



# Missouri Master Naturalist

April-May-June 2022 Volume 12 Number 2



It is not only fine feathers  
that make fine birds.

~Aesop

Great Horned Owlet, *Bubo virginianus*  
Bates County, Missouri  
©2022 Chris Hull



# Great Rivers Gazette

April-May-June 2022, Volume 12 Number 2

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Contents	Page
The Presidents Corner <i>Bob Ochs</i>	2
Stewardship	3
Education and Outreach	10
Photo Contest	14
Citizen Science	15
Advanced Training	23
Member Milestones	28
Naturalist's Journal	29
Great Rivers LOGO WEAR ORDER FORM	32

### Front Cover Photo

Great Horned Owllet – by *Chris Hull*

### Back Cover Photo

Small White Lady's Slipper – by *Miguel Acosta*

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The Missouri Master Naturalist™ program is a community-based natural resource education and volunteer service program for adults, sponsored by the Missouri Department of Conservation and the University of Missouri Extension.

## The President's Corner

### Dear Chapter Members,

Well, this will be my last President's Corner article. I'm sure that you are aware that writing is not in my blood. I really like communicating one on one but writing anything reminds me of how much effort it took to get me to finish a high school term paper. However, I do have some heart felt messages for all my friends at the Great Rivers Chapter.



First, thank you all for your support these last 4 years. Helping to govern this chapter has been much easier with the strong support of each and every Great Rivers member.

Thank you to all the GR Board Members who have served with me. Your pride in the work that Master Naturalists do and your support of the projects we manage makes us the great organization that we are and will continue to be.

Thank you for staying the course when the very strenuous pandemic impacted all of us. That was a real test of your resilience. We all made it through stronger on the other side and more determined to make a difference.

Here I make my plea to those in the chapter who would like to be more involved in the operations of Great Rivers. You took classes to learn more about the natural world, but you joined this chapter because you wanted to make a real impact on the world you so cherish. The support system at Great Rivers is just superior. Please take that one step forward to become a project leader, to chair a committee, and to sit on the board. If you have just joined our chapter or you have been with us for longer, you have much to contribute with your enthusiasm.

One last 'thank you' for your support and friendship.

**Bob Ochs**  
**President,**  
**Great Rivers Chapter**

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# Stewardship – Spring 2022



The Open Space Council  
for the St. Louis Region

## Creve Coeur Park Pollinator Gardens Showcase the Value of Native Plants

By Lee Phillion



The paved trails that circle the lakes at Creve Coeur Park in Maryland Heights draw thousands of walkers, runners, and bikers annually. A 3.8-mile trail loops around Creve Coeur Lake, the larger of the two lakes at the park. Hugging the shore of the smaller Mallard Lake is a 1.7-mile trail that takes park goers by the Forest ReLeaf Nursery, the Lakehouse Bar and Grill, and three beautiful native pollinator gardens.

The pollinator gardens are the product of a collaboration, instigated by the Audubon Society in 2016, to demonstrate the value of native plants to support pollinators and birds. Designed, planted, and maintained by volunteers from Audubon, MDC, Missouri Master Naturalists and St. Louis County Parks, the gardens have become educational showpieces.

In 2021, The Open Space Council (OSA) assumed leadership of the Creve Coeur gardens and two other beautification projects (located at St. Vincent Park and Lower Meramec Park) under its Community Stewardship Alliance (CSA), a new conservation program with a goal to help restore and maintain the natural areas in parks and along greenways within St. Louis County. The CSA program relies on Site Ambassadors who lead volunteer efforts at the three sites.

The Missouri Master Naturalists-Great Rivers Chapter began its partnership with OSC in November 2020. Four of the OSC Community Site Ambassadors are members of our Great Rivers Chapter. **Jeanne Bauer, Michael Meredith, and Pam Wilcox** lead the Creve Coeur Park effort. **Chris Garhart** is the St. Vincent Park Site Ambassador. Volunteers are needed at all sites. Please contact **Pam Wilcox** to volunteer at Creve Coeur Park and **Chris Garhart** to volunteer at St. Vincent Park. For additional volunteer activities with The Open Space Council go to <http://openspacestl.org/volunteer/>



Pam Wilcox, Karen Westman Spreitler, and Jeanne Bauer at the Mallard Lake center garden



Volunteers mulching pollinator gardens located along the Mallard Lake Trail in 2020.



Coral honeysuckle climbs an arbor donated by Pam Wilcox.



Pam Wilcox and Karen Westman Spreitler hard at work in the garden this spring.

## Open Space Council *Community Stewardship Alliance* partners:

*Forest ReLeaf of Missouri*

*Great Rivers Greenway District*

*Missouri Botanical Garden*

*Missouri Department of  
Conservation*

*Missouri Master Naturalists*

*Great Rivers Chapter*

*The Open Space Council for the  
St. Louis Region*

*St. Louis Audubon Society*

*St. Louis County Parks*

*St. Louis County Parks  
Foundation*



# Parkway South Middle School Earth Day Service Day 2022 by Barb Cerutti

The 7th graders at Parkway South Middle School did a commendable job hacking and dragging honeysuckle again for their annual Earth Day Service Day! Here is the result. Let the sun shine in!



**BEFORE**



**AFTER**



# Triangle Park Stewardship

## The Greater Ville Neighborhood

by Tiffany Minx (Class of 2021)

### WHAT A DIFFERENCE A SINGLE VOLUNTEER CAN MAKE!



Triangle Park is in the Greater Ville neighborhood, at the corner of St. Ferdinand Ave. and Bishop P.L. Scott Ave. It was developed without a maintenance plan and has seen several years without care. Our hope is to assist the community with our elbow grease and a little knowledge to get it into a manageable state and streamline future maintenance while community ownership is established.

### Someone planned a park for this Greater Ville neighborhood and then abandoned it!

It was devastating for a community facing decades of inequity and disinvestment. Our tiny but mighty group is working to 'reset' it and get it to a manageable state for the community.



#### The Original Design Vision from Arbolope Studios

<https://www.arbolope.com/work/st-ferdinand-homes-ii-landscape>

The St. Ferdinand Homes II project "Triangle Park" is an attractive district anchor and passive-use landscape. The park design includes: sculpted topography (using excess development fill) to create a highly visible, dynamic and layered landscape; angular walking paths that create a light exercise circuit and park cut-through; bright mural walls and new public art program; salvaged materials creatively used as stepping stones, weirs and boulders; swales and a large rain garden to collect park and district stormwater; distinct tree groupings that line pathways or create visual accents; and large, monolithic beds of native and/or adapted plants that reinforce the park's geometry. While the landscape is designed for multi-season interest, it is intended to be particularly vibrant in the fall.



Tom, making a difference.

### YOU CAN MAKE A DIFFERENCE, TOO!

Tom showed up one day during the week on his own time and rehabbed and mulched this entire bed at Triangle Park in North City! The next week he removed over 350 scattered pavers that were both trip hazards and in the way of the park mowers. (The grounds man personally thanked Tom when he got there!)

In our first field session, our small but mighty team of seven cleared and mulched the huge frontmost corner garden bed and rid the park of debris. Thanks to a recent tree planting with Forest Relief of Missouri, the park now has 28 new trees!



Then, with help from Forest ReLeaf’s Rebecca Hankins, we performed a brief shrub inventory and planted some new ones. We targeted another bed for invasives removal and mulching and discussed applying for Brightside’s Neighbors Naturescaping 2022 grant round to get new plants, and supplies (and maybe some seating!) for the park’s ongoing revitalization.

In June, we targeted another bed for the one-two punch of invasive removal and mulching, taking inventory of intentional plantings as we went along. We also took the opportunity to tour a nearby Land Reutilization Authority (LRA) turned community garden just a few blocks away and met with the community advocates leading it.

