

THE RECTRIX

A Newsletter of the Missouri River Bird Observatory

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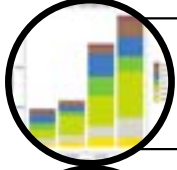
rectrix lek-triks/ noun. (pl. -trices) any of the larger feathers in a bird's tail, used for steering in flight.

Our Mission



Conservation

To contribute to the conservation of Missouri's migratory and resident birds through scientific research, education, 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 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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A curious Green Heron exploring the banks of the Eleven Point River in the Mark Twain NF
by Rachel Hendricks

This photo was taken this past summer at one of my favorite birding spots along the Eleven Point River. I come to this spot regularly during the spring and summer and quietly sit for hours watching the warblers and water birds canvassing the trees, shrubs and shorelines. I imagine what it looked like here in the distant past and wonder whether generations of birds will continue to return here each year to raise their young. These quiet moments afford both a unique glimpse into their daily lives, as well as a clear and pressing understanding of how disruptive we humans can be to these sensitive environments.



Cover Photo by: Rachel Hendricks

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Wondering how you can support MRBO? We have several exciting fundraising events coming up in the next couple months!



Our yearly fall auction is all about food and beverages! There will be something for everyone to enjoy. The auction can be previewed online at <https://www.32auctions.com/MRBOFall2023> beginning October 1st and will open for bidding from 6:00 pm Tuesday, October 3rd through 6:00 pm on Sunday, October 8th.



Hope is The Thing With Feathers
The Missouri River Bird Observatory's
Eighth Annual Missouri Bird Photography Contest
November 1st - December 31st, 2023



MRBO's eighth annual photo contest begins on November 1st and runs through December 31st!



Earth Gives is a 501c3 online platform dedicated to helping environmental nonprofits with fundraising. You can donate to MRBO through Earth Gives' website September 11th - October 5th. Please see: <https://www.earthgives.org/MoRiverBirds>



CoMoGives is an annual online fundraiser that supports 153 high-impact nonprofits in Columbia and Mid-Missouri.

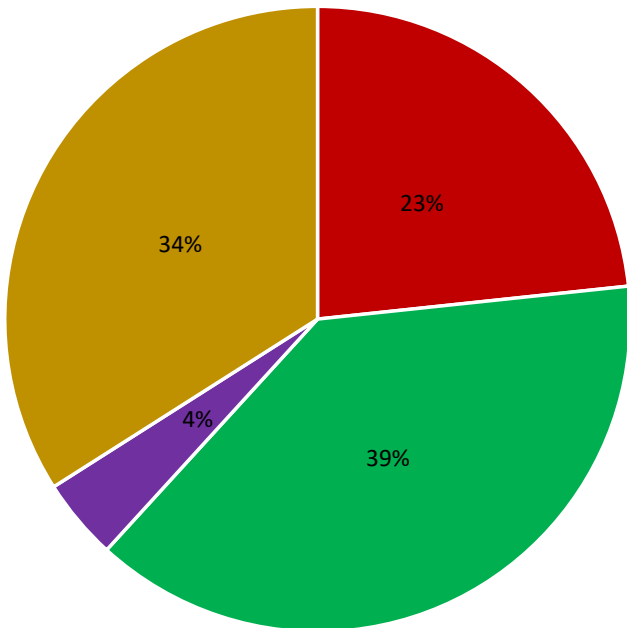
Donors can make a single donation of any amount to one, two, ten, or more organizations from November 28th – December 31st, 2023. All the money that is raised through the CoMoGives campaign goes directly to the participating nonprofits.

Fiscal Year 2023 Financials

1 August 2022 - 31 July 2023

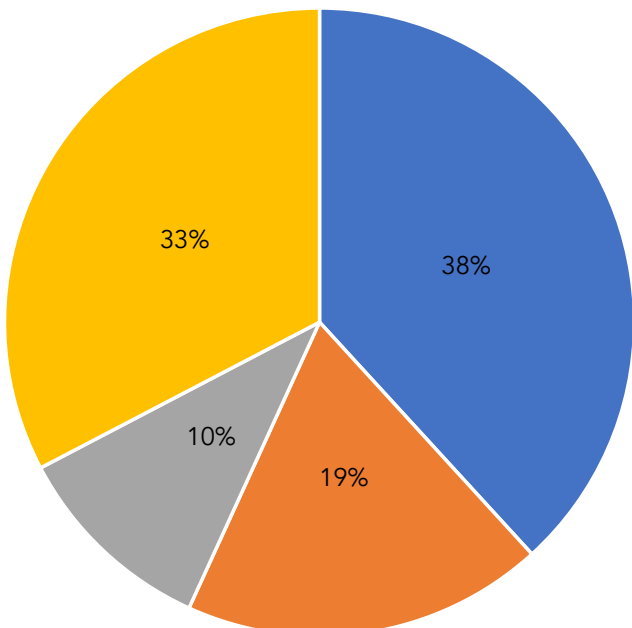
MRBO had a very successful FY2023 thanks to our donors, partners, and other conservation organizations. Total revenues were just over \$285,000 and expenditures were just under \$250,000. We are very grateful to individual donors at all levels - you can see from the charts below how significant your contributions are to MRBO's continued operations. Look for the full MRBO FY2023 report to arrive in your mailbox next month!

FY2023 Income by Program



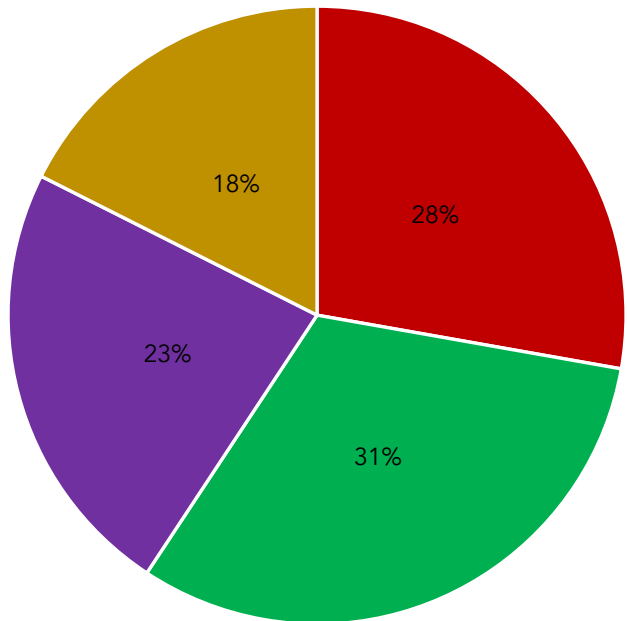
■ Science ■ Education ■ Advocacy ■ Unrestricted

