and distributes fresh organic produce while teaching community members how to garden. Together, they hosted a bird walk and program for the ProX Summer Interns. The group documented nine species and 18 individuals. The interns joined Tessa to reflect on how the farm's native plant beds and gardens provide food and shelter for wildlife. Conversations soon expanded to the bigger picture—how human health, ecosystem health, and wildlife health are deeply connected.

In July, MRBO joined the Urban Rangers Corps for their end-of-summer float trip on the Current River. This three-day camping and paddling trip is a capstone experience for the six-week program that engages young men from Kansas City in work, service, and personal development. With the addition of MRBO staff Marlee and Tessa, the rangers were also introduced to birding, both at camp and on the water. Enthusiastic participants proudly shared their sightings, which included Swainson's Warbler, Broad-winged Hawk, Louisiana Waterthrush, American Bittern, and, of course, plenty of Bald Eagles.

To close the season, MRBO partnered with community leaders in Kansas City's historic Dunbar neighborhood to host a summer Bioblitz for their youth day camp. Students explored Dunbar Park documenting birds, plants, and insects before creating their own nature journals to record observations. The transformation was striking: students who began the day hesitant to step off the sidewalk ended it sweeping nets through tall grass, pointing out bird songs, and using their phones not for games but to identify plants. By the end, the group was laughing, sharing discoveries, and cheering each other on through the challenges of collecting insects.

From large citywide events to neighborhood park explorations, this summer in Kansas City was a season of discovery. Each program showed that when young people are given the tools and encouragement to engage with nature, they not only learn about the world around them, but they also discover new insights about themselves.

Looking ahead, MRBO is eager to continue building on this momentum in the fall. Plans include new partnerships with schools, neighborhoods, and community groups to bring hands-on nature programs to students and families across Kansas City. From bird walks and conservation workshops to classroom visits and neighborhood projects, the goal remains the same: to make nature accessible where people live, learn, and share community.



Urban Rangers camping and paddling trip



Discover Nature Schools field days



Global One Urban Farms bird walk



Gardening for Birds, Bees and Butterflies – Parts 5 and 6

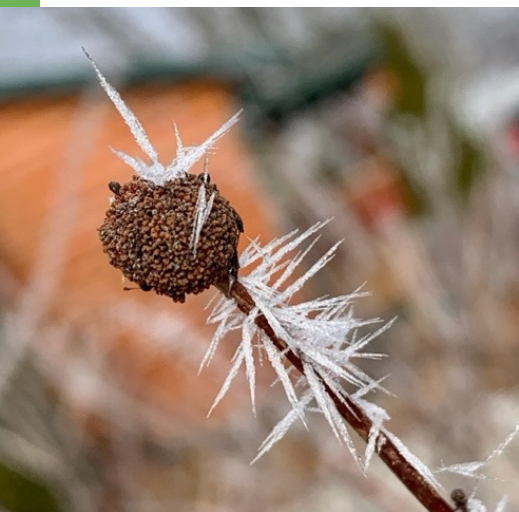
By Dan Getman, Kirksville Area Master Gardener

Part 5 - Fall Cleanup, How You Can Support Birds, Bees and Butterflies: As fall approaches, many plants are done flowering, but a few good bloomers for hummingbirds, bees and butterflies include asters (New England, silky and aromatic) and goldenrod (showy and stiff), which are often cited as the best late bloomers, with aromatic aster blooming into November. But blue sage, rough blazing star and eastern blazing star are also good choices, albeit quite tall (3-5ft). Both of these blazing stars serve as magnets for monarchs migrating through our area in early to mid-September. You can also supplement your perennials with non-invasive annuals. Some of our favorites are zinnias, pentas, lantana, petunias and salvia. Rabbits seem to really enjoy eating pentas, so I plant those in tall containers out of their reach.

Fall is also the time we start cleaning up our yards. Recently, numerous experts and conservation organizations have made recommendations to support birds, bees, butterflies, moths and more generally, insects.

Leave the Seeds: In particular, leave the seed heads of coneflower, rudbeckia, sunflowers, (including native sunflowers), zinnias and native grasses. Goldfinches will cling to stems and feast on seed heads. But many other seed-eating birds (such as cardinals, sparrows and dark-eyed juncos) will eat seeds that fall to the ground. Besides providing seeds, native grasses (switchgrass, little bluestem, sideoats grama and prairie dropseed) provide shelter for many birds, especially when bent over by snowfall. Have you noticed how many birds will huddle under perennials and bushes, when bent over with snow?

Leave the Leaves: A common fall activity for most of us is to rake up and dispose of leaves. But now we're encouraged to "leave our leaves", which provide shelter for many insects and additional cover for bees overwintering in the soil. Many butterflies and moths, either as their caterpillars, chrysalis or cocoon, overwinter and emerge the following spring. Many overwinter in leaf litter. In the spring, you'll often see birds digging through leaves searching for insects.



Hoar Frost

Although a good practice for insects, how can we manage this recommendation? You can simply move all, or some leaves, to parts of your yard you're more comfortable with. For the last few years, we've put up a temporary snow fence that collects many, but not all leaves, that then overwinter there. This actually serves to keep that tree line moist during the winter, which previously would get quite dry. In the spring, rather than dispose of those leaves, they're moved under a pine grove in the back section of our yard, where they slowly decompose. Some leaves are also used as mulch under groups of bushes in the back. Many leaves are still collected and disposed of each fall, but a large amount are now retained in our yard.

Leave the Stems: Many native, solitary bees will lay their eggs during the spring and summer in the dry stems of the previous season's plants. Those eggs will hatch and the larva mature into a new generation of bees, which will overwinter in those stems and then emerge the next spring or summer. Examples of these bees, that also typically nest in the tubes of bee hotels, are mason bees and leafcutter bees. But there are many other bees that nest in plant stems, beginning in either spring or summer. Most of these bees operate on a one year life cycle. If they nest in early spring, as mason bees do, they will emerge the following spring. If they nest in summer, as leafcutter bees do, they will emerge the next summer. So how do we "leave our stems"? Rather than cut them to the ground in fall, it's recommended you cut and leave a 12-24 inch stem. The next year, bees will nest in some of those stems and then emerge the following year. But consider this - if you leave stems in fall 2025, bees may nest in them in the spring or summer of 2026 and overwinter, but then not emerge until the spring or summer of 2027. So that means you actually need to leave these

dry stems for two winters. Another suggestion, by Doug Tallamy, is to cut your stems and place bundles of them around your yard. I've tried both methods. The problem with leaving stems in your garden for 2 years, is that they tend to fall over, especially when we get snow. Here's what I'm currently trying. Although I still dispose of dead plant material, I leave some of my stems standing, but collect others into ~ 24-30 inch long bundles and place them around the yard, some standing up against a fence or bush, and others set sideways in bushes, preferably with an end pointed towards morning sun.

Some of you have established fields of prairies. So how does this "save the stems" apply to prairies? When you burn or mow, you're encouraged to leave a third of the field standing and rotate that section during different burn years. These undisturbed sections then serve as a reservoir of insects that repopulate the other burned or mowed sections when they regrow.