Later in the month...you guessed it...we removed invasives and mulched! By the end of June our hardworking team wrapped up for the Summer. We’ll take stock of what we’ve accomplished and then adjourn until the fall for maintenance and bulb planting. We’ll keep working on a Brightside St. Louis naturescaping grant and might sneak in some surprise workdays if the weather cools down, but otherwise we are breaking until early September. Please tell the weeds they can take a break, too!

**Triangle Park in the Greater Ville needs YOUR help!**

Starting in September we’ll meet through November to eradicate invasives, beautify some beds, and hopefully, plant a TON of natives in late September/early October. Most of all, we will have a great time hanging with and supporting this community! Register for one or several Saturday morning sessions at Triangle Park here: <https://forms.office.com/r/ihu3PxVvJv>





# Native Pollinator Garden Restoration-Update

## Lutheran Church of the Atonement, Florissant, MO

by Cindy Steinbruegge

I've been part of a landscape team at our Florissant church. Here are photos the same plant beds that we began working on back in May 2020. For a report on how this project started, check out the Spring 2000 edition of the Gazette.

We now have two native plant beds with Monarda, milkweed, Rudbeckia, and other flowers. Landscaping stones were placed to hold mulch around crepe myrtles. We've spent hours weeding, mulching, and watering! Pollinators are now aplenty!



**BEFORE 2020 – Step 1: Removed rosebushes**



**AFTER – Plants for pollinators**



**TODAY**







Clipped from The BARK Newsletter April 22, 2022

by Lee Phillion

# The Webster Groves Tree Steward Award Goes to: Tessa Wasserman!

The Webster Groves Tree Steward Award is an annual award given at the Arbor Day Ceremony celebrating a community member that has gone above and beyond in their efforts to help the trees and natural environment through stewardship.

Tessa, a Forest ReLeaf volunteer since 2015, has had a lifelong love of nature and trees. While teaching in the public school system, she enhanced the curriculum with outdoor education. In addition to a Masters degree in Special Education, Tessa has earned certifications as a St. Louis Master Gardener, a Missouri Master Naturalist, and a Master Pollinator Steward. She is active in the St. Louis Chapter of Wild Ones, where she serves on the Grants Committee and manages annual orders of more than five hundred tree seedlings.

At the National Museum of Transportation, where she serves as curator of the "Pollinator Junction" garden and oversees other native pollinator gardens, Tessa has planted over 75 native shrubs and trees. Closer to home, Tessa served on the Webster Groves GreenSpace Commission for 11 years. During her tenure, she established the Arbor Day Tree Poster and Art Contest, planned Tree Identification Walks, helped with tree inventories in several parks, and, after eradicating many invasive plants, replanted native trees and shrubs throughout Webster Groves' public green spaces. She is currently consulting with the "Future Trees of Distinction" project.



Tessa has added native tree and shrub canopies to almost all of Webster Groves' parks as well as along Shady and Deer Creek watersheds. And, she has made her own native sanctuary near her home where she has achieved "Gold Level" status in the St. Louis Audubon Society's "Bring Conservation Home" program.

In this respect, Tessa has come full circle. Of the 2,000 plus hours she has spent volunteering to tree and nature-related projects, a good many of them were spent at Forest ReLeaf of Missouri where she helps grow the trees and shrubs for her projects.

At Forest ReLeaf, Tessa has also helped develop the successful "Tree Camp" summer camp for 5th and 6th graders, and last year, constructed all of the plywood "trees" used by the artists for the Concert in the Trees fundraiser.

**Congratulations, Tessa!**



Webster Groves Mayor Laura Arnold (left) presented the award to Tessa



The Webster Grove Tree Steward Award is an annual recognition by the Webster Groves Green Space Advisory Commission. This year's award was presented to Tessa Wasserman (left) by Green Space Advisory Commission board member Anne Russell (right) also a Missouri Master Naturalist-Great Rivers Chapter member and co-chair of its Hospitality Committee. Well Done!





## Education and Outreach – Spring 2022

### Great Rivers in the Media!

by Michael Meredith

As Missouri Master Naturalists we have a lot to be proud of; but over the past year or so some of our Great Rivers members have gone above and beyond, by spreading their knowledge and enthusiasm through the media.



Remember Jill Pritchard of the *Nature Boost* podcast? She was one of our speakers at last year's March meeting, and if you haven't given her podcast a listen, you're missing out on some pleasant stories. The last two seasons of *Nature Boost* feature episodes that spotlight two Great Rivers Master Naturalists and one of our former MDC advisors. Interested? Give a listen to the following episodes.

**Floating the Missouri and Mississippi Confluence** - <https://tinyurl.com/Floating-the-Mississippi>

Jill spends a couple of days with **Bob Virag** and **Perry Whitaker** learning the ins and outs of paddling near the confluence of the Mississippi and the Missouri rivers, along with the Paddlefest event held at the Riverlands Migratory Bird Sanctuary.

**Forest Park Owl Prowl** - <https://tinyurl.com/Owl-Prowl>

**Mark Glenshaw** introduces Jill to Charles and Sophie, two of the Forest Park Owls that he has been studying for 15 years now, along with their latest offspring, Sidney and Betty. Mark justifiably gets a lot of attention for his efforts, but this particular episode is one of the best you'll ever hear.

**Maple Sugaring** - <https://tinyurl.com/Maple-Sugaring>

Many of us have volunteered at the Winter in the Woods Festival (formerly the Maple Sugar Festival) during the winter, but if you haven't, take a listen to Jill's conversation with **Amy Wilkinson** out at Rockwoods Reservation. Amy's no longer our MDC advisor, but we still get to see her from time to time.

**Welcome Home, Nikki Glaser?** - <https://tinyurl.com/Genshaw-Glaser>



And then there is the world of reality TV... and no, I'm not referring to *The Real Housewives of the Woods* (heaven help us if *that* ever becomes a reality!). Who better to bring a little outdoors savvy and knowledge to a genre of television that too often descends into the absurd, but **Mark Glenshaw**? Mark gives Nikki and her friends a lesson in ornithology, specifically owls. The link above is to a Post-Dispatch story, if you want to see the full video, you need a better TV package than I have.

***You never know when, where or how Great Riverians will show up in the media, but you can rest assured, we may pop up when you least expect it.***



## More Than Meets the Eye

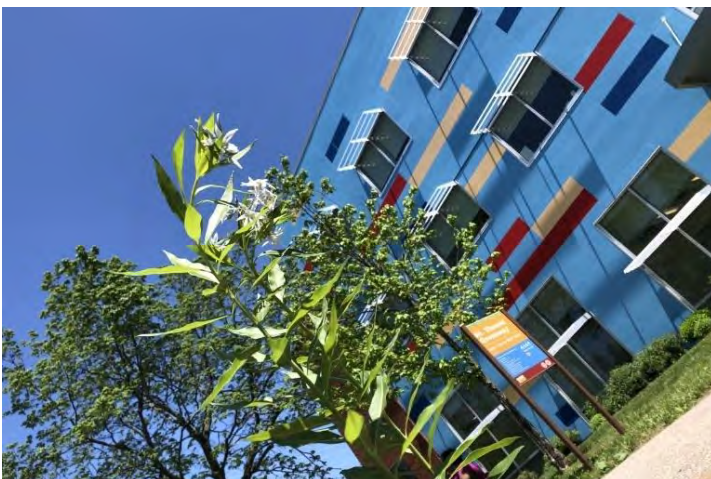
### *Master Naturalists Engage Community Members in Noticing Natural Surroundings Through Cellphone Nature Photography Walks*

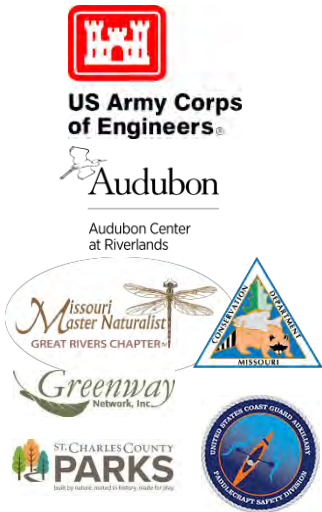
by Elizabeth Simons

Community members from throughout the St. Louis region got a lesson in noticing and appreciating our natural surroundings during cellphone nature photography walks on greenways led by **Bob Virag** and **Elizabeth Simons** from the Great Rivers chapter of Missouri Master Naturalists and volunteers from Missouri Department of Conservation and Great Rivers Greenway. The cellphone nature photography walks were part of the Life Outside meetups on greenways in the spring to bring people together for nature, creativity, health, and play outdoor activities.