FY2023 Income by Source



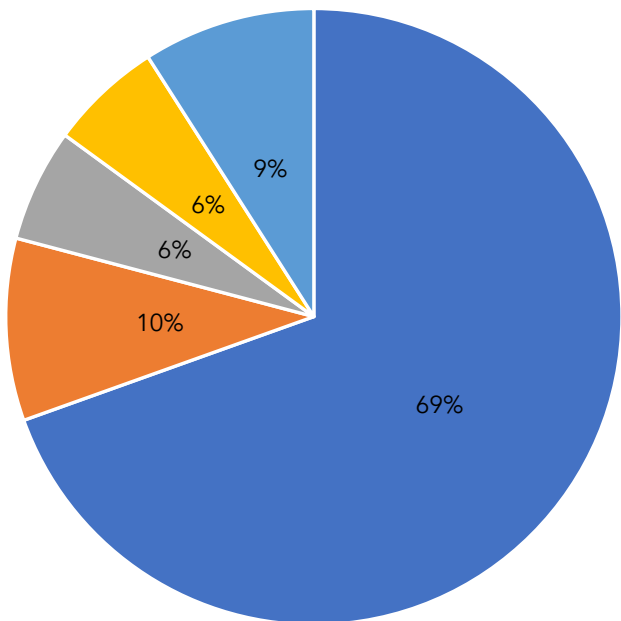
■ Individuals ■ Organizations ■ Foundation Grants ■ Contracts

FY2023 Expenditures by Program



■ Science ■ Education ■ Advocacy ■ General Operating

FY2023 Expenditures by Category



■ Salaries & Stipends ■ Travel ■ Supplies ■ Facilities ■ Other





Science

To contribute to the 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.

Science, Education, and Advocacy: at MRBO, it is all connected

Ethan Duke, MRBO Co-founder/Director

Science. What a wonderful thing. It is a realm of objective truths where solutions are born. It is a field of unlimited, fascinating, and fulfilling work and it is foundational to the work we do at MRBO. We empower our education and advocacy using scientific principles, processes, and facts. In an age of ideologically driven misinformation, it is essential to use universally accepted facts and principles within the scientific community to solve problems. We strive to apply these solutions via public education and advocacy for policies that promote health and sustainability.

Science in Education Programs

The collective knowledge of ecosystem health, the processes by which we acquire that knowledge, and how we are all connected is communicated throughout MRBO's education programs. After all, MRBO began with the infusion of college class visits to bird migration studies along the Missouri River. We soon began hosting local school group field trips to our banding stations. Students observed actual science in action and learned about our methods for answering questions about bird populations, timing, and habitat use during migration.

The art and science of MRBO's nature studies have become more refined in the field and classroom. The programs have grown to incorporate learning standards across subjects, often using Missouri's outstanding Discover Nature Schools curricula. We are excited to see our education programs evolve with the capacity to connect all people to nature. MRBO is using a science-based approach with reaching new, underserved communities!

Everyone has questions as they experience nature and sharing scientific know-how empowers them with tools for inquiry and investigations. Further, we envision sharing our innovative advances in technology to future scientists. Together, we can all provide more timely insights into problems and real-world solutions.

Science in Advocacy

"Objective truths of science are not founded in belief systems. They are not established by the authority of leaders or the power of persuasion. Nor are they learned from repetition or gleaned from magical thinking. To deny objective truths is to be scientifically illiterate, not to be ideologically principled."

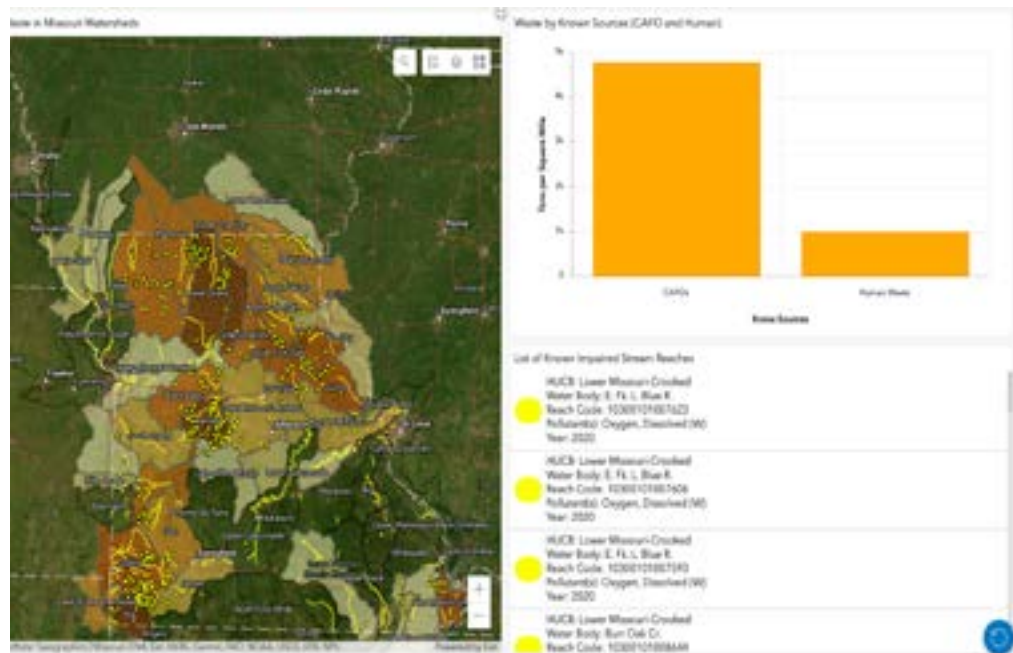
- Neil deGrasse Tyson, Starry Messenger: Cosmic Perspectives on Civilization

Public awareness, informed decision-making, and policy changes are key components of addressing environmental challenges and promoting a healthier planet. It is through science that we can communicate all manner of other truths related to ecosystem health.

We identify problems and solutions with policy through the lens of ecosystems. The whole system. For example, the inputs and outputs of our current industrialized and consolidated food system are not sustainable. The level of single-use plastic production is not sustainable. MRBO communicates about these problems that need to be addressed through an informed public that demands policy that serves to benefit all.

MRBO has been working with exceptional partners to begin communicating the current state of Missouri's watersheds and the capacity of our land to withstand the harmful effects of our industrial food system. Mapped data similar to the dashboard below can be found in one of the Missouri Coalition for the Environment's storymaps here: <https://arcg.is/1W8rTf>

In order to empower and inform education and advocacy, it is essential to communicate these object truths in a clear, evidence-based, and accessible manner. Public awareness, informed decision-making, and policy changes are key components of addressing environmental challenges and promoting a healthier planet.