Messy Yard: We all work to maintain a neat and tidy yard. But you're encouraged to leave parts of it a little messier. Brush piles and decaying logs on the ground support many insects and wildlife. If a tree dies and it's in a location you're comfortable leaving, cut off all the branches and leave the trunk about 15-20 feet tall. I've done this with several trees in our tree line. They are virtually invisible among the other trees and the woodpeckers love them for the insects they provide and for nesting sites. One of our dead trees had numerous red-bellied woodpeckers nest in it over a 3-4 year period. Eventually it rotted away and was cut down.

New Fall Plantings: Fall is a great time for planting new perennials, bushes and most trees. Here in Kirksville, I prefer September. The soil is usually easy to work, remains warm for several more months and the temperatures are cooler. This allows plants to establish their roots before the winter cold and are then ready to go in the spring. Just make sure you still water them for a couple weeks to establish them. Native grasses and evergreens are best planted in the spring.



Summary: Some or all of these recommendations may or may not make sense for you and your yard. We're all different and have different priorities. If you are interested in implementing some of these, consider starting small and try one on a small scale in part of your yard, then go from there. Regardless, the birds, bees and butterflies, and other insects, will quickly take advantage of any conditions you provide in your yard.

Resources: Leave the stems: https://www.pollinatorsnativeplants.com/uploads/1/3/9/1/13913231/stemnestingbeesweb_1.pdf; and Leave the leaves: <https://xerces.org/blog/leave-the-leaves>

Part 6 - Thinking About Next Year: November is a little late to plant new things, although it's still a good time to plant trees, especially after they've gone dormant and before the ground freezes. Just make sure you give them a good watering. You can also still plant spring-blooming bulbs to give your yard some early color.

But at this time of the year and for the next couple months, it's a good time to step back, consider a few things and think about next year. Some things to consider:

- Do you want to grow any annual flowers from seeds? I used to pick up seeds from local stores, but the quantities were small and pretty expensive. I now buy several annual seeds in ¼ lb quantities at low prices (Purple Prince and Cherry Queen Zinnia, Lemon Queen Sunflower, Mexican Sunflower) and share with neighbors. I've also just started selling these at low cost at our plant sale in May. If you want to order some, now is a good time to order. There are also many other annuals to consider.
- Do any of your existing beds require filling in empty spaces or replacing plants that haven't thrived?
- Are there times of the year when you'd like to have more blooms or some different color blooms. Check the February newsletter for a short list of flowering plants that bloom in spring, summer and fall.
- Do you want to add any host plants for butterflies? If so, check the June newsletter.
- Do you want to plant any berry-producing bushes or trees for the birds. If so, where in your yard would you place them? The large native bushes provide blooms for pollinators, berries for birds and often attractive fall colors. Consult the June newsletter.
- Then the big question – do you want to put in a new garden bed? If so, where would you put it and what would the emphasis be? If your new garden bed will replace grass, early spring, as the grass starts to green up, is a good time to kill the grass with either glyphosate or by spreading cardboard covered with mulch. Cut the grass short, kill the grass and plant right into the dead sod, then mulch and water.

If you have a prairie or small prairie patch, do you want to increase the diversity or color of plants? Or do you want to add some plants with bloom times to complement what you currently have? We routinely add additional native seeds to our field, which we usually spread in winter, after we mow and shred the existing plants. We add a combination of seeds we've collected from our garden and seeds we've purchased. There are quite a few native seeds available in ¼ lb quantities at reasonable prices - some examples include; black-eyed susan, little bluestem grass, side oats grama grass, several coreopsis species and several coneflower species. In addition, most native flowers are available in 1 oz quantities at reasonable prices. Although it often takes a few years to see the results, we've added quite a few new species to our field. If you have a wild field and would like to see more wildflowers, try adding some native flower seeds. Many of these seeds are quite popular, so order early.

If you want to plant bulbs or native perennials in spring, consider ordering now. Most companies allow you to order now and will deliver them at an appropriate time for your hardiness zone. Some also allow you to specify when you'd like them delivered. Here in northern Missouri, I prefer to start planting perennials, bushes and trees in April, depending on the weather. This early planting allows the plants to get settled in and establish their roots well before the hotter weather. We typically don't plant annuals until May to avoid any late frost here.

Winter is a good time to catch up on reading. I'd recommend books by Doug Tallamy on the importance of native plants, and both Heather Holms (native bees) and Dave Goulson (bumble bees). There are lots of interesting books on different bird species and recently, several excellent books on bird migration.

To enjoy the outdoors, winter is a good time to photograph seed heads and fruit in your yard, especially after a snow, ice storm or hoar frost. But get out early in the morning before things start to warm up and melt. I also enjoy photographing sunrise and sunset on crisp winter days. I'm amazed at the quality of photos taken with today's phones.



Winter Sunrise

If you want additional information or have questions, feel free to contact me at daniel.p.getman@me.com.

Whatever you decide to do or not do, enjoy the winter months and keep in mind that "spring is right around the corner"!

Dan Getman is a Master Gardener in Kirksville, MO. For the last 12 years, Dan and his wife Kathy have been improving their 5 1/2 acre property to create habitat for birds, bees and butterflies. This has included removing invasives and planting >250 native perennials, >150 bushes and >50 trees, most of which are host plants for butterflies and moths. They have nest boxes for bluebirds, tree swallows, chickadees, northern flickers, great crested flycatchers and house wrens. They raise both mason bees and leaf cutter bees and have participated in an annual state-wide bumble bee survey program.



Mindful Birding and Nature Journaling

Some of us watch birds for hours, flitting around, foraging for food. Not only is it fascinating but our bodies respond by feeling more calm. I draw attention to this in part as a form of reflection and the other to facilitate community around mindful birding. This written work is an invitation to join me in a mindful nature narrative.

Take a walk with me as I step outside my front door
The first few steps feel light, a literal breath of fresh air
And before the day's worries or endless list of things beg for my attention again
I hold firm to my intention of walking outside

crunch, crunch is the sound of my feet along the gravel
An ordinary place
But here, I find freedom to move and a way to calm a busy mind
Today my sit spot is a fallen log under the canopy of trees

Sit with me in stillness
A few deep breaths taken
A sense of calm renewed

Draw awareness to your surroundings with me
Rough textures, delicately quaking leaves of green, a kaleidoscope of colors
as the sky warps with contrasting color
the breeze cooling on the skin but not brisk with cold
And the longer I sit in stillness
I realize I am not alone

I no longer sit in silence
Instead, I am acknowledged by another presence
As bubbles and trills escape a pointy beak somewhere among the leaves