Participants learned about native species found in urban tallgrass prairies, urban aquatic habitats and wetlands, urban forests and woodlands, urban residential areas, and urban designed greenspaces. Digital tools for identifying species were shared along with a guide for specific woody plants, herbaceous plants, invertebrates, herbs, birds, and mammals to look for. "There was a surprising level of native ephemeral plant activity given all the invasives along the trail, but both provided excellent education potential for the guests," said Bob.

If you are interested in leading a cellphone nature photography walk during the Life Outside meetups in the fall, please contact Elizabeth at [esimons@grgstl.org](mailto:esimons@grgstl.org).





**“CANOE believe it?! Paddle Fest 2022 has come and gone!** We sure had a blast at the Festival Saturday, June 4th with our friends at Mississippi River Water Trail, The Audubon Center at Riverlands, and all of our other stellar partners that made it out to join the festivities! This year was the best yet with a bay full of paddlers and a shoreline of fun games and activities. Visitors were able to kayak, paddleboard, and canoe around the peaceful backwaters of Ellis Bay. Bird counts were high as well with over 30 species reported on Saturday alone.”

- Corinne O’Brien, Park Ranger, US Army Corps of Engineers

**“Congratulations to everyone at the Mississippi River Water Trail Association** on an awesome PaddleFest event Saturday! Great to see so many people safely enjoying the waters of the Mississippi River, the variety of organizations sharing info with the paddlers, and so many organizations networking with each other. The Audubon Center at Riverlands is delighted to be a part of this event and the broader collaboration with the MRWTA and Corps to bring high quality paddling opportunities to Riverlands. Building understanding and appreciation for our great rivers and public lands through the sport of paddling is making our partnership, as well as our respective organizations, stronger! Thank you for the opportunity to be a part of this!”

- Ken Buchholz, Center Director, Audubon Center at Riverlands

“Thanks for your note, Ken. I’ll echo your comments that it seemed like a great event so thanks to the entire team. These types of partnerships are so important and appreciated.”

- Colonel Kevin R. Golinghorst, Commander & District Engineer St. Louis District, US Army Corps of Engineers

Many thanks to all the **Missouri Master Naturalists** who helped prepare for the day and sweated out a very hot day in the summer sun for this wildly popular event: **Lee Phillion, Sharon Baldassare, Ann Russell, Bob Virag, Lisa Picker, Don Knobbe, Larry Conant, Diane Goulis, Mark Glenshaw, Michael Meredith, Mary Mierkowski, Patty Clarke, Carl Davis, Joanne Keay and Joan Twillman (Confluence), Perry Whitaker, and Jay Doty (Miramiguo).**

Over 200 participants enjoyed a day on the water thanks to your efforts. The Missouri Master Naturalist booth with its touch displays was a crowd pleaser – one of the most popular of the **16 organizations present**. You made this a true festival. Everyone who helped deserves a big round of applause. This was Mississippi River Water Trail Association’s most ambitious and most talked about event ever.

Check out some of **Lee Phillion’s** great photos that follow, or view all of them here:

[https://drive.google.com/drive/folders/1-XsiwOLPGhYaaN4X\\_yE-ddt0mHJxyKYm?usp=sharing](https://drive.google.com/drive/folders/1-XsiwOLPGhYaaN4X_yE-ddt0mHJxyKYm?usp=sharing)



Paddlefest 2022 was a true "festival" this year



Michael Meredith directing the PFD fitting operation (right)



Annie Russell fitting a PFD



Mary Mierkowski (back center) and Joanne Keay (sitting right)



Bob Virag (left) and Mary Mierkowski (right) as kayak instructors



Larry Conant and Diane Goulis answering questions at the Missouri Master Naturalist booth



Guests loved to decorate the Missouri Master Naturalist honeyuckle cookies



# Great Rivers Photo Contest

Once again, with the change of every season, Great Rivers chapter members have the opportunity to present their prized photos for display on the home page of the chapter website.

- Two photos were selected for the front and back cover pages of this issue of this Gazette.
- Six additional photographs were selected for the website Home Page Slideshow. These can be viewed at [www.greatrivers.org](http://www.greatrivers.org) and are also shown below.

Please congratulate our Great Rivers photographers. Their work helps to further the program’s mission to improve public understanding of natural resource ecology and management by enhancing natural resource *Education and Outreach* activities.

## Website Banner Photographs



Chestnut-sided Warbler  
©2022 Miguel Acosta

**Chestnut-sided Warbler**  
©2022 **Miguel Acosta**



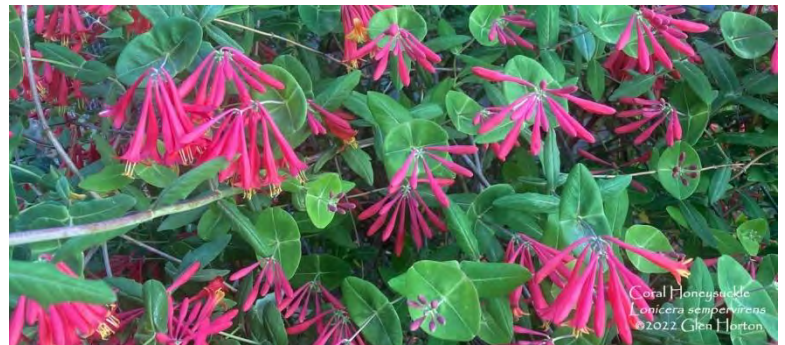
Barn Owls  
©2022 Chris Hull

**Barn Owls**  
©2022 **Chris Hull**



A Kaleidoscope of Swallowtail Butterflies  
Trail of Tears State Park  
©2022 Sean Tracy

**A Kaleidoscope of Swallowtail Butterflies**  
Trail of Tears State Park  
©2022 **Sean Tracy**



Coral Honeysuckle  
*Lonicera sempervirens*  
©2022 Glen Horton

**Coral Honeysuckle**  
*Lonicera sempervirens*  
©2022 **Glen Horton**



Giant Redheaded Centipede  
*Scolopendra heros*  
(venomous)  
Southwest Missouri  
©2022 Susan Pang

**Venomous Giant Redheaded Centipede**  
*Scolopendra heros* in Southwest Missouri  
©2022 **Susan Pang**



A Diversity of Pollinators  
on a Musk Thistle  
©2022 Mary Dueren

**A Diversity of Pollinators**  
on a Musk Thistle  
©2022 **Mary Dueren**



**SHAW  
NATURE  
RESERVE**

# Citizen Science-Spring 2022

## Bats of Shaw Nature Reserve

by Sue Forquer

Shaw Nature Reserve with its protected and diverse habitats of woodland, prairie, glade, wetlands, and river has an impressive diversity of bat species. Nine species have been documented. US Fish and Wildlife biologist Vona Kuczynska and her research team conducted a bat survey on a warm June evening. During my short time at the site, several bats were removed from the large mist nets, processed and released. The federally endangered Indiana Bat was among the species processed that evening. The Indiana bats were given a "haircut" between their shoulders and tiny transmitters were attached with surgical glue. Telemetry is then used to track the bats to their roost site within the reserve. If found, researchers will conduct detailed counts as the bats emerge from their roost at dusk.

In 2019 counts revealed more than 150 Indiana bats living in a single tree. It is exciting to know that Shaw Nature Reserve provides excellent habitat for these endangered bats. I wonder what this year's count will reveal.