Above: A screenshot of one MRBO's grassland bird survey dashboards. This dashboard is for surveys on Public Lands and those owned by partners. Data can be visualized and downloaded. Check it out at: <https://mrbo.maps.arcgis.com/apps/dashboards/065f3270c0d742bb80c114f017a8dfbd>



Seeking Out Roosts of Migratory Chimney Swifts

Joanna & Eric Reuter (Ozark Outsider; ozarkoutsider.com)

During fall migration, Chimney Swifts use communal nighttime roost sites (usually chimneys) that commonly host hundreds of birds, though some roosts can host thousands at the peak of migration. Roosts are fun to watch: birds gather at dusk, circle in an ever-tightening cloud that can resemble a tornado run in reverse, and drop down into the roost site as darkness descends.

Yet our assessment of eBird records from around Missouri leads us to suspect that many roost sites are under-reported or unreported, and that there's much birders don't know about roost dynamics. Moreover, seeking out and watching roosts is a great way to engage new and/or young birders while contributing to citizen science. And, this birding activity is compatible with an evening out in town!

Chimney Swifts are master flyers that spend virtually all daylight hours on the wing, fueling their flight with a diet of insects. As long-distance migrants, they spend the summer breeding season in North America and the winter in South America (Birds of the World, <https://birdsoftheworld.org/>). Commonly described as “cigars with wings” due to their distinctive body shape (Figure 1), these cigars don't smoke, and neither do most of the chimneys with which they are now so commonly associated.

Springfield currently holds the Missouri state high-count record during fall migration, with several eBird reports in different years documenting between 1,800 and 2,200 birds. Several of these records come from roost-watch field trips hosted by the Greater Ozarks Audubon Society. Since 2011, an annual GOAS field trip in early September has counted Chimney Swifts near the intersection of E Sunshine Street and S Luster Avenue, where swifts roost in four hollow, concrete columns (Figure 2).

Columbia also hosts swift roosts, most notably at the downtown Armory building (northeast corner of N 7th Street and E Ash Street), where Cheryl Rosenfeld reported the eBird high count for Columbia, with an estimated 1,000 birds on October 11, 2021 (<https://ebird.org/checklist/S96006971>). This has been a known roost site for years, and numerous eBird reports document hundreds of Chimney Swifts during fall migration (Figure 3). Beyond Missouri, the single biggest concentration of Chimney Swifts documented on eBird is at a suburban Detroit chimney that has been designated as a Swift Sanctuary. Peak numbers occur during fall migration, with multiple reports in the tens of thousands and a peak estimate of 50,000! Not surprisingly, it takes a large, abandoned chimney (151 feet tall) to host this many birds (<https://oaklandcountyblog.com/2017/09/29/a-swift-night-out-flying-cigars-over-farmington/>).



Figure 2. Greater Ozarks Audubon Society members gathering to observe a recurring Chimney Swift roost in four hollow columns. Photo by Greg Samuel.

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Roosts: Where and When

Where (in general): Although Chimney Swifts can nest in small, residential chimneys, our impression is that larger, urban chimneys are commonly the sites of large fall roosts, as seems to be the case in Columbia. Why is this? Is it the size of urban chimneys that they like, because they're big enough to hold a lot of birds? Is the urban heat island a factor, providing a boost of warmth on chilly fall nights? Is an urban area a good foraging zone, with thermal air currents concentrating prey insects in ways that can be thought of as “aerial plankton” (Wheeler, 2012: https://www.collectionscanada.gc.ca/obj/thesescanada/vol2/002/MR93837.pdf?is_thesis=1&oclc_number=914079605)? Are urban lights a factor in feeding, though the birds tend to roost before full dark? Is it all of these, or something else? Regardless, urban roosts are fun and easy to watch, and have the potential to draw the attention of more people towards birds, though we've been surprised to watch people walk right past an active roost, oblivious to the avian wonder overhead.

Where (in particular): The easiest way to view Chimney Swifts is to visit a known roost site, such as the columns in Springfield or the Armory building in Columbia. The greater Kansas City and St. Louis areas, along with Cape Girardeau, Jefferson City, and some smaller towns, have eBird records documenting roosts, though most of these are more than 5 years old, so the current status is uncertain. Seeking out undocumented roosts can be rewarding, as well.

When (time of day): Chimney Swifts come to roost in the evening, as the sky is darkening. Roost entry often begins roughly 20 minutes after sunset, but weather conditions (clouds, temperature, rain) may influence exact timing. In the morning, roost departure begins an average of 11 minutes before sunrise, according to Birds of the World; several eBird lists from Missouri support this approximate timing.

When (time of year): eBird data provide some constraints on the best date range to look for big numbers of Chimney Swifts in Missouri (Figure 4). However, there has been no systematic monitoring via eBird in Missouri to determine the best timing to see peak numbers of migrating Chimney Swifts. The Greene County (Springfield) points are clustered in early September due to the traditional timing of the GOAS count, implying that early September can be a good time to watch. Observed numbers in Columbia show a later peak, in October, though these aren't based on systematic sampling. Indeed, on a recent scouting trip on September 1, 2023, we were thrilled to report 550 swifts using the Armory chimney. In fall 2023, the Columbia Audubon Society will be hosting three swift-watching events at this location (9/19, 9/29, and 10/9; <https://www.columbia-audubon.org/events/>) in an attempt to better document swift roosting patterns.

It seems clear that migratory numbers are generally highest from early/mid September through mid-October. But what about the details? How much do numbers vary day-to-day, how long are individuals staying, and what's the overall flux through the area? We don't have the data to answer these questions now, but with time, perhaps we will. A combination of old-fashioned and high-tech methods may yield the best answers. As citizen scientists, we can take part in old-fashioned roost monitoring by counting birds and submitting results to eBird. And, in time, MOTUS will also yield insights. Already, Chimney Swifts are being tracked by the MOTUS network, though so far these birds are mostly ones summering in the northeastern US and eastern Canada, less directly relevant to Missouri.



Figure 1. Chimney Swifts in flight. Photos by Chrissy McClarren and Andy Reago, via iNaturalist.



Figure 3. Birder and author Noah Strycker photographed the Armory roost during his 2021 visit to Columbia on an evening with an estimated 500 Chimney Swifts, according to the eBird list. CC-BY-NC (<https://www.inaturalist.org/observations/101364138>).