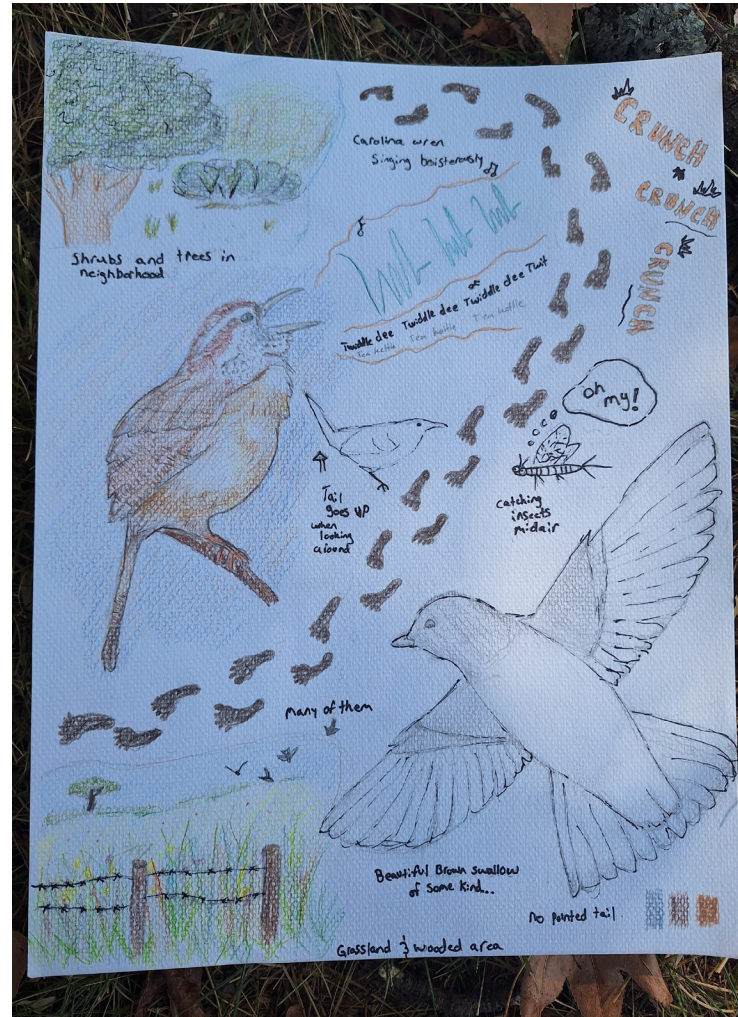
A showy display of your flirtatious impressions
How fearful you must be to your competitors
You do not require my eyes to make your presence known
If I should ever learn a bird, it will be through its song
I wonder if I could do the same?
To make my voice have an impact

Divergent from expectations, a little brown body comes fluttering out of the bushes
I have been seen, considered even, but not judged

I watch with equal curiosity
What makes you and I so different? We both must drink and eat and breathe.
We both struggle to survive in an ever polluted world. Is it the seasonal transience in all of us?

A musical robot, your feathers distinguished but your eyes betray you
A tension in your notes
I wonder how far you have traveled?
You have overcome more obstacles than I can imagine
I could meet you again and still wonder of the things you have seen

I know them now, not by name, but by the way they move and sing
Find a place where humans do not see feathers
Our co-existence, a world traveler and a humbled resident found in the same place
I found more than I expected
Rejuvenated by a sense of wonder
It is time to return home, grateful for the song and connection shared.



Here is an example of nature journaling which is another practice to encourage connection with nature.

For more information about mindful birding go to National Audubon Society- Mindful Birding



BACKYARD BIRD BINGO

FIND A PLACE TO WATCH BIRDS WHETHER
OUTSIDE OR FROM YOUR WINDOW AND MARK
OFF THE THINGS YOU SEE OR HEAR.
TRY TO GET FIVE IN A ROW!



WOODPECKER	HOVERING	SINGING	HOPPING ON THE GROUND	FLYING FROM TREE TO TREE
USING DUST BATH	BIRD CHASING ANOTHER BIRD	MOURNING DOVE	BIRDS FLYING IN A GROUP	PICKS UP TWIG OR GRASS
PERCHED ON FENCE OR POST	BIRD DRINKING WATER	FREE SPACE	CROW	PREENING FEATHERS
USES BIRD FEEDER	PECKING AT TREE BARK	BIRD STRETCHING ITS WINGS	BIRD SHAKING OFF WATER	HAWK
FLUFFING FEATHERS	NORTHERN CARDINAL	FLICKING TAIL	BIRD CATCHING FOOD MIDAIR	PECKING THE GROUND

BONUS: TRY TO FILL THE WHOLE CARD!



Outdoor Benefits and Resources

By now, Rectrix readers, you are likely well aware of the benefits that outdoor experiences can bring to people of any age. Time spent in nature can help promote physical and mental wellness, stimulate creativity, improve focus and academic performance, and reduce stress.

As powerful as these benefits are, it can still prove challenging to make time in nature a consistent part of our lives. But connecting to nature and finding a sense of place doesn't have to be complicated. It could be as simple as bringing nature indoors to you, like grabbing a few autumn leaves to examine at the dinner table or pausing to hear a bird singing outside your window.

MRBO's education and outreach efforts are designed to serve as a bridge between everyday life and finding meaningful connection with nature. But we are only one link in a larger chain. Because we place value in the life-altering potential of these moments, we seek to bring these connections not only to ourselves, but to others. At the heart of our work is a desire to help individuals discover a deeper sense of self and a stronger sense of community. By engaging in our natural world together, we not only create space for our shared values but we foster purpose, deepen awareness, and cultivate our connections with each other.

To help with this aim, we want to offer as many opportunities for you to connect to nature in the central region of Missouri and beyond.

Right outside your backdoor:

Go outside for activities you would normally do inside like reading, writing, or crafting
Take a walk
Start a small garden
Get involved in citizen science through iNaturalist or SciStarter

Keep an eye out and ears open:

Missouri Department of Conservation often provides free programs and outdoor nature workshops

Missouri State Parks often have historical or nature events at a location near you like Women in Nature, and the State Park Explorer Program

Missouri Prairie Foundation has plant sales and monarch tagging events

Check their websites for more information.

Interested in hiking or all things trail?

Ozark Trail Association
Missouri Trail Project
Mid-Missouri Group Sierra Club
Team Red Wheel

Want to join a club or find interesting events?

Missouri Young Birders Club (MYBC)
Audubon Chapters across the state
Missouri Birding Society
Missouri Stream Teams
Missouri Conservation Corps
Stream Teams United
Missouri Canoe and Floaters Association
MRAP & Library Gear Program
MO.gov – Outdoors
Conservation Federation of Missouri



A collage of "Close Encounters" by our summer explorers showing the joy and sense of wonder that come with experiences in nature.

Photo Credit 2, 3, 7: Sam Brusven, @sambrusven





Advocacy

To contribute to conservation by advocating for sound, science-based conservation policy that benefits birds, other wildlife and environmental quality.

US EPA's pesticide regulatory process: concerns and comments

The federal administration has declared and is aggressively pursuing a deregulatory agenda. Among the many land and water management, conservation funding, and pollution control rules being rolled back are several pesticide regulations. One of these is dicamba, an herbicide that is well-known for its propensity to drift and harm crops, gardens, and trees on neighboring properties. Federal agencies such as the EPA are still required to open a public comment period when they intend to change a law or regulation. The following is a public comment on dicamba.

Public Comment submitted to the Federal Register by MRBO's Vice-Chair Doug Doughty of Livingston County, MO

I'm a row crop (corn, soybeans, wheat) and cattle producer, and I oppose the registration of dicamba for new use on dicamba tolerant soybeans and cotton. I've spent several decades farming, and I know firsthand that the choices we make in agriculture have consequences – sometimes unintended and damaging. Dicamba is one of those choices.