*Illustration by Emma Skurnick: Eastern Red Bat, for the 2003 Festival for the Eno River Association*



**Eastern red bat.**  
Solitary, roosts in trees, have 2-5 pups.



**Eastern red bat.**  
Hibernate in hollow trees, under bark, in leaf litter



**Researcher gives Indiana bat a haircut.**



**Biologist Vona Kuczynska attaches radio transmitter to Indiana bat.**



## Helping To Spread the Word About Chloride and Citizen Science

by Claire Meyners

**The work of the St. Louis Winter Chlorides Team is finally published online in a scientific journal.**

Many Great Rivers members will remember Danelle Haake's excellent presentation on the effects of brining versus direct application of road salt on roads and bridges on chloride concentrations in local streams after storm events. In her study she found that while both methods increase chloride concentrations after a storm event, brining roads led to lower levels than direct application did. Over two dozen dedicated Stream Teamers and Missouri Master Naturalists in the Great Rivers Chapter volunteered to be "citizen scientists" to assist Danelle in gathering the data necessary for this study over the course of 10 years.



**drains to streams and the critters who live there!**

After getting her PhD and becoming the Director of Illinois River Watch, Danelle felt the need both to expand on this work and to further publicize the value of citizen science in environmental research. To this end, she asked for some volunteers from the original group to assist her in writing another paper. This time she wanted to use data that had been collected from Missouri Stream Team members over the last ten years in the Saint Louis area to see not only how chloride concentrations might have affected stream water quality, but also how some other factors might have also related to chloride levels and invertebrate density and diversity. Not really knowing what we were getting into, **Bob Virag and I**, along with **Stephen Krchma** volunteered to help her with this project.

This turned out to be a far bigger and more rigorous project than any of us had imagined. It was probably lucky for Danelle that Covid had us locked up at home, because we all had to do a lot of background reading in order to help write various sections of the paper. It was impressive to see how much work Stream Team volunteers have done in the St. Louis area that could be used for this study. Without this citizen science, the paper never could have been written. It became clear from this data that not only does salting roads affect stream chloride concentrations, and therefore water quality, but general level of urbanization is also another major factor. Areas with lots of large stores and parking lots also contribute to a decline in water quality. Most of these places tend to use an excess of salt and don't use brining like many municipalities do.

It took some time to get this paper into the proper format for publication in a science journal. Danelle was the only one of us who knew how to do this and could perform all the necessary tasks modern journals require. She persevered and imagine Bob's and my delight when we got the notice that the journal **Integrated Environmental Assessment and Management** had accepted our scientific paper. All the hard work by Danelle, Stephen, and a couple of Missouri Master Naturalists had paid off.

The paper can be found online here: <https://doi.org/10.1002/ieam.4594>

A clip of the first page title, abstract, and two key figures follow on the next page.





# Health & Ecological Risk Assessment



## Impacts of urbanization on chloride and stream invertebrates: A 10-year citizen science field study of road salt in stormwater runoff

Danelle M. Haake,<sup>1</sup> Stephen Krchma,<sup>2</sup> Claire W. Meyners,<sup>2</sup> and Robert Virag<sup>2</sup>

<sup>1</sup>National Great Rivers Research and Education Center, Lewis and Clark Community College, East Alton, Illinois, USA

<sup>2</sup>Missouri Stream Team, St. Louis, Missouri, USA

### Abstract

The use of deicing agents during the winter months is one of many stressors that impact stream ecosystems in urban and urbanizing watersheds. In this study, a long-term data set collected by citizen scientists with the Missouri Stream Team was used to evaluate the relationships between watershed urbanization metrics and chloride metrics. Further, these data were used to explore the effects of elevated chloride concentrations on stream invertebrate communities using quantile regression. While the amount of road surface in a watershed was a dominant factor in predicting the maximum chloride measurement, the median chloride concentration was also strongly related to the amount of medium-to-high density development in the watershed, suggesting that nonmunicipal salt use is an important contributor to increases in base flow chloride concentrations. Additionally, chloride concentration appears to be one of the many factors that impact invertebrate density and diversity measurements, with decreases in invertebrate diversity corresponding with the US Environmental Protection Agency water quality criteria. Our findings suggest that the use of chloride-based road salt on municipal roads as well as on nonmunicipal settings is contributing to a loss of diversity and density of aquatic invertebrate communities in urban regions. *Integr Environ Assess Manag* 2022;00:1–11. © 2022 The Authors. *Integrated Environmental Assessment and Management* published by Wiley Periodicals LLC on behalf of Society of Environmental Toxicology & Chemistry (SETAC).

KEYWORDS: Benthic macroinvertebrates, Deicing, Quantile regression, Urban development, Water quality

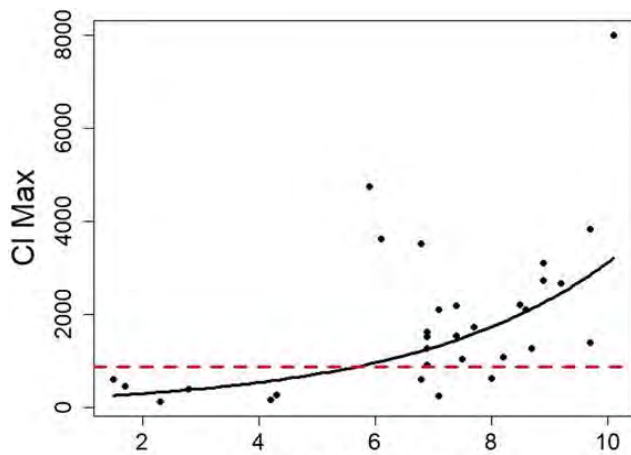


Figure 4 Relationship between maximum chloride concentration (CI Max) and percent of the watershed covered by roads (% Road). The dashed line represents the US Environmental Protection Agency acute toxicity threshold of 860 mg/L

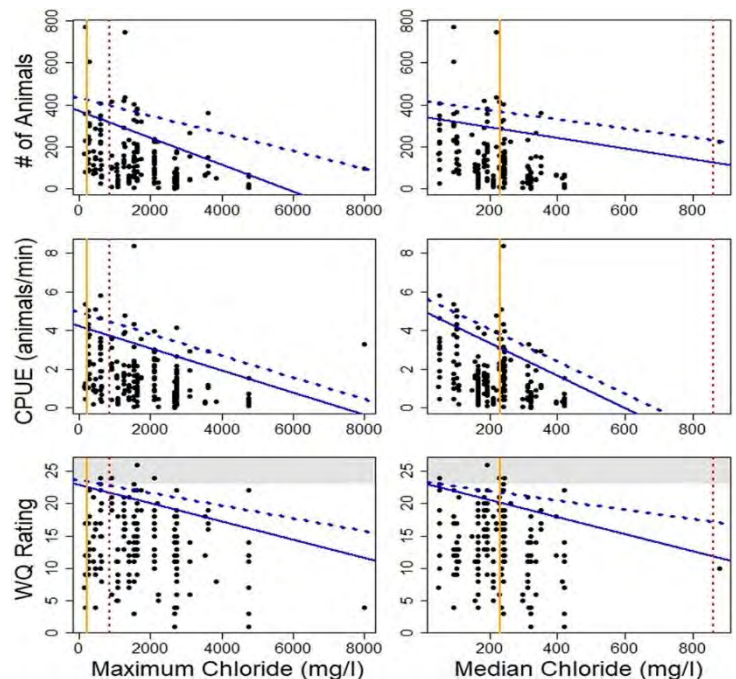


Figure 6 Quantile regressions of invertebrate (animal) metrics on chloride metrics. Vertical solid orange line is the chronic toxicity threshold (230 mg/L), vertical dashed red line is the acute toxicity threshold (860 mg/L), solid blue line is the 90th quantile regression, dashed blue line is the 95th quantile regression, and gray area represents “excellent” water quality ratings (>23)



# White, Sulphur, and Swallowtail Butterflies of Greater St. Louis

by Sean Tracy

The following is a collage of the white, sulphur, and swallowtail butterflies I've seen more or less since the pandemic started when I took up this hobby/citizen science project in earnest. What you see of all these photos are two and a half years' worth of exploring the outdoors from 2020-2022, mostly in Lost Valley Trail, Horseshoe Lake State Park, Confluence, Tower Grove Park, Busch Conservation Area, Big Muddy Wildlife Sanctuary, Route 66 State Park, and other neighboring natural areas. The checklist of historic flight periods took quite a few hours of tedious work to cull over 19 years of reports figuring out the first and last sightings of butterflies. Yvonne Hoymeyer, as a rule, highlighted in bold the first sightings of the year, but not the last. This is something to research if there was more time would be how the flight periods have changed over time due to climate change.