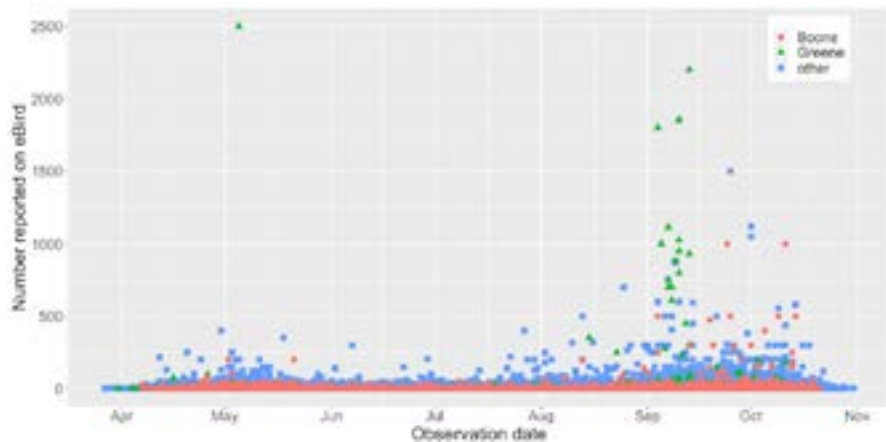


Figure 4. Scatterplot of Chimney Swift counts by day of year, from eBird lists for Missouri. Points for Boone County (including Columbia, in red) and Greene County (including Springfield, in green) are plotted on top of the combined statewide points from other counties (blue).

Chimney Swifts don't necessarily restrict themselves to a single roost site in a given setting. Joanna's first observation of a Chimney Swift roost in Columbia wasn't at the Armory, but at a different chimney a couple blocks away. Fortunately, it was easy to find, as she simply followed the birds. While the Armory chimney seems to be the most consistently used site in Columbia (or at least the one most consistently observed by eBirders), four other sites in downtown have also hosted reported roosts over the years. At present, eBird observations are too few and far between to fully understand the patterns related to whether one, another, or multiple roosts might be in use within a city or town.

How many more roosts are out there but unknown and/or unreported? We're especially curious about places with industrial histories like Sedalia, Moberly, Centralia, and Mexico, though industry is not a prerequisite. Keen observers who take the time to check these non-traditional birding locations and report on eBird may fill in some knowledge gaps.

Conservation Concern & Citizen Science

Population estimates of Chimney Swifts show a declining trend over recent decades, but why? Are insects—a necessary food resource—in decline, perhaps due to substantial increases in pesticide use (link: https://water.usgs.gov/nawqa/pnsp/usage/maps/compound_listing.php)? Are nesting and roosting habitats a limiting factor in places? Are there limiting factors associated with migratory corridors or overwintering habitat? The degree to which each of these matters is unclear.

Estimating populations of birds at a continental scale is difficult. But fall roosts of the sort that occur in Springfield, Columbia, and elsewhere serve to concentrate birds and provide an opportunity for an alternative way to put a finger on the pulse of what's happening over time. Wouldn't it be neat if the birding community took it upon ourselves to monitor these roosts, learn the patterns of activity, and, if done for enough years, assess the trends over time? And think about all of the passers-by who might be drawn into the birding community if they happen to be present when someone in the know is also there to explain the basics of this cool thing they're seeing (no, they're not bats, they're birds, and they're on a migratory path to South America...). In addition, since the big chimneys that swifts often prefer for fall roosts tend to be old, and new construction doesn't provide an equivalent, there's a potential for advocacy to ensure that important roosting chimneys are recognized and preserved.

Reporting Swift Counts on eBird

Counting swifts can be a bit challenging. You can definitely appreciate the spectacle without knowing how many there are, but if you're reporting to eBird, it's good to try to get a reasonable estimate. Our experience is that some will disappear down the chimney while others are still arriving, so there's never an opportunity to view all of them simultaneously for a total numbers estimate. The most effective strategy we've used is to keep an eye on the chimney's mouth and count birds as they disappear down into it, which they tend to do in pulses rather than a steady stream.

On slower nights, it may be possible to count one by one, but big nights require some estimation as multiple birds drop in simultaneously. Also, be aware that some birds will make a close approach to the chimney but not drop in, opting to circle again instead. This all happens while darkness is intensifying, making counting more challenging than it appears! The good news is that, once in the chimney, they seem to stay there until morning. Count what goes in, and count fast. Or, rather, swiftly.

If submitting an eBird list, it can also be helpful to note the time that the first and last birds disappear into the chimney, as well as weather conditions (temperature, cloud cover, precipitation). If you go to a roost site, and few or no birds show up, that's also useful information to report.

Chimney Swift watching is especially suitable for new and/or young birders, as it doesn't require binoculars or great skill, just enthusiasm and a free hour of an evening. We hope that the Columbia Audubon trips this fall will draw a range of interested people, and hope this article will encourage others to go looking for new roosts and help raise our collective awareness of, and knowledge about, swifts in Missouri!

Data source: eBird Basic Dataset. Version: EBD_relJun-2023. Cornell Lab of Ornithology, Ithaca, New York. Jun 2023.

Adapted from an article (<https://www.columbia-audubon.org/birds-in-big-numbers-migratory-chimney-swift-roosts/>) published in *The Chat*, newsletter of the Columbia Audubon Society.



Finding Roost Sites

We suspect that more Chimney Swift roosts are present and active across the state than are documented on eBird. If you want to find one, visit a city or town near dusk, and look and listen for swifts. Though their convoluted flight paths won't always take you directly to a roost, look for general patterns of direction. Around sunset is usually when they really start to concentrate in numbers near the roosts, so if you start to see bigger congregations at this time, you may well be able to follow them on foot to the roost.

On a recent (9/7/23) visit to Hermann, we used just this method to find two different roost sites in relatively small chimneys, including one on an uninhabited brick house (Figure 5) whose western chimney attracted a circling swarm of ~200 swifts (some of which may have ultimately roosted in a different chimney). This swirling flock was dramatic enough to prompt Hitchcock-inspired comments from outdoor diners at a nearby restaurant!



Figure 5. This chimney on 5th St in Hermann attracted up to 200 swifts on an early September evening. Photo by Eric Reuter.



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 Newest Addition

Tessa Poolman, MRBO K.C. Community Conservation Educator

Hello! My name is Tessa and I'm so excited to introduce myself as the newest member of the Missouri River Bird Observatory staff, taking on the role as the Kansas City Community Conservation Educator. I am a true Kansas City native, growing up just north of the river. Since I was young, I have felt a strong connection to nature and extreme compassion towards wildlife. I recently graduated from Pittsburg State University with a Bachelor of Science in Biology with an Emphasis in Wildlife Ecology and Conservation. During my academic journey, I served as a member of the executive council of the Wildlife and Fisheries Society at Pitt State for two years. I gained practical experience working for the Kansas Department of Wildlife and Parks at the Southeast Kansas Nature Center, enriching both my own and others' understanding of local wildlife and nature.