Dicamba is volatile and mobile. It doesn't always stay where it's sprayed. It drifts. And incidents of off-target injury from dicamba spray, drift, and inversion are well-documented. It can curl and damage non-resistant and sensitive crops such as soybeans, cotton, sugar beets, peanuts, rice, and grapes. It can also harm specialty crops such as tomatoes and honey, scar gardens, kill trees, threaten orchards, and jeopardize the livelihoods of organic farmers. These aren't imaginary or frivolous "side effects." They're happening in rural neighborhoods across America, and they carry real economic and ecological costs.

As farmers, we talk a lot about stewardship. We claim to care about the land, about our neighbors, and about the environment. But using dicamba can undermine that message. Sometimes, it turns us into bad actors, harming those who made different cropping choices – or who simply want to raise a garden, maintain an orchard, or preserve their trees. That's not stewardship. That's negligence.

This isn't just my view. Harry Stine, founder of Stine Seed Company and an agricultural titan whose genetics influence most corn and soybean acres in this country, plainly stated in an email and published in the July 19, 2021 *Successful Farming* issue: **"In my opinion, dicamba has caused more damage to American agriculture than anything I have witnessed in my lifetime. (And I am old.)"**

Harry Stine isn't a rogue critic. He knows this industry inside and out. If someone of his stature is sounding the alarm, why would EPA – or farmers – ignore him? Ignoring his message disregards not only a leading voice but also the mounting evidence of widespread damage.

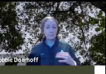
The reality is that agriculture has a long history of looking the other way when it's convenient. We dismiss nutrient

pollution that leaves our fields and contaminates drinking and recreational waters. We sidestep the PFAS ("forever chemical") issue. We tell the public not to regulate us, then allow our fertilizers and chemicals to wash away from our fields and into rivers and streams all the way to the dead zone in the Gulf of Mexico, contaminating the Gulf and areas in between. We claim to be stewards, but too often the public is left with the bill for cleaning up our messes.

Dicamba is just the latest chapter in this pattern of neglect. And re-registering it as "new use" only guarantees more unintended consequences: more neighbor-versus-neighbor conflict, more damage to crops, trees, gardens, and communities.

We owe it to the land, to our neighbors, our communities, and to the next generation of farmers to stop this cycle. EPA has a chance to draw a line in the sand and say: ENOUGH. Agriculture doesn't need another volatile chemical to prop up seed sales and corporate profits. We need solutions that build trust, protect our communities, and genuinely uphold the stewardship we claim to value.

I urge you to deny the new use registration of dicamba. Please don't let history repeat itself.



Dicamba/2,4-D Injury on Trees

- Visible damage varies
 - Species and individual's health
 - Exposure intensity, frequency, & timing
 - Weather patterns: drought/flooding
- Common symptoms (7-21 days)
 - Leaves: cupped, twisted, elongated, strap-like
 - Injury throughout canopy or patchy
 - May only see injury on older or newer growth

For a great primer on Dicamba and other common, potentially harmful herbicides, see MRBO's 2024 webinar with MDC Forest Entomologist Robbie Doerhoff. Visit youtube.com/@moriverbirdobs and simply place "pesticides" or "dicamba" in the search bar.



Finding Your Voice for Conservation: Turning Concern into Action

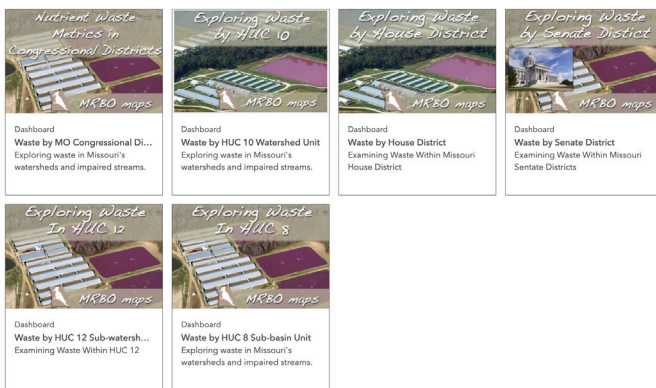
In today's 24-hour news cycle, it can feel like the world is on fire—literally and figuratively. Between floods, droughts, chemical spills, and climate headlines, it's no wonder so many people feel anxious or helpless. But here's the good news: you don't have to sit on the sidelines. At Missouri River Bird Observatory (MRBO), we believe that informed, engaged citizens are one of the most powerful forces for conservation.

Advocacy isn't about politics for politics' sake. It's about speaking up for clean water, healthy soils, thriving wildlife populations, and the places we all depend on. Our work goes beyond what you see in the news, shedding light on state and federal policies that shape Missouri's future. From defending clean water protections to working to hold polluters accountable, we bring clarity to complex issues and offer you ways to engage.

One way that we do this is through providing data-driven dashboards. We've used interactive dashboards for bird data for several years, but once we saw how the industrial agriculture industry removed local control and common-sense air and water protections, we decided to serve out information on impacts of our broken food system on water quality.

Water Quality Dashboards

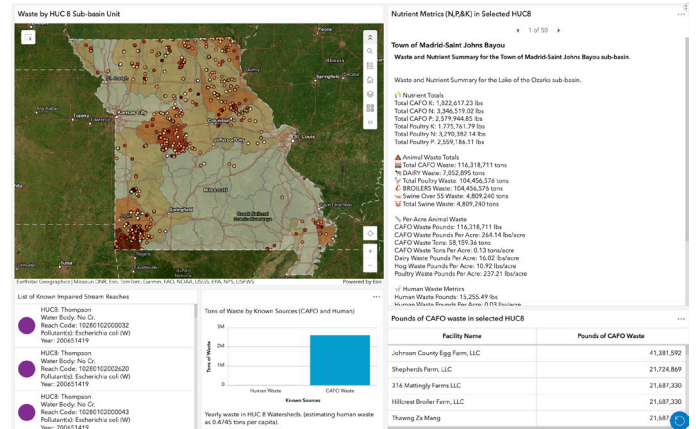
MRBO's water quality dashboards empower citizens with tools to examine factors impacting water quality.



Above: A suite of interactive dashboards created by MRBO that quantify nutrient loads from confined animal feeding operations (CAFO's) in Missouri.

In Missouri, this rollback of protections is no accident. Laws like the "Right-to-Farm" amendment and Senate Bill 391 stripped counties of their ability to set stronger health and environmental standards for concentrated animal feeding operations (CAFOs). These moves centralized authority in state agencies, but Missouri's Department of Natural Resources (DNR) is ultimately controlled by the legislature and governor. This structure has allowed what's known as regulatory capture—where the industries meant to be regulated exert strong influence over the regulators themselves. The Clean Water Commission, which sets water quality standards and permits, has been stacked with appointees tied to industrial agriculture interests, making it harder to enforce meaningful protections.

Nonpoint source pollution from CAFOs and industrial agriculture is a major driver of water quality problems because it occurs diffusely across the landscape rather than from a single, easily regulated pipe. Rainfall and snowmelt wash manure, fertilizer, pesticides, and sediment off fields and feedlot areas into nearby streams, rivers, and groundwater. These pollutants carry high loads of nitrogen and phosphorus, fueling algal



Above: An interactive dashboard showing quantified animal and human waste in sub-basins across Missouri.