## White Butterfly Species in the Greater St. Louis Area



**Checkeder White**  
Female, Dorsal  
Trail of Tears State Park



**Checkeder White**  
Male, Dorsal  
Little Creve Coeur Ecological Area



**Checkeder White**  
Female, Summer Form, Ventral  
Trail of Tears State Park



**Checkeder White**  
Male, Ventral  
Little Creve Coeur Ecological Area



**Checkeder White**  
Female, Fall Form, Ventral  
Little Creve Coeur Ecological Area



**Cabbage White**  
Female, Dorsal  
Orton Road at Riverlands Center



**Cabbage White**  
Male, Dorsal  
Lower Meramec Park



**Cabbage White**  
Female, Ventral  
St. Louis County, MO



**Cabbage White**  
Male, Ventral  
Lower Meramec Park



**Olympia Marble**  
Female, Dorsal  
Iron County, MO



**Olympia Marble**  
Female, Ventral  
Iron County, MO



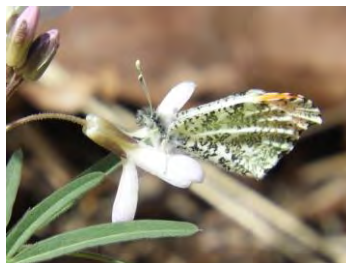
**Falcate Orangetip**  
Female, Dorsal  
Robertsville, MO



**Falcate Orangetip**  
Male, Dorsal  
Hughes Mountain



**Falcate Orangetip**  
Female, Ventral  
Lost Valley Trail, Weldon Spring



**Falcate Orangetip**  
Male, Ventral  
Hughes Mountain CA



# Sulphur Butterfly Species in the Greater St. Louis Area



**Orange Sulphur**  
Female, Dorsal (bottom), Male,  
Ventral (top) Little Creve Coeur  
Ecological Area



**Orange Sulphur**  
Male, Dorsal  
Big Muddy National Wildlife Refuge



**Orange Sulphur**  
Female, Ventral  
Lower Meramec Park



**Orange Sulphur**  
Male, Ventral  
Lower Meramec Park



**Orange Sulphurs Mating**  
Little Creve Coeur Ecological Area



**Southern Dogface**  
Male, Dorsal (partial)  
Marais Temps Clair CA



**Southern Dogface**  
Female, "Rosa," Ventral  
Marais Temps Clair CA



**Southern Dogface**  
Male, Ventral  
Marais Temps Clair CA



**Southern Dogface**  
Male, "Rosa," Ventral  
Marais Temps Clair CA



**Cloudless Sulphur**  
Male, Dorsal  
Ellis Island, Riverlands



**Cloudless Sulphur**  
Female, Ventral  
Ellis Island, Riverlands



**Cloudless Sulphur**  
Male, Ventral  
Lower Meramec Park



**Cloudless Sulphurs Mating**  
Female (left), Male (right)  
Lower Meramec Park



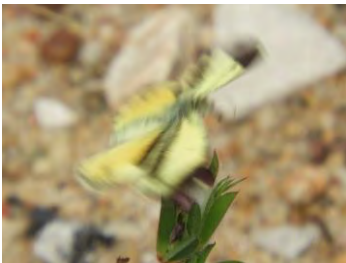
**Cloudless Sulphurs**  
Females and Males, Ventral and  
Orange Sulphur, Male, Ventral



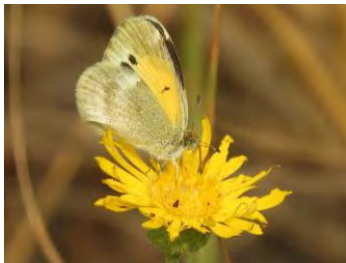
**Little Yellow**  
Female, Ventral  
Ellis Island, Riverlands



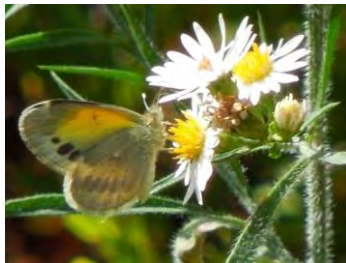
**Sleepy Orange**  
Female, Ventral  
Marais Temps Clair CA



**Dainty Sulphur**  
Female, Dorsal  
Ellis Island, Riverlands



**Dainty Sulphur**  
Female, Ventral  
Ellis Island, Riverlands



**Dainty Sulphur**  
Female, Ventral Fall Form  
Lower Meramec Park



# Swallowtail Butterfly Species in the Greater St. Louis Area



**Pipevine Swallowtail**  
Female, Dorsal  
near Gasconade, MO



**Pipevine Swallowtail**  
Male, Dorsal  
St. Francois State Park



**Pipevine Swallowtail**  
Ventral  
Weldon Spring Conservation Area



**Zebra Swallowtail**  
Dorsal, Spring Form  
Lost Valley Trail Conservation Area



**Zebra Swallowtail**  
Dorsal, Summer Form  
Trail of Tears State Park



**Zebra Swallowtail**  
Ventral, Summer Form  
Trail of Tears State Park



**Black Swallowtail**  
Female, Dorsal  
St. Louis County



**Black Swallowtail**  
Male, Ventral  
Shaw Nature Reserve



**Black Swallowtail**  
Female, Ventral  
St. Louis County



**Giant Swallowtail**  
Dorsal  
Shaw Nature Reserve



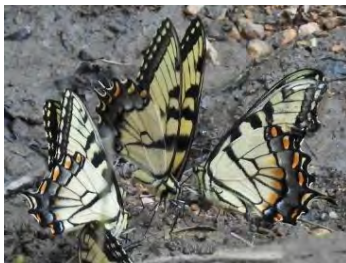
**Giant Swallowtail**  
Ventral  
Shaw Nature Reserve



**Eastern Tiger Swallowtail**  
Female, Dorsal  
St. Louis County



**Eastern Tiger Swallowtail**  
Male, Dorsal  
St. Francois State Park



**Eastern Tiger Swallowtails**  
Ventral  
Trail of Tears State Park



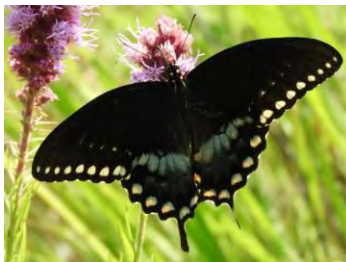
**Eastern Tiger Swallowtail**  
Female, Dorsal, Dark Form  
Weldon Spring Conservation Area



**Eastern Tiger Swallowtail**  
Female, Dorsal, Dark Form  
Lower Meramec Park



**Spicebush Swallowtail**  
Female, Dorsal  
St. Francois State Park



**Spicebush Swallowtail**  
Male, Dorsal  
St. Francois State Park



**Spicebush Swallowtail**  
Ventral  
Trail of Tears State Park



**Mating Spicebush Swallowtails**  
St. Francois State Park



Butterfly checklist of the greater St. Louis metropolitan area with historic flight periods.