Throughout my college years, I was always interested in my studies. My deep fascination for birds and their behavior emerged under the guidance of two passionate college professors and the supervisor at my job. My supervisor, an avid and talented bird watcher, encouraged me to embrace bird watching.

At the nature center where I worked, we had a spacious bird watching area with a bird watching window that allowed for intimate interactions with the birds at the feeders. During my free time and breaks, I found solace in watching birds through that window. Whether it was a resident bird or a long-distance migrant, I was captivated by their movements, colors, feeding habits, and interactions with one another. These impactful encounters along with engaging course work is what led me to Missouri River Bird Observatory and this position. I just knew it was an opportunity I couldn't pass up.

The role of Kansas City Community Conservation Educator is a new cooperative position shared between the Missouri River Bird Observatory and Missouri Department of Conservation. This innovative position is dedicated to bringing nature programming to communities, families, and neighborhoods within the Kansas City urban metro area that have historically lacked access to enriching nature experiences, education, and conservation efforts.

I am thrilled to have the opportunity to share my passion for birds by providing immersive nature experiences to people of all ages and backgrounds. One of my goals is to lead bird hikes and other birding adventures within neighborhoods and communities, enabling Kansas City residents who have not previously had the opportunity to forge stronger connections with birds and nature.

Kansas City is home to numerous remarkable organizations, and I hope to collaborate with them to raise awareness about the significance of community conservation and encourage active participation. The Missouri Department of Conservation has already made substantial strides in the field of community conservation, and I consider myself fortunate to work alongside them, offering educational support.



Education Program Updates

Laura Semken, MRBO Education Coordinator

Arrow Rock Nature School is in flight for the school year! In mid-September, Glasgow 5th graders spent a full day exploring the pond and the creek. Students went fishing, caught macroinvertebrates with aquatic nets, studied frogs, and discovered crayfish. We spent time discussing the food web in the pond and observing the critters they caught to better understand life cycles and adaptations. In the afternoon students were led through the forest to the Big Spring and creek. One student exclaimed how relaxing and peaceful it felt to walk through the woods. After collecting specimens at the creek and creating a nature journal entry with writing and drawing, students participated in a Discovery Swap which is a student-led sharing of observations.

The next day was a full day of exploring forest ecosystems. First, vocabulary words like producer and consumer, herbivore, omnivore, carnivore and detritivore, were introduced. Then students were led



on a two-mile hike to find evidence of food chains in action. There was no shortage of evidence, from web worms to turkey vultures, plus spiders and millipedes. Students then created a food chain nature journal entry based on their observations. They were fascinated by their discoveries. In the afternoon, working in pairs, students completed a scavenger hunt using map-reading skills to find what their animal needs to survive in the forest. After finding all the pieces of their habitat (food, shelter, water and space), they completed their animal puzzle and explored real animal furs, skulls, tracks and scat.

These programs are such a wonderful way to explore life sciences through immersive observation. A 2019 review of peer-reviewed research found that experiences in nature improve academic learning, personal development, and respect for the natural world. Frances E. Kuo, Ph.D., associate professor of Natural Resources and Environmental Sciences at the University of Illinois, Urbana-Champaign, was lead author of the paper in *Frontiers of Psychology*, "Do Experiences with Nature Promote Learning? Converging Evidence of a Cause-and-Effect Relationship." Kuo's paper outlines eight likely pathways that lead to learning benefits.

- Improved concentration and attention.
- Reduced stress.
- Better self-discipline and impulse control.
- Higher motivation, enjoyment and engagement.
- More physical activity and better fitness.
- Greater calm, less disruptive behavior resulting in a better learning environment.
- Potential to foster warmer, more cooperative relationships with other students.
- Opportunities for more creative, physical and social play.



During the next two months the Arrow Rock Nature School will be providing field experiences to students from Blackwater, Bunceton, Hardeman, Miami, Orearville, and Marshall plus two homeschool groups.



The Arrow Rock Nature School is made possible because of generous grants and donations from the Buckner Foundation, Patterson Family Foundation, Bass Pro, and individuals from the community. We would also like to thank our partner organizations, the Missouri Department of Conservation, Missouri State Parks, and the Friends of Arrow Rock.

MRBO also recently attended the Fall Nature Festival in Rolla. We brought the Bird Threat Blocks and the Migration Challenge to the Fall Nature Festival on Saturday, September 9th. It was a beautiful day to learn about how we can help birds fly safely to their wintering grounds. The Bird Threat Blocks allow participants to first put the anthropogenic threats in order (like window strikes, cars and domestic cats) based on their understanding and then find out the answer and build a 3D bar graph that illustrates the unfortunate reality. The Migration Challenge allows participants to roll a die and journey through both good habitat and dangerous habitat. If you made it, you got a high five wing slap from Laura's stuffed Turkey Vulture named Toovoo.





Advocacy

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

Protecting Migratory Birds in Missouri

Shawna Bethell, MRBO Volunteer

This column was originally published in the Missouri Independent at <https://missouriindependent.com>

When I moved from open country to the lush Missouri landscape, I quickly became aware of the many species of birds living in the tangle of green behind my home. Pulled into the ebb and flow of their presence and their migrations, I became fascinated by the instinct that drives them, the adaptation processes of their seemingly fragile bodies, and how they survive the thousands of miles they must endure. I also came to understand that one of the most dire obstacles they face in survival is one that we can easily protect them from.

"Many birds can't get to where they are going if they can't navigate by the stars," said Dana Ripper, co-director of the Missouri River Bird Observatory (MRBO). And with the ever-increasing sprawl of artificial lighting, birds are at a disadvantage.

Ripper said that migrating birds are often drawn out of migration and down into urban areas by following artificial light. Once this happens, they become disoriented and thus vulnerable to dangers, including window collision, the second leading cause of bird mortality behind domestic cats (and not including general habitat loss). And while it's true that these collisions occur year round, the numbers jump during migration.

"Resident birds are familiar with their home ranges," Ripper said. "They become wise to the danger. But migrating birds, even those with a fidelity to specific stop-over areas, will get disoriented, which often leads to collision." And with the increased numbers of species that travel through a given area during migration, the scope of the problem is huge.

According to statistics provided by MRBO, roughly 600 million birds are killed each year through collisions. Fifty-six percent of those kills occur against low-rise buildings, 44% occur against residential windows and 1% occur against high rises — though their bird-per-building ratio is highest.

But the knowledge of this phenomenon is not new. As early as the 1800s, humans noted the negative effects of artificial light on migrating birds.