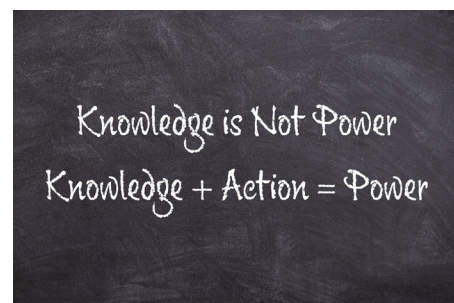
blooms, lowering oxygen levels, and causing fish kills and dead zones downstream. Pathogens and antibiotics from livestock waste can also contaminate drinking water sources, posing human health risks. Because these pollutants come from many small runoff events across thousands of acres, they are difficult to monitor and regulate, making them a persistent challenge for water quality management and a focus of watershed-scale conservation efforts.

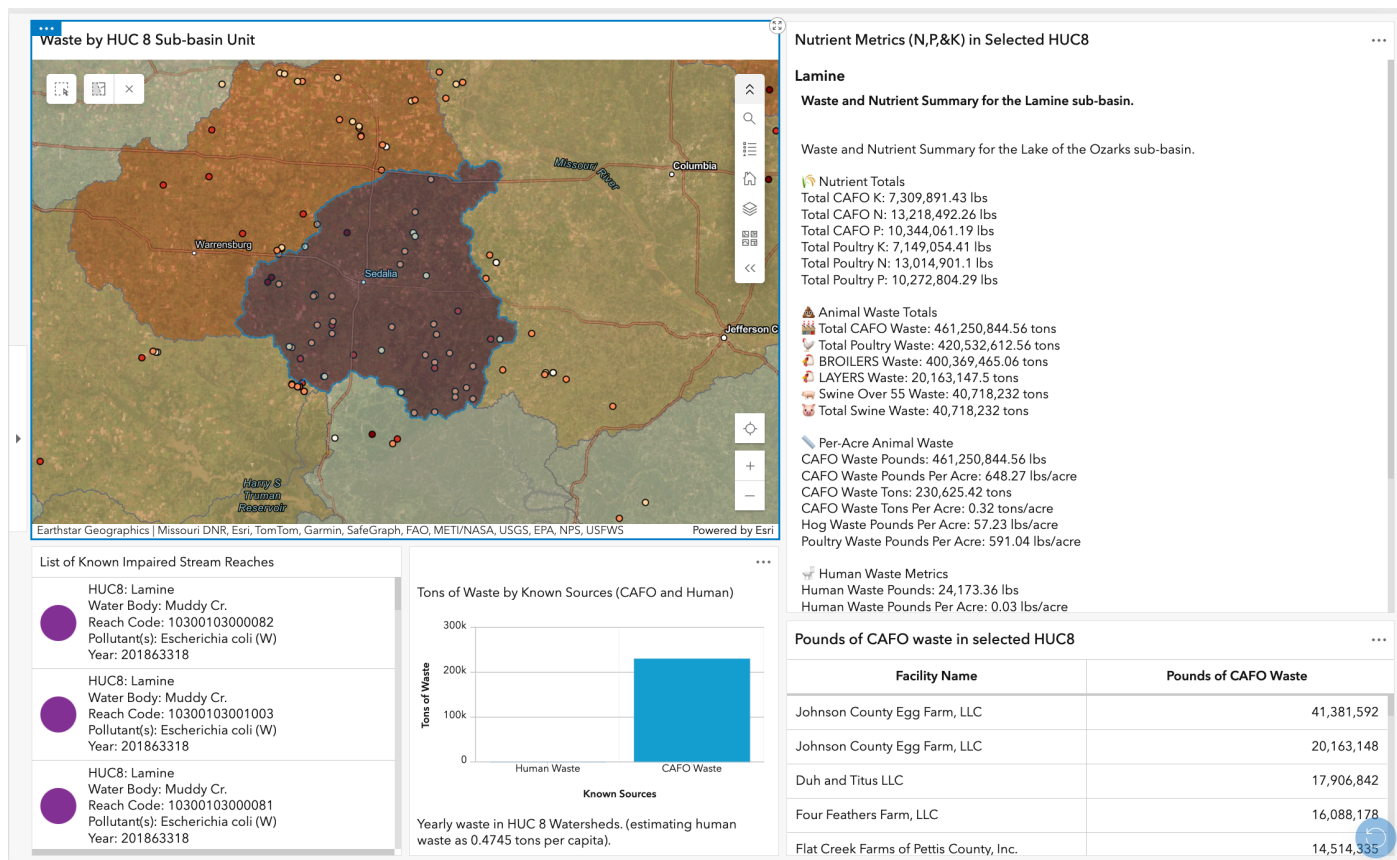
Through tools like our CAFO Waste Dashboards, you can see for yourself where animal waste is produced and how it compares to human waste, helping communities understand the scale of nutrient loading in their watersheds. Staying informed is the first step toward meaningful action. MRBO also helps Missourians track pesticide regulations and advocate for greater accountability where public health and wildlife intersect. The next step is turning information into action. Agencies like the Missouri Department of Natural Resources regularly hold public meetings and comment periods—open to anyone willing to show up or submit a thoughtful comment. These are not empty gestures. They shape real-world decisions about water quality standards, habitat protection, and industrial livestock permitting. MRBO can guide you through this process, help you craft your message, and connect you with others who care about the same issues.

And you don't have to do it alone. No matter what aspect of the outdoors and nature is important to you, MRBO and our partner organizations are here for you. Many people find that advocacy is an antidote to anxiety. Rather than feeling paralyzed by headlines, you can become part of the solution. Advocacy isn't just about stopping bad things from happening—it's about building the future we want: clean streams, healthy birds, safe food, and resilient communities.

Even if you don't want to or can't show up in Jefferson City or DNR meetings, you can still take action in many ways.

Your voice matters. Every action counts. Whether it's exploring our dashboards, signing up for alerts, attending a stakeholder meeting, or simply sharing





Above: An interactive dashboard zoomed into a selection of the Lamine sub-basin. Data show quantified animal waste and nutrient metrics. Animal and human waste comparisons, top producers of waste, and impaired streams are viewable.

what you've learned with friends, you are shaping Missouri's conservation future. Together, we can move from feeling helpless to becoming effective advocates for wildlife, wild places, and people.

Dedicated to Jeanne Heuser

This effort is dedicated to our friend and colleague Jeanne Heuser. Jeanne was a tireless advocate for Missouri's natural resources and an inspiration to all who worked alongside her. Her encouragement and persistence were instrumental in pushing us to take on this project and to make these dashboards publicly available. Through this work, we honor her memory and continue the fight she so passionately championed—for clean water, healthy landscapes, and a future where Missouri's natural heritage thrives.



photo courtesy of Zack Miller

MRBO in Action

Since the publication of the summer issue of the Rectrix, MRBO has engaged in the following advocacy actions:

- » Visited with staff members at the Washington DC offices of both Missouri Senators and seven of eight Missouri Representatives
- » Attended one US Representative's in-district town hall, with significant time spent in face-to-face conversation
- » Submitted two public comments to the Missouri Department of Natural Resources on water quality issues
- » Testified at one hearing in Jefferson City during the September extraordinary session
- » Delivered four community engagement workshops
- » Worked with partners to submit comments to the US Department of Agriculture and US Fish and Wildlife Service on public lands, pesticides, and wildlife conservation issues.