Common Name	Key	Flight Period *	Common Name	Key	Flight Period *	Common Name	Key	Flight Period *	Common Name	Key	Flight Period *
<b>Swallowtails, Papilionidae</b>			Northern Oak Hairstreak	R	5/23-7/5	American Lady	R	3/20-10/24	Common Checkered-Skipper	C	4/2-11/24
Pipevine Swallowtail	C	3/30-11/6	Henry's Elfin	R	3/17-5/5	Painted Lady	U	3/30-11/25	Common Sootywing	U	4/21-9/28
Zebra Swallowtail	C	3/17-10/12	Eastern Pine Elfin	R	4/18-5/26	Red Admiral	U	3/6-11/10	Swarthy Skipper	U	5/20-9/17
Black Swallowtail	U	3/24-11/10	Juniper Hairstreak	C	3/17-8/16	Common Buckeye	C	4/14-11/25	Clouded Skipper	Ca	5/20-10/22
Ozark Swallowtail	R	4/17-9/29	White M Hairstreak	R	3/26-10/22	Red-spotted Purple	C	3/25-10/23	Least Skipper	C	4/17-10/31
Giant Swallowtail	C	4/9-10/2	Gray Hairstreak	C	3/25-11/2	Viceroy	U	4/18-11/6	Fiery Skipper	C	4/26-11/13
Eastern Tiger Swallowtail	C	3/18-10/21	Red-banded Hairstreak	R	4/3-11/2	Goatweed Leafwing	U	2/15-11/10	Leonard's Skipper	Ca	8/30-10/12
Spicebush Swallowtail	C	3/21-11/2	Reakirt's Blue	R	7/6-10/7	Hackberry Emperor	C	4/25-9/30	Cobweb Skipper	R	4/16-4/28
<b>Whites and Sulphurs, Pieridae</b>			Eastern Tailed-Blue	C	3/25-11/9	Tawny Emperor	U	5/12-9/25	Pecks Skipper	U	4/26-11/16
Checkered White	R	3/22-11/13	Spring Azure	C	2/28-7/31	Northern Pearly-Eye	U	5/15-10/2	Tawny-edged Skipper	U	4/28-10/5
Cabbage White	C	2/19-11/17	Summer Azure	C	5/2-10/27	Appalachian Brown	Ca	8/3-8/3	Crossline Skipper	C	5/19-10/1
Olympia Marble	Ca		Dusky Azure	Ca	5/5-5/5	Gemmed Satyr	R	6/20-10/14	Northern Broken-Dash	U	5/18-9/17
Falcate Orangetip	U	3/14-5/19	Silvery Blue	R		Little Wood Satyr	C	5/1-9/12	Little Glassywing	C	5/7-10/17
Clouded Sulphur	C	3/12-11/25	<b>Metalmarks, Riodinidae</b>			Common Wood-Nymph	C	5/15-10/1	Sachem	C	4/25-11/6
Orange Sulphur	C	3/2-11/30	Swamp Metalmark	U	5/23-8/31	Monarch	C	3/30-11/9	Delaware Skipper	C	5/13-9/28
Southern Dogface	R	3/27-10/18	<b>Brushfoots, Nymphalidae</b>			<b>Skippers, Hesperidae</b>					
Cloudless Sulphur	C	4/1-11/25	American Snout	C	4/15-12/25	Silver-spotted Skipper	C	3/31-10/19	Hobomok Skipper	R	4/28-8/1
Little Yellow	C	3/29-11/10	Gulf Fritillary	Ca	6/18-10/23	Long-tailed Skipper	Ca	9/2-9/2	Zabulon Skipper	C	4/8-10/27
Sleepy Orange	R	4/30-12/9	Variegated Fritillary	U	3/16-11/5	Golden-banded Skipper	Ca	6/7-7/24	Broad-winged Skipper	Ca	5/22-10/7
Dainty Sulphur	C	3/21-11/15	Great Spangled Fritillary	C	5/11-10/10	Hoary Edge	R	5/8-8/30	Dion Skipper	R	6/3-9/27
<b>Gossamer Wings, Lycaenidae</b>			Meadow Fritillary	Ca	7/23-8/5	Southern Cloudywing	U	4/26-9/17	Dukes' Skipper	R	5/30-9/24
Harvester	R	4/4-9/24	Gorgone Checkerspot	R	4/1-8/24	Northern Cloudywing	C	3/27-8/28	Dun Skipper	C	5/19-10/10
American Copper	R	10/12-10/12	Silvery Checkerspot	C	5/1-10/12	Confused Cloudywing	R	6/20-7/16	Dusted Skipper	R	4/22-5/23
Gray Copper	CA	5/26-6/21	Pearl Crescent	C	3/10-11/16	Hayhurst's Scallopwing	R	4/15-9/21	Linda's Roadside-Skipper	R	5/16-8/31
Bronze Copper	U	5/5-10/20	Baltimore Checkerspot	R	5/22-5/22	Sleepy Duskywing	U	3/18-4/30	Pepper and Salt Skipper	R	4/15-7/25
Coral Hairstreak	U	6/3-7/15	Question Mark	C	2/7-12/25	Juvenal's Duskywing	U	3/18-6/17	Common Roadside-Skipper	R	3/26-8/7
Edwards' Hairstreak	R	6/12-6/23	Eastern Comma	C	2/12-12/22	Horace's Duskywing	C	3/19-10/18	Bell's Roadside-Skipper	Ca	4/28-9/16
Hickory Hairstreak	U	6/8-6/19	Gray Comma	U	3/4-11/10	Mottled Duskywing	R	4/28-7/17	Eufala Skipper	Ca	6/12-9/26
Banded Hairstreak	U	5/9-9/22	Mourning Cloak	C	1/27-11/2	Funereal Duskywing	Ca	5/5-9/29	Ocola Skipper	Ca	9/1-11/1
Striped Hairstreak	R	5/20-6/27				Wild Indigo Duskywing	U	4/1-10/2			

Key: C=Common, U=Uncommon, R=Rare, Ca=Casual

\* Flight Periods based on local reported sightings since 2002. Current as of the end of 2020.



## White, Sulphur, and Swallowtail Butterflies of the Greater St. Louis Area

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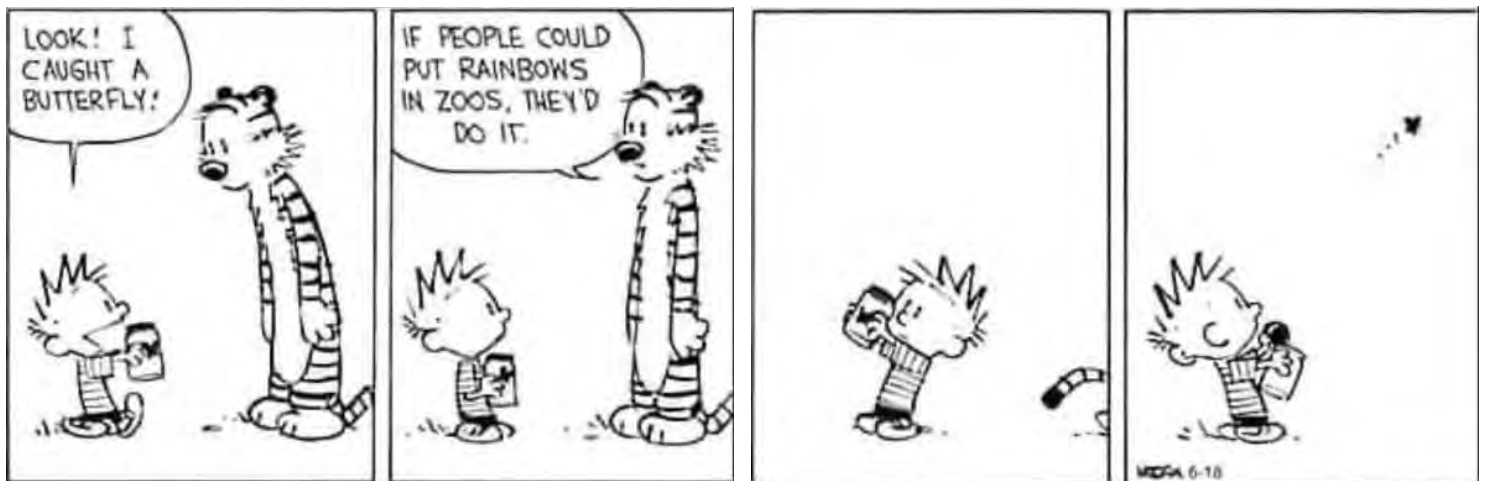
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# Advanced Training-Spring 2022 2022 Summer Solstice Picnic