According to "A World on the Wing: The Global Odyssey of Migratory Birds" by Scott Weidensaul, lighthouse keepers reported large numbers of kills when migrating songbirds battered themselves against the glass.

In recent years, with the advent of radar technology, scientists have continued to witness specific behavioral changes. For example, in 2016 scientists noticed a pattern in autumn migrants on the east coast not unlike what Weidensaul observed. Forest-nesting songbirds were found in increased numbers in urban parks. Eventually it became clear that city lights were reshaping migration, especially in autumn when young birds on their first migration were being drawn by artificial urban light, which is "visible to a flying bird from as far away as 190 miles."

Here in the semi-rural heartland, central to the Mississippi Flyway, we are not immune. Missouri's largest cities rank in the top 10 most deadly cities for bird collision, Kansas City ranking seventh during spring migration and St. Louis ranking fifth. In the fall the two rank at eighth and sixth respectively. Chicago holds the unfortunate top spot during both seasons.

But cities are making changes. According to Sherae Honeycutt, press secretary for Kansas City government, the city has committed to using dark-skies compliant luminaries and is utilizing warmer color temperatures in those luminaries.

In recent years, the St. Louis Arch has turned out its lights during peak migration. Thanks to radar tracking, cities across the country can be alerted to large flocks of migrants entering a region, allowing participating entities to turn off their lights as millions of birds pass silently overhead.

As for the individual, this is one instance where we can truly and easily make a difference. Lights Out Heartland offers a list for homeowners interested in making their residences bird-safe. Many of the suggestions are simple: turning out exterior lighting during

A few of the birds found during surveys conducted by BirdSafeKC. From 2019 to present, volunteers have monitored the grounds of participating buildings during spring and fall migrations. Birds ranking highest in mortality are the common yellowthroat, the white-throated sparrow, and the Nashville Warbler (Dana Ripper courtesy MRBO).



migration or closing blinds so reflectivity is mitigated should disoriented birds arrive in your area.

"I think people care," Ripper said. "They like birds and the pretty (star-filled) dark skies. You can see it throughout history represented in our art and culture."

Yet we have taken our dark skies and the birds we love for granted, exchanging them instead for bright, shiny lights.

Depending on the species, birds can begin fall migration as early as July, but the majority will travel through Missouri during September and October, having flown thousands of miles under ever-more strenuous conditions to reach wintering sites with plentiful food sources. Since we have the ability to make a difference, we must.

In this rare instance, it really is as easy as flipping a switch.



Plastic Brand Audits

Join us for our final
Brand Audit of the
season at Glasgow
on October 21st from
1:30-4pm!



As we have done for the past three years, the Missouri River Bird Observatory has coordinated two Plastic Brand Audits this fall. One already occurred at Weldon Spring Conservation Area on September 13th, and another will take place in Glasgow on October 21st. We audit plastic trash that our friends from Missouri River Relief pull out of the river each morning. A Plastic Brand Audit consists of tallying the corporate brands found on the plastic trash collected by volunteer groups; audits take place across the country and around the world. The 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 follow Break Free From Plastic's audit methodology and submit the data to their global brand report.

At Weldon Spring in mid-September, with just three auditors working on Missouri River Relief's morning haul, we sifted and sorted through 18 bags of trash, itemizing and collecting brand data on several hundred items. It is humbling and somewhat overwhelming to witness the enormous amount of trash recovered from the Missouri River by River Relief volunteers in just a few hours. Approximately 80% of the refuse is some form of plastic.



Gathering Data for the Annual Global Report

Since 2018, thousands of Break Free From Plastic members all over the world have organized hundreds of brand audits every year to gather data and call out the world's top polluters, resulting in our annual global "BRANDED" reports. Thanks to the hard work of our brand audit leaders that forms the basis of these reports, we have collectively created some exciting impact! Major international news outlets have written about our report amplifying the call for holding corporate polluters accountable and influencing the dominant plastics narrative.

IFFP members have used brand audit data to ban plastics, create zero waste communities and plastic-free schools, file lawsuits against top polluting companies, and advocate for policy change. We've even seen top polluting companies announce new sustainability commitments! This is a big step in the right direction, but these commitments are still not ambitious enough, so our work with brand audits continues.





Community News

Board's Eye View

Leslie Huston, MRBO Chairman of the Education Committee

Dear Friends and Supporters,

I would like to take this opportunity to introduce myself. My name is Leslie Huston and I have been a member of the MRBO board since 2019. I am the Chairman of the Education Committee, and it is my pleasure to have this opportunity to share with you my thoughts on the educational programs that MRBO has undertaken. The amount of work and programs that have been delivered by the small MRBO staff is quite unbelievable to me. Currently, there are only five staff members: Dana and Ethan, the founders and directors, Marlee, Operations Assistant, and Laura and Tessa, the two educators. We also have a wonderful board that is willing to pitch in when needed and wonderful volunteers that help out as well!

The list of programs and events that they have hosted so far this year are too many to list here. If you did not receive a copy of the 2023 Mid-Year Education Program Report, I encourage you to visit our website and read through it. There is a lot of information with factual reporting on the results realized in that report.

What you won't find there is what it actually takes to accomplish the MRBO mission. Flexibility is a key asset for everyone at MRBO. The "divide and conquer" philosophy comes into play when programs and events are scheduled across the state, simultaneously and overlapping. When it comes to MRBO's mission and core values, everyone comes together to provide support.

One major example is the Arrow Rock Nature School. This vision for the future has MRBO working closely with the Friends of Arrow Rock and the Missouri Department of Conservation. Our educational programs associated with the ARNS and structural layout of the Lawless House Farmstead continue to evolve. This fall will see 4th and 5th grade classes from six area schools as well as home-schooled students engaged in educational activities in Arrow Rock. I am proud to say that our Education Committee has been instrumental in providing support for this project.



I would like to offer my sincere thanks to my fellow committee members: Susan Angelhow, Karla Clause, Brian Flowers, Derek Lark, Janine Machholz, Lori Peel, and Michele Reinke.

MRBO is a dynamic organization. One day, you will find them out on the prairie in the broiling sun and the next, tromping through a muddy stream with a gaggle of excited kids in tow. And of course, when time allows or a situation necessitates, they'll be providing scientific data to legislators at the Capitol, hoping that we can still save the environment for the birds, the bees, and you and me!

Thank you all for your help and support,
Leslie

Upcoming Events - MRBO & Partners

- **Get MO Wild**
Saturday, September 30th from 10 am until 3 pm
James A Reed Memorial Wildlife Area
12405 SE Ranson Rd, Lee's Summit, MO 64082.