Plastic Project Update

Since the publication of the Summer 2025 *Rectrix*, the Show-Me Less Plastic Team has delivered the following programs and events, reaching more than 500 people:

July 15th – presentation at the Missouri Waste Control Coalition Conference
July 16th – presentation to the Ozark Rivers Solid Waste Management District Advisory Committee
July 26th – Annual Stream Team Watershed Celebration with plastic pollution information
August 13th – workshop for the EarthDay365 Recycling on the Go Team
August 17th – presentation to the participants of PaddleMO Ozarks
August 20th – meeting with a Missouri State Representative regarding potential legislation
August 21st – Neosho Regional Roundtable for local decision makers
August 23rd – Springfield Plastic Pollution Advocacy Workshop for community members
August 28th – presentation to the Solid Waste Management District Education Group
September 13th – booth at Rolla Audubon Trails Fall Festival
September 7th-8th – poster presentation at the Association of Missouri Interpreters conference
September 14th-15th – tabling at the Missouri Municipal League conference

Upcoming Events:

October 15th – Lake West Chamber of Commerce Regional Roundtable for local decision makers
October 25th – Jefferson City Plastic Brand Audit with Missouri River Relief.

Learn more and sign up here: <https://riverrelief.org/events/osage-and-missouri-river-cleanup-2025/>

November 1st – Rosebud Plastic Pollution Advocacy Workshop for community members (see flyer next page)



Missouri Foundation
for Health



Missouri Municipal League
91st Annual Conference
Sept. 14-17, 2025
St. Charles, Missouri



Clockwise from left: the Springfield Show-Me Less Plastic Community workshop; Dana with Emily Young of Stream Teams United tabling at the Missouri Municipal League conference, where MRBO and STU staff spoke with more than 20 elected officials from municipalities across the state; the decision-makers workshop in Neosho; an educational tabling prop that asks participants to match plastic items with the amount each item is thrown away every single day in the US.



"SHOW-ME LESS PLASTIC" COMMUNITY WORKSHOP

*Join the Missouri River Bird Observatory,
Stream Teams United, and Earth's Classroom
for a hands-on workshop designed to empower you
with the knowledge and skills to join the effort
to reduce plastic use and pollution in Missouri.*



NOVEMBER 1, 2025

At Earth's Classroom

11:00 AM - 2:30 PM

3649 Pump Station Rd

Rosebud, MO 63091

LUNCH IS INCLUDED

WHAT YOU WILL LEARN :

- The State of the Plastic Crisis
- Community Outreach Strategies
- Effective Messaging Through Media
- Empowering Grassroots Action

**REGISTRATION
IS FREE!**



THIS PROJECT
IS SUPPORTED BY:



ENROLL NOW [HERE](#)
OR SCAN THE QR CODE

For more information, contact us at: dana.ripper@mrbo.org



<https://bit.ly/PlasticWorkshopRosebud>





Community News

Bird-Safe Windows: A Homeowner Testimonial

By Linda Williams of Shannon County, MO

Before I moved into my new house in a very rural setting I suspected I would need to address bird window strikes. Yep, one or more a day! I researched different options and your webinar on March 1 was just what I needed to compare and decide on a plan.

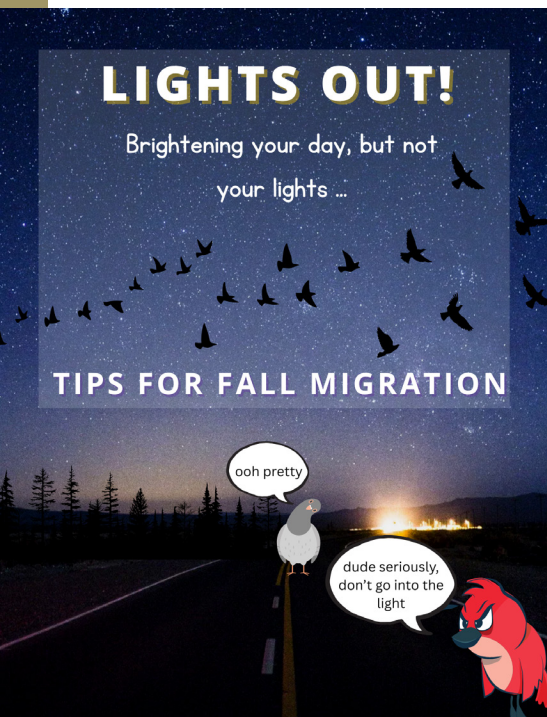
I decided to go with Acopian bird blinds and they were very inexpensive and easy to do myself. I spent just over \$100 to do seven 3 x 5 windows and one 6 x 5. I will see how it's going before tackling the upper living room windows and a couple of glass doors. The birds are hitting those lower windows as far as I have seen. Windows on the front of the house are under a porch roof and I don't think have been a problem.

I painted vinyl J track to match the windows and used a strong double sided tape to attach the tracks to the fiberglass windows since they are all casement style and open out. I used green paracord and attached it at the bottom. It's been really windy and I'm not worried so much about them tangling as leaving open unprotected areas while the wind blows. I really like the look of it and am hopeful this will do the trick.

Thank you so much for your bird collisions webinar and all the work you do to protect birds from window strikes and all other hazards!



Helping Migratory Birds: as easy as flipping a switch!



The simple act of reducing artificial light at night can make an enormous difference for migrating birds—and for insects too. Many bird species navigate by the stars, but the sprawl of artificial lighting draws them off course, pulling them into cities where they become disoriented and vulnerable to deadly window collisions, which kill hundreds of millions annually. Insects, essential food for many bird species, are likewise disrupted by artificial light, leading to exhaustion, premature death, and ultimately, population declines.

By turning off unnecessary outdoor lights, shielding fixtures, or closing blinds during migration seasons, we can restore darker skies that help both birds and insects complete their life cycles safely. In this rare case, conservation really can be as easy as flipping a switch.



Turn Lights Off/Use Motion Sensors



Turn your lights off when you're not using them. If you're unable to turn lights off completely, install motion-activated lights to only provide light when necessary. You're helping birds, saving energy, AND saving money! Win-win for everyone!

Top-shielding Lights

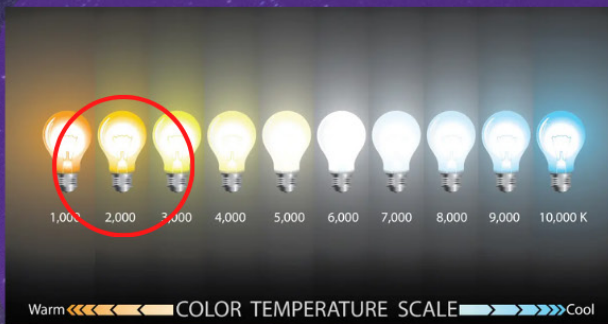
The direction of where your lights are facing can make the difference. Unshielded light will emit artificial light into the sky, but top-shielding lights will direct the light downwards.



Warm-spectrum Light Bulbs

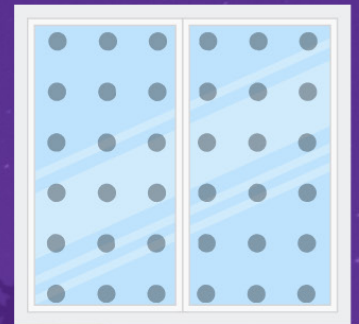
The color of your bulbs can contribute to light pollution.