by Annie Russell, Jake Ronecker, and Colleen Corbett

Our Great Rivers Chapter Picnic and Summer Solstice Celebration at Tower Grove Park was a great success! It was a wonderful picnic with a great turnout, in spite of the hot weather. At one point, we counted 45 people! Many thanks to our host, **Tara Morton**, Community Engagement Coordinator-Tower Grove Parks and Recreation, and our advanced training presenter, Susie Van de Riet. Susie guided Missouri Master Naturalist-Great Rivers chapter members through a contemplative experience called, "Forest Therapy." Also known as "Forest Bathing" in Japanese culture, this research-based practice supports health and wellness by connecting people with forests and other natural environments. Participants at the picnic explored with their senses a section of Tower Grove Park, enjoying the longest day of the year-June 21, 2022.



Summer Solstice, Tower Grove Park



Summer Solstice Tree Huggers



Embracing Forest Therapy with Sunset Shadow Hearts, **Colleen Corbett** and **Jake Ronecker**.



**Tara Morton**, Community Engagement Coordinator-Tower Grove Parks and Recreation



**Bob Ochs**, President, Missouri Master Naturalist Great Rivers Chapter



Susie Van de Riet, our Forest Therapy guide







April 19, 2021

## Nighttime Photography by Dan Zarlenga, Missouri Department of Conservation St. Louis Regional Media Specialist

As an avid career photographer for the Missouri Department of Conservation, Dan spends most his days keenly focused on the beauty of the natural world here on terra firma where he is often tasked to photograph landscapes. So, it should come as no surprise that he also enjoys his time in the evening by looking up, photographing the wonders of the universe in the night sky above...but with a twist. Using his finely tuned skills with landscape photography, Dan has become a self-taught expert in what he calls "nightsapes." Rather than zooming in to frame only the star fields above, Dan has developed a technique to use the stars and Milky Way as a beautiful backdrop that illuminates the beauty of Missouri's natural areas in the foreground. His presentation went into details that he summarized in an article in the Missouri Conservationist magazine a few years ago.

Here is a clip of his article:



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### ***Discovering Nature at Night, by Dan Zarlenga, Missouri Conservationist, December 2015***

Science confirms many animals, from warblers to seals to dung beetles, rely on the stars to find their way. They surely learned the trick long before humans did. The movements of the sun, moon, and stars form cycles we and other living things use to keep time every day.

I have been fascinated with the wonder of the night sky ever since I can remember. Looking up at the infinite sparkles in a truly dark sky never ceases to captivate me. Each speck of light is a distant sun, like our own. Ancient people spent countless nights marveling at these lights. They used their imaginations to connect the celestial dots to create patterns of mythical figures and everyday things. These became the basis of the constellations we still recognize today.

As you become more familiar with the night sky, you will notice that the star patterns move during the night and through the year with the predictability and precision of a Swiss watch. Starlight travels at a finite speed, about 180,000 miles per second or 6 trillion miles per year. That may seem fast, but due

to the vast distances in the universe, the light reaching our eyes could have started on its way four years, or thousands of years, before. When we look at the stars, we are looking back in time.

You can come to depend on the stars' movement to mark the changing seasons just as the ancients did. The prominent constellation Orion riding high in the southern sky signals the coming of winter as much as the first snow. Leo the Lion heralds in spring right along with the first flowers on the forest floor. The Milky Way shimmering overhead speaks to the warm nights of summer as decidedly as the calls of the crickets and katydids. And the Great Square of Pegasus always presides over autumn's changing colors.

Conservation areas located away from city lights can be excellent venues for stargazing. Many are open until 10 p.m., and it may be possible to contact an area manager to obtain a special use permit for nighttime viewing during other times.

Appreciating the stars and night sky doesn't require expensive equipment. A blanket or sleeping bag spread on the ground can be a nice viewing location. A reclining outdoor lounge or camping chair is another option if you prefer to do your viewing off the ground. A pair of binoculars — perhaps ones you may already own — can offer a wondrous window on the universe. An ideal pair would be in the 7X50 or 10X50 range, but almost any will offer an enhanced view and allow you to see more stars than the naked eye.

A planisphere is an excellent tool to aid in learning the stars and constellations. This simple device consists of a rotating dial used to set the time and date, and the stars are displayed and identified on a disk roughly as you would see them in the sky. There are also a number of smartphone apps that offer a graphic display of the stars in real time.





When heading out to enjoy nature at night, always remember to dress in plenty of layers on cooler nights, prepared for at least 10 degrees cooler than the forecasted low. Hat, gloves, and warm socks are also important. Be sure to give some time for your eyes to become adjusted to the dark. Using a red flashlight — either a red LED or a standard flashlight covered with red electrical tape — will help preserve your night vision.



And while you're out discovering the stars, why not explore the natural elements around you? The darkness makes one more attune to the howl of a coyote in the distance, the rustle of opossums skittering in the woods nearby, or the raucous calls of a pair of barred owls. The Missouri evening primrose opens its yellow petals after the sun goes down, welcoming a multitude of night-flying moths. There's really a lot happening in nature when we humans are usually sleeping.

The next time you want to experience Missouri outdoors in a different way, consider spending some time under the stars. Nature doesn't go to sleep after the sunsets. And you may find it gets even more interesting.

#### *Photographing the Night*

Photographing night scenes is best done with a digital single-lens reflex (DSLR) and a tripod because of the long exposures. To photograph a basic star field, using a shutter speed of 20–30 seconds, ISO 1600 at f/3.5–2.8 will do the trick. For a detailed shot of the Milky Way, use an f/2.8 lens and ISO 3200.

Star trails require stacking multiple exposures, usually 30–60 seconds each, taken continuously over several minutes or hours. A programmable remote timer makes this possible. The individual images are stacked later with software to create the continuous streaks as the stars move over time. Pointing toward Polaris, the North Star, creates the concentric circles.

I often shoot my scenes in layers. I begin with the “base” layer, which is usually the sky component using the methods above. I then set my camera to a lower ISO, smaller aperture for depth of field, and refocus on the foreground. I shoot a series of images and use various lighting tools to individually “paint” different portions of the scene. Afterward all these layers are blended together in Photoshop to create the final image.

Although many of my images are assembled after shooting, everything you see was really there — nothing other than light has been added. Creating images this way allows me to capture each element at its best exposure and focus.