Activities will include fishing, kayaking, outdoor skills, wild edibles, plant ID, insects, birds and more.
- **Columbia/Jefferson City Area Supporters Party**
Monday, October 2nd, 5:30 - 7:30 pm. At Cherry Street Cellar, 505 Cherry Street in Columbia.
- **MRBO Fall Auction**
Tuesday, October 3rd, 6pm - Sunday, October 8th, 6pm.
<https://www.32auctions.com/MRBOFall2023>
- **Arrow Rock Heritage Festival**
Saturday, October 14th & Sunday, October 15th
- **Plastic Brand Audit**
Saturday, October 21st, 1:30 - 4pm, Glasgow, MO
Sign up: <https://docs.google.com/forms/d/e/1FAIpQLSe0KMvEtJ02iB8S9hzemYKvJcaVsyDsF0SZnphpmS53kLpi8w/viewform>
- **Howl-A-Ween**
Saturday, October 21st, 5 pm - 8 pm
Anita B. Gorman Conservation Discovery Center, 4750 Troost Ave, Kansas City, MO 64110

The Discovery Center and KCPD along with several neighborhood partners will provide nighttime fun for all ages. Take a hike on the Wild Side Walk to get up close with some of Missouri's nocturnal wildlife. It will be a howling fun, free and unforgettable event for the entire family.
- **Arrow Rock Spooktacular**
Saturday, October 28th, 4 pm - 8 pm
- **OWLSSS**
Late October - Early November, keep an eye on your email and Facebook for more information to come!
- **MRBO's 8th Annual Photo Contest**
November 1st - December 31st





Albino Ruby-throated Hummingbird

Birds Have Shaped My Life

Guest Author: Lanny Chambers

I was asked about sharing my “wow” moments as a hummingbird bander. There have been a few exceptional ones, aside from the unceasing thrill of feeling a tiny heart beating 20 times a second in my palm, but they’re actually part of a much deeper connection. We’ve all had unforgettable experiences involving birds, and like many of you, mine have steered my life in unexpected ways.

I’ve been fascinated by birds for as long as I can remember. Upon reflection, I’m certain birds have been central to the development of my curiosity about the world around me. I suppose it began with the succession of parakeets we had when I was a child. One of the first books I read was my mom’s 1949 edition of Herbert Zim’s Golden Nature Guide, which

I still have. But I never became a “real” birder—I learned to identify most of the birds in my yard, but I’ve not been sufficiently interested in naming every bird I see to collect them on a life list—it’s a great hobby, to be sure, just not mine. Instead, I’ve always been more curious about wild animals’ behavior, and in interacting with them when possible.

I grew up in the Washington, DC, area, and spent a lot of time at the National Zoo. My favorite exhibit was the bird house, where many of the cages had vertical wires instead of glass. I had read about oxpeckers and discovered that if I leaned over the railing and poked a finger through the wires, an oxpecker would immediately land on it and begin searching my fingernail for parasites. That sparked more interest in the species, which led to learning more about their African habitat. Next to the bird house was a large outdoor flight cage, and a small flock of White-winged Trumpeters would emerge from the bushes when they saw me sit on a step; they would hop into my lap to get their heads scratched. This stunt must have impressed my future wife on our first date, as last year we celebrated our fifty-second anniversary. But I did it because I found it immensely rewarding to gain the trust of wild critters, not to attract human attention. After we moved to St. Louis, I got thrown out of the zoo’s 1904 flight cage when a keeper found me with a huge African vulture perched on my arm, turning its head to show me where to scratch next.

My interest in hummingbirds probably began when I spent the summer of 1969 as a ranger in Mesa Verde National Park. During a monsoon shower, I stood under my umbrella next to a hummingbird feeder, possibly the first one I’d ever seen. Hummers were flitting all around me, and one bird flew under the canopy to perch on a rib, not a foot from my face. I was absolutely enthralled! Years later, we were backpacking in Colorado’s Rawah Wilderness, and when I’d leave the tent early each morning to fish for trout, I saw a hummingbird checking out the red fuel bottle of our little stove. One day we hiked to the top of 12,644’ South Rawah Peak, and I saw hummingbirds feeding from wild columbines around a small pond above treeline, at around 11,000’. When we got back home, some research suggested they were likely Broad-tailed. I started paying more attention to hummingbirds.

In the late 1990s, I joined a hummingbird mailing list. One member was a bander, and she invited the rest of us to a party at her house near Branson, MO. Hundreds of Ruby-throated Hummingbirds swirled around the 14 feeders on her deck, and soon I was fetching birds from her trap. She offered to teach me to band them; I eventually qualified for my own master banding permit, and my life was changed. My joy at watching hummers evolved into a citizen-science mission in which I could make a useful contribution to our knowledge of these under-studied birds. And that morphed into an opportunity to share my knowledge at the various public banding events I’ve held over the years, where I let attendees experience the heartbeat buzz as they “help” me release freshly-banded birds. No matter their ages, the wide-eyed expressions on their faces reflect a new connection with nature. And that is a “wow” moment that never gets old.

Our annual southwestern vacations gained a new focus as we decided to visit noted hummingbird locations. I’d met the managers of Cave Creek Ranch on the mailing list, and we visited them in Portal, AZ. They led us on a hike up Cave Creek Canyon and showed us an active Elegant Trogon nest where we watched an adult feeding chicks. Then they took to the famous backyard of the late Sally Spofford, where I saw my first male Broad-billed Hummingbird. Also, my first mated pair of Khaki-breasted Tikiemakers: as we entered through the gate next to the house, we were met by a dozen Bridled Titmice and other small birds flying straight at us into a bush next to the gate. The birds were obviously panicked, so I looked up and saw the expected Cooper’s Hawk. A couple dressed in identical khaki hats, shirts, shorts, boots, and metal clipboards was sitting on a bench, and the man berated us in a strong German accent for scaring all “their” birds away. I asked if he’d seen the Cooper’s...at which point both of them started frantically checking their clipboards, and asking “Cooper’s Hawk? Where?”

During this trip we also visited a carport in Portal to see an active Rivoli’s Hummingbird nest about 5” tall, with several years’ of new material added to the original nest. The female fed the chicks while we watched. I’ve found active hummer nests in some unexpected places, including on a tree branch



Hummingbird banding in Rolla, MO on September 9th, 2023



overhanging the swimming pool at a hotel on Grand Turk island, and in a shrub on the river walk in Estes Park, CO.

As a bander, I've met some really interesting colleagues at our irregular meetings. We've stayed with one in the Colorado front range, where they go through six gallons of sugar water a day during fall migrations—that implies about 6,000 hummingbirds of four species using their feeders daily. The wing sound is so loud you have to yell to converse.