Blue/white toned bulbs can disorient birds and cause harmful disruptions. Warm-toned lights are less harmful for both people and birds. Aim for 2700 K (Kelvin), but preferably 2000 K.



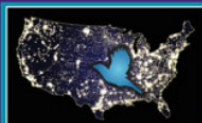
Prevent Window Collisions

It's important to note that artificial lights play a role in window collisions. These lights lure birds in by disrupting their migration path, causing them to fly in circles around buildings. This will deplete their energy, often leading to window collisions. Make your windows bird-safe with patterned film, visible markers, or other bird-friendly options.



Spreading Awareness

Spread the word! Tell your friends, family, coworkers, and anyone else about how light pollution affects migrating birds. Take it a step further by becoming a DarkSky Missouri advocate.



Lights Out
Heartland

Bird-friendly Communities Update

As the weather cools and the seasons shift, we are reminded that our feathered friends are making their journey down south too. With billions of birds on the move, they face a variety of threats and challenges such as habitat loss, light pollution, window collisions, and more. Missouri lies in the Mississippi Flyway, which is one of the major migratory paths for birds. This makes it much more crucial to provide safe habitats and bird-friendly communities to ensure a safe flight, whether it is your balcony, yard, or community. The Bird-friendly Communities program has been staying busy in making these spaces safer and raising awareness about the challenges birds face.

Helpful Hint: Check out [BirdCast](https://birdcast.info/) (<https://birdcast.info/>) to see real-time migration forecasts and bird movement maps. This tool is great for knowing when large numbers of birds are passing through your area!

Education and Outreach

Since the beginning of 2025, the Bird-friendly Communities program has participated in more than 60 partner meetings and connected with communities at eleven programs and festivals. Together, these outreach and educational events have reached 1,401 people, spreading awareness and inspiring action to make our spaces safer for birds. In addition to community outreach, Kaylee Woelfel, Bird-friendly Communities Coordinator has attended a variety of workshops and conferences to strengthen partnerships and bring back new ideas to the program. She is also gearing up for a busy fall season filled with exciting festivals and more bird-friendly programs. One highlight this season was the opportunity to be featured on the Missouri Department of Conservation's *Nature Boost* podcast. In this episode, Kaylee talks about the rise in birdwatching and shares seven simple actions you can take to help our birds thrive. This episode dropped on September 19th, so be sure to tune in and share it with your friends and family!



Kaylee and Tessa with the Bird-friendly Communities table at the Missouri Municipal League conference.

Urban Bird Treaty

In St. Louis, Urban Bird Treaty efforts have been successfully revitalized since the start of the year. Matt Barton, St. Louis Urban Conservation Specialist, has been leading the Urban Bird Treaty designation renewal process, with Kaylee actively participating in core team meetings. Together, the team is making steady progress and is now nearing the close of the 2025 reporting season.

Meanwhile, Kansas City's Urban Bird Treaty work is gaining exciting momentum. With the support of Kansas City's Office of Environmental Quality interns, Miya Fletcher and Sofia Grace, the program has benefitted from their valuable contributions. Thanks to their dedication, the team is on track to submit its implementation plan by the end of the year.

Bird City Missouri

Bird City Missouri was soft launched earlier this year and has received numerous inquiries from interested communities. St. Louis has officially applied and is currently in the process of reviewing their application, while Columbia is also making great progress toward completing theirs. We are hopeful that more cities and communities across the state will make strides towards this designation, building a network of communities dedicated to creating safer, healthier spaces for birds and people.



Want to see your community take flight as a Bird City? Email Kaylee Woelfel (kaylee.woelfel@mrbo.org) to find out how you can get started!

Bird-friendly Actions Spotlight: University of Missouri

The University of Missouri has taken a big step for bird conservation by installing bird-safe window film (reflective dots) on the windows of their Reading Room in the Anheuser-Busch Natural Resource Building. This project came about after two wildlife-oriented student clubs identified the frequent bird strikes occurring at this building and documented a concerning number of fatalities. They informed Dr. Pat Market, the director of the School of Natural Resources, which helped spark action.

Special Shout-outs:

Leanne Tippet-Mosby, Sustainability Manager in Campus Facilities
Dr. Pat Market, Director of the School of Natural Resources
Cynthia Greenwood, Anheuser-Busch Natural Resource Building Coordinator
Campus Facilities Construction Services
MU Sustainability
MU Women in Natural Resources
MU Student Chapter of The Wildlife Society

Thank you to those involved with this project and for making these installations possible. With this effort, the campus is creating a safer environment for birds, and we look forward to seeing more bird strike mitigation projects in the future.



Environmental Justice: Reuniting with Our Source

By Jameel Hasan Kane, courtesy of Magali Rojas

I'm thankful for everyone who is passionate about Environmental Justice. But I know in my heart the feeling is mutual because we all care for and appreciate the work we do as stewards of this cause.

I would like to talk to you, not in terms of policy, pollution, or preservation. But as a city farmer and cultivator of plants, I would like to go into the possible root cause of the mistreatment of our environment and the earth as a whole. I would like to speak on the separation we perceive as fellow brothers and sisters with our environment. And how that reflects something much deeper, our misunderstanding of ourselves and the relationship to our environment.

We live in a society that is highly charged and divided. Politically, culturally and spiritually, amongst a host of other divisions. At the heart of it is a fundamental feeling of separation. Separation from each other and the world we live in. Many of us live with the perception that we are isolated centers of awareness, encapsulated within a body, dropped into a world that is foreign, alien and even hostile to us.

From this perspective, our environment becomes something "other" than us. It has become something to subjugate, something to use, something to collect resources from to sell or keep from one another and something to conquer. Or at best, we protect it as a kind of charity. But I invite us to consider another perspective for a moment. What if we didn't come "into" this world... but out of it? Like a child does from their mother. In the words of Alan Watts, a philosopher that I greatly admire, he says... "Just like an apple tree apples, the Earth peoples."

What if we aren't simply spirits from another realm, encapsulated in a bag of skin and placed on a rock. What if every human being and every form of life for that matter are expressions of the earth? What if our eyesight is a mirror to which the earth is able to see itself? As human beings, our biology is one with the earth. We are composed of the same fundamental elements. Without the Earth's exhalations of oxygen through photosynthesis, we would have no inhalations. And therefore no life.

If you've ever looked at a tree's roots, or what looks like veins in a leaf, and compared them to our nervous system or the blood vessels in our body—you've seen the likeness we share with nature. It is Human-Nature isn't?. It's within us. We are a reflection of the Earth and moreso, our immediate environment. Even Genesis 2 verse 7 states that God formed man from the dust of the ground. That tells us we are one.

Imagine if we went to another planet and met beings that were aware of where we're from. The inhabitants of that other planet wouldn't call us human beings... They would call us Earth-lings. And yet—we treat the Earth and our environment as if it's an object. Something "There." "Not us." - which leads to the misuse of its resources. The illusion of separation doesn't only lead to damage of the environment we're in - it damages us. It alters our perception of the world where we see everything as "us vs. them." Human vs. nature. My country vs. yours. My race, my religion vs. the other.