In Grand Junction, CO, a friend was the go-to hummingbird responder for the local wildlife rescue agency. While we were visiting, he got a call that a Black-chinned Hummingbird nest had been abandoned, leaving two orphaned chicks. Of course, we suspected the host just wasn't watching closely, missing her brief visits, but when we got there they showed us a cigar box containing the hen that they'd found dead on the nest. He fed the chicks, then clipped off the twig containing the nest. He owned an apple orchard nearby full of Black-chinned nests, and he knew of one nest containing only one chick. He taped the orphans' nest next to the existing one, and the hen successfully raised all three chicks to fledging.



Feeding orphaned hummingbird nestlings.

Trapping, identifying, and banding western hummingbirds in Missouri is always exciting, and Bill Eddleman once declared that I'd single-handedly shifted the status of Rufous Hummingbird from "accidental" to "rare." My best Rufous, though, was an adult male that I banded in Jackson, MO, then recaptured—in the same yard—almost exactly a year later. THIS is why we band birds! Other notables were first Missouri records for Black-chinned, Broad-tailed (not my ID) and the Allen's that appeared at my own feeder on Thanksgiving 2008. I may have actually said "Wow!" when I first saw its needle-thin rectrix 5.

A standout Ruby-throated was a white immature female I banded three miles from my Fenton home. I'd caught leucistic hummers before, but not a true albino.

Stay tuned for
info on a webinar
with Lanny - part
of the 2024 MRBO
Winter Learning
Series!

Over 24 years, I've banded over 6,000 hummingbirds of 11 species at three Missouri state parks, at hummingbird festivals in Rockport, TX and Sedona, AZ, and elsewhere in Missouri, Illinois, Colorado, Texas, Arizona, and New Mexico. Every bird was a "wow" in its own way.

If you'd like to know more about hummingbird banding or the best places to see western hummingbirds, I recommend visiting the Southeastern Arizona Bird Observatory website, <https://sabo.org/> It's run by Sheri Williamson, a banding colleague, good friend, and author of the Peterson Field Guide to Hummingbirds of North America.

Book Review: *Migrations* by Charlotte McConaghy

Shawna Bethell, MRBO Volunteer

On a recent trip through Nebraska I stopped for a while at [Audubon's Rowe Sanctuary](#), which sits along the shore of the gentle Platte River. Eagles diving for their morning catch, blue herons wading in grace, the flick of redwing black birds among the lash of spiky cattails. The quiet ebb of the morning worked its will.

Eventually, I made my way to the visitor center for a quick look around and once there found myself in a passionately earnest conversation about bird migration with the woman behind the counter. She was preaching to the choir, but she was so determined to speak for the birds, I let her continue. As I listened, I remembered a novel I'd recently finished, and that memory has led me to write this review.

Migrations by Charlotte McConaghy is set in the future and helmed by main character Franny Stone. It is part pirate story, part eco-warrior story, and part love story. It is exquisite.

When we first meet her, Franny is in Greenland. It is nesting season and she has just tagged three Arctic terns with transmitters, hoping she can follow this last known colony's last migration south. In the future that McConaghy creates, fishing has all but decimated our oceans, leaving little food for migrating birds to survive on. So, these terns are not expected to survive.

But desperate for boat passage so she can track her birds, Franny enters an uneasy alliance with commercial fisherman Ennis Malone and his diverse crew of outcasts. Nearly as desperate as Franny, they are looking for their last Golden Catch, the one to make them rich before it all comes to an end. Making a deal with her devil, Franny tells Malone the terns will be following the fish, so if he takes her on board and completes the journey, with the help of her transmitters, she and her birds will find him his fortune.

But in this future, the world's fishing industry is heavily monitored and a voyage of such a distance won't go unnoticed by authorities. What Franny asks is risky, not only legally but also physically. The Arctic tern has a migration route of [up to 30,000 miles](#) one way across deep-water oceans, some of which the captain has never navigated. Ennis Malone, however, is a gambler and he knows time is running short for his payload, so he agrees.



We learn early that Franny is an unreliable narrator: “I am of the leavers,” she tells us. “The searchers, the wanderers. The ilk of those taken by the tides.” We know she has been in prison. We know she has skipped parole to make this journey. She is feral in every sense of the word, especially when it comes to the sea, and McConaghy’s writing is never more powerful than when she writes from her character’s heart:

“There are empty shards of shells shining silver in the moonlight, and they grow into a shimmering trail I must follow.... [It] leads me into the water, so I take off my clothes and dive in, the cold a knife to my lungs and laughter flying from me in birdlike screeches.”

From the decks of the Saghani, Franny’s past emerges through flashbacks to her childhood on Galway’s shores, where she was left by her own wandering mother, to the National University of Ireland, where she meets her husband Niall. It is the moment of their first meeting that we get a further sense of Franny when she rescues three boys in a storm-tossed skiff by swimming out to reach them and bringing them home.

“... My first few running steps into the sea are a familiar shot of adrenaline to the heart. I’ve swum this ocean all year round...which has taught me not how to best it or even, truly, survive it, but simply to be aware of its capriciousness even after so many years. It could take me tonight just as it could have done when I was a child or may do when I’m gray. Only a great fool, my mother once told me, does not fear the sea.”

Franny’s perpetual lack of fear makes the Saghani crew uneasy, but as the fishing boat moves southward, friendships and loyalties bleed together. They become bound by fierce storms and moments of sacrifice. When an act of violence on land makes them fugitives, the crew realizes they are tied by more than their alliance, and Franny and Ennis understand that for them—each for their own reason—there will be no returning from the voyage.



Arctic Tern by: Stephen Hanningon

Through her characters’ conversations, McConaghy unspools the science of oceans and birds, but *Migrations* is also steeped in the lyricism of poetry. Samuel, one of the crew, often quotes classics, and the essence of Emily Dickinson’s ‘Hope is the Thing with Feathers’ breathes throughout the novel. Against raging storms, both internal and those at sea, the Arctic terns—small, delicate, and white—are ever-present and moving. But when Ennis and Franny, alone at the end, barely survive one last storm, Franny gives over that hope:

“If they have died, all of them, it’s because we made the world impossible for them. So—for my own sanity—I release the Arctic terns from the burden of surviving what they shouldn’t have to....”

Migrations is the kind of novel that could fill us with despair, but nature has a will to survive, as does the indomitable instinct of the tern. By the novel’s end they have given us clemency—at least temporarily—for the actions of our past and a path of redemption for our future.



Thank you for your Support

The following individuals and organizations have provided support since our last issue in June along with anonymous donors. We give thanks to them and to all who have supported the Missouri River Bird Observatory! YOU make our work possible.

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Eighth Annual Missouri Bird Photography Contest
November 1st - December 31st, 2023