Young Kansas City men take part in the Urban Rangers float trip on the Current River in July.



But if we could challenge ourselves to see through the perception of unity with the earth and our environment - if we saw the Earth not as a place we were put into to live, but as the mother we emerged from - it would inspire us to care for her the right way. And in doing so, I believe we'll begin to care for each other differently. With reverence, with empathy, with compassion, with understanding and most of all, with unity.

Environmental justice is not just about protecting our ecosystems or cleaning up our local environment. It's about restoring relationships. At its core I believe it's about healing a wound of separation with mother earth. So let's see the world, not as something to be controlled... But one with each of us. Let's treat every neighborhood, every creek, every human being, as part of a greater whole.

Because if we live like we come from the Earth and not into it... Maybe then, we'll finally learn to love it and each other, as ourselves.

Jameel Hasan Kane, a City Farmer of Microgreens, was born and raised on the south side of Kansas City, Missouri. His commitment to environmental justice has grown through an indigenous fascination with nature and plant life. His goal is to reconnect us to our fundamental human-nature relationship with Mother Earth. By doing so, he believes it will have a positive effect on how we treat our environment and the people we share it with. He hopes it will make life more harmonious, vibrant, unified, and dispel the divisiveness we currently experience with each other and the Earth.



Upcoming Events

See more at <https://mrbo.org/Events/Calendar.aspx>



Duckfest

Friday, October 3rd and Saturday, October 4th

Knights of Columbus, 1270 Church Rd, St. Paul, MO The Missouri River Bird Observatory is thrilled to participate in **Duckfest 2025**, a premier outdoor festival celebrating waterfowl hunting and conservation. Join us for a weekend filled with family-friendly activities and community spirit.

Duckfest features live music, a duck gumbo cook-off, a sanctioned duck calling contest, raffles, and a variety of food and drink options. Visit our booth to learn about bird conservation, participate in hands-on activities, and discover how you can make a difference. We look forward to seeing you there!



Fall Plastic Brand Audit

Saturday, October 25th from 1 p.m. to 3:30 p.m.
Bonnets Mill, MO

MRBO is conducting one more Plastic Brand Audit this year! We will be auditing plastic trash that our friends from Missouri River Relief pull out of the river. A Brand Audit consists of tallying the corporate brands found on the plastic trash; these audits allow us to determine which corporations' single-use plastic packaging is contributing the most to the global plastic pollution crisis...and ultimately, to call them out on it. We will be following Break Free From Plastic's audit methodology and submitting the data to their global brand report.

Find more information and register to attend at: <https://riverrelief.org/events/osage-and-missouri-river-cleanup-2025/>

Show-Me Less Plastic Workshop

Saturday, November 1st
Rosebud, MO
Please see the full flyer on page 21!



Farmer Festival

Sunday, November 9th
Midtown Community Garden,
St Louis, MO

Come see us at the St. Louis Farmer Festival on Saturday, November 9th! MRBO will be there with a booth full of birding fun, resources, and ways to get involved with conservation via the food you eat! This year's festival is hosted by **Known & Grown STL** as their 2025 Fall Farmer Festival fundraiser. Come out to support local farmers and enjoy family-friendly fall activities like **corn husk doll-making, a pie contest, and educational activities** led by Known & Grown's sustainable farmer network.



Arrow Rock Heritage Festival

Saturday, October 11th from 10 a.m. to 5 p.m.
Sunday, October 12th from 10 a.m. to 4 p.m.
Downtown Arrow Rock, MO

It's time for the 57th Annual Arrow Rock Heritage Festival. This is one of Missouri's oldest and most popular heritage festivals. It features traditional and modern artistic hand-crafted items, historic reenactments, living history presenters, musical entertainment, and food vendors galore. Stop by the MRBO tent to see us and show your support! Make sure you shop the unique stores of this historic village, as well. Admission is FREE!



DarkSky Missouri Festival

Friday, October 17th and Saturday, October 18th
Big Spring, Van Buren, MO
Join MRBO and dozens of other conservationists for a great weekend in the Ozarks under some of the darkest night skies in Missouri. The event will feature a host of expert speakers and activities, and (weather permitting) amazing views of the night sky through telescopes.



Gateway Outdoor Expo

November 15th-16th
St. Charles Convention Center,
St. Charles MO

Come visit MRBO at one of St. Louis' largest outdoor expos. The expo is free to the public and will showcase the latest outdoor products, services, and resources, plus interactive attractions and demos — all in a festive, family-friendly environment.

Find more information on the event at gatewayoutdoorexpo.com



CoMoGives

December 1st – 31st Online
MRBO is once again participating in CoMoGives, an annual online fundraiser supporting more than 150 local nonprofits in Mid-Missouri. Organized by the Community Foundation of Central Missouri, this event raised just shy of \$2 million last year for participating organizations. All donations raised

through CoMoGives go directly to the organizations, so every dollar donated to MRBO stays with us! This is a great opportunity to learn about the impactful nonprofits in our community and support your favorites. For more information, visit the CoMoGives website: <https://www.comogives.com>

MRBO 2025 monthly webinars

Third Monday of the month @ 6:30 pm Central time on Zoom

Oct 20th

The Facts About Cats and Native Wildlife
with Dr. Jen Riley
<https://bit.ly/catsOctober2025>

Nov 17th

From Big Rivers to Prairies:
Audubon's Conservation Work in Missouri
with Tara Hohman
<https://bit.ly/AudubonNov2025>

Dec 15th

Farm Bill 101: Sowing the Seeds for Conservation
with Bill White
<https://bit.ly/FarmBillDec2025>



MRBO's partnership with Missouri Master Naturalists Osage Trails Chapter

Our Osage Trails Chapter liaison, JL Johnson, provided MRBO with the following report from our partnership activities in 2024:

- Of 23 Osage Trails partners, MRBO had the largest advanced training impact on the chapter by number of hours logged.
- MRBO had the second largest reach with regard to number of members engaged (training and/or service) with 113 folks in total. First place beat MRBO by just one person - and first place went to the Chapter itself!
- In 2024, MRBO provided 740 hours of advanced training and 410 hours of volunteer service.



New Life Member of the Conservation Federation of Missouri



MRBO's Director of Community Conservation Programs, Tessa Poolman, became a Life Member of the Conservation Federation of Missouri this summer. MRBO is an affiliate organization of CFM, and we work closely with CFM staff and other affiliates on public outreach and policy advocacy. Tessa's commitment to life membership shows that yet another MRBO staffer is dedicated to the partnerships and personal involvement that make conservation work in Missouri possible!

CFM was founded in 1935 as fish and game populations in Missouri were reaching a critically low level. CFM was instrumental in creating the Missouri Department of Conservation; its oversight body, the apolitical Conservation Commission; and the Design for Conservation and Soils, Parks, and Water Sales Tax structures. All of these were made possible through citizen-led Initiative Petitions.



Thank you for your support!

The following individuals and organizations and several anonymous donors have provided support since the publication of the July 2025 newsletter. We give thanks to them and to all who have supported the Missouri River Bird Observatory! YOU make our work possible. Please note that donations received after September 21st, 2025 - the date this issue went to print - will be acknowledged in the next issue of the Rectrix.

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Black-bellied Whistling Ducks by Karin Pelton