# Monthly Advanced Training Opportunities



## Advanced Training Speaker Series 2022 Calendar

1/18/2022	New Member Orientation	<b>Bob Ochs, Bob Virag, Lisa Picker, Michael Meredith, Kari Pratt</b>
2/15/2022	BirdSafe STL	<b>Jean Favara, V.P. Conservation St. Louis Audubon Society</b>
3/15/2022	The Missouri Master Naturalist Program Going Forward	<b>Jessica Hoey, MDC Relevancy Chief and Jenni Rabenau, MDC Partner &amp; Citizen Engagement Specialist</b>
4/19/2022	Nighttime Photography	<b>Dan Zarlenga, MDC Media Specialist</b>
5/17/2022	Chapter Meeting	<b>Business meeting only</b>
6/21/2022	CHAPTER PICNIC with Forest Therapy	<b>Susie Van de Riet, St. Louis Native Plants, Wild Ones &amp; Grow Native!</b>
7/19/2022	MOTUS Tracking of Wildlife	<b>Sarah Kendrick, MDC State Ornithologist</b>
8/16/2022	Great Rivers Greenway	<b>Elizabeth Simons, Community Program Manager</b>
9/20/2022	Astronomy	<b>Rich Heuermann, William Breeden, St. Louis Astronomical Society</b>
10/18/2022	Plastics Reduction	<b>Leslie Gittemeier, Wildlife Conservationist</b>
11/15/2022	St. Louis Zoo, WildCare Park	<b>Dr. Jo-Elle Mogerman, Saint Louis Zoo WildCare Park Director</b>
12/20/2022	Holiday Party	

### BIZARRO • By Wayno and Piraro





# Great Rivers Member Milestones 2022 Awards and Recognition.

Second Quarter Announcements as of June 30, 2022

The Great Rivers chapter appreciates the completion of challenging work and consistent dedication to our mission of the following members:



*Silver Dragonfly  
2,500 hour Milestone Pin*

**Michael Meredith**



*2022 Recertification Pin  
"Grass Pink" Orchid*

- |                  |                  |
|------------------|------------------|
| Renee' Benage    | Melissa Leach    |
| Barbara Brain    | Debra Maurer     |
| Brenda Switzer   | Vaughn Meister   |
| Barb Cerutti     | Michael Meredith |
| Brenda Christ    | Kris Monahan     |
| James Christ     | Bob Ochs         |
| Larry Conant     | Lee Phillion     |
| Barb Davidson    | Donna Scott      |
| Carl Davis       | Geoff Stillwell  |
| Tom Fasl         | Sean Tracy       |
| Sue Forquer      | Sherri Turner    |
| Chris Garhart    | Bob Virag        |
| Jack Hambene     | Pam Wilcox       |
| Kathleen Kapayou | John Willmann    |
| Mary Kreppel     | Karen Zelle      |



*Initial Certification  
Dragonfly Pin*

- Miguel Acosta
- Sheryl Barley
- Anna Hancock
- Kris Monahan
- Tony Pryse
- Eleasa Serotte
- Gerry Spitznagel



*Gold Dragonfly  
1,000 hour Milestone Pin*

**Donna Scott**





# Naturalist's Journal

## Should Auld Acquaintance be Forgot...In Remembrance

by Jack Hambene

The absolute best reason to have a regular volunteer naturalist gig is the people you meet. With regular exposure, both the program staff and fellow volunteers become your mentors and, hopefully, your friends. It is a self-selected gathering, one with a shared interest in all nature related things and in helping, in a small but meaningful way, to save the planet. Having a regular weekly commitment also provides a sense of belonging, a place where your presence is noticed and if you miss a few weeks, people will ask about your well-being.

### The happy/sad feeling when good friends make career moves and relocate.

Although sad at times, all our relations move on at some point and when it happens, we are left with a sense of loss. Nonprofit positions do not pay well so volunteers can expect staff turnover. In July, Forest Park Forever (FPF) Nature Reserve Steward, **Catherine Hu, relocated to Chicago to become a Conservation Educator at the Field Museum.** Promoting native plants animates Catherine and she would send FPF volunteers a weekly photo quiz on plants found in the park. She was an accomplished, self-taught artist with a recent showing of her native plant subjects at The Green Center. The Field Museum's gain is our loss.



Catherine Hu and the FPF restoration crew

### More difficult are the losses of those who are ill or deceased

**Eddie Jones worked as part of the education team at the Litzsinger Road Ecology Center (LREC) for the past eighteen years after teaching biology at Westminster Christian Academy for twenty years. Eddie has a ready smile and continues to make friends with everyone he meets. Eddie is spending more time now with his family after suffering a stroke a few years back. A retirement celebration recently honored Eddie and his contributions to all the children who visited LREC over the years.**



Eddie Jones was spotted out getting some trail time in by Great Rivers Greenway, December 2020

**Charles Wilson (1949-2022) was a long-time restoration volunteer at the Litzsinger Road Ecology Center (LREC) and recently at The Green Center. Chuck was a quiet presence with an in-depth knowledge of native plants and birds, a wicked sense of humor and he readily welcomed all newbie volunteers into a close-knit core group. Chuck passed away in June after a lengthy battle with cancer. He volunteered as his strength would allow him and his final contribution at LREC was in helping create the log wall habitat. The LREC staff is planning a memorial in his honor.**



Charles Wilson (left) with Jack Hambene at the LREC habitat wall.

**Shaw Nature Reserve lost a beloved volunteer when Jim Haberberger died suddenly in May. Jim was working at Shaw on one of our final Saturday brush cutting sessions of the spring this year and died the next day. He gave generously of his time at both Shaw and in the Washington, MO public parks. Jim started volunteering with the restoration staff at Shaw just so he could have a shot at cutting the grass with the Reserve tractor. Jim was one of a kind.**



Jim Haberberger (1954-2022) doing what he loved.

As Alfred, Lord Tennyson said it best,  
"Better to have loved and lost than never to have loved at all."  
To those that have passed, so true. God speed, good friends



# Naturalist's Journal

## Besa Schweitzer Book Discussion

By Karen Zelle

Author and Missouri Master Naturalist (Miramiguoa Chapter) Besa Schweitzer led a discussion about her book, **The Wildflower Garden Planner** hosted by Karen Zelle and the Shepherd's Center in Glendale as a part of a summer reading series.

Besa fielded numerous questions about native plants, gardening, and the excellent resources that we have in Missouri including Missouri Master Naturalists. If you are not familiar with her book, it is a valuable month-by-month planner for your garden filled with tons of wisdom, native plant suggestions and resources. The cost is \$20.00, and you can find it on her website along with her blog and other information:

<https://besaschweitzer.wixsite.com/growswild/book>

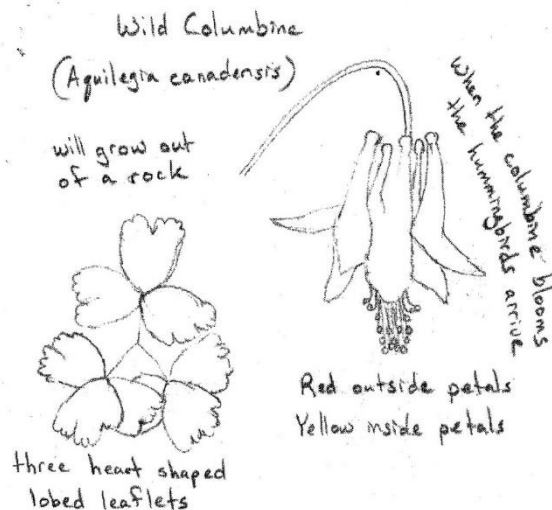


Author, Besa Schweitzer,  
Missouri Master Naturalist-Miramiguoa Chapter



Besa's published book, "The Wildflower Garden Planner"(above)

### May



(Left) Besa's detailed pencil sketches beautifully illustrate each of the chapters.



# Naturalist's Journal

## 2022: Spring Migration

### “The Magnificent Magnolia Warbler”

by Miguel Acosta



*Fotografía by Miguel*

Ornithologist Alexander Wilson first described this species in 1810, based on a specimen he collected from a magnolia tree in Mississippi, no doubt during migration. Although he used “Black-and-yellow Warbler” as the bird’s English name, it was the Latin species name, “magnolia,” that stuck. A more accurate name for the Magnolia Warbler would be the “Spruce Warbler,” after its favored boreal nesting habitat.

Like many Neotropical migrants, the Magnolia Warbler migrates at night, mostly east of the Great Plains, although it is a rare but regular vagrant to the western U.S. Its southbound journey takes it across the Gulf of Mexico to wintering grounds in Mexico, Central America, and the Caribbean, where it occupies a wide variety of leafy habitats, from forests and scrub to agroforestry settings including shade coffee, cacao, and citrus farms.

Until the next adventure. If you would like to be updated when I post new blogs articles, please sign up for my email list

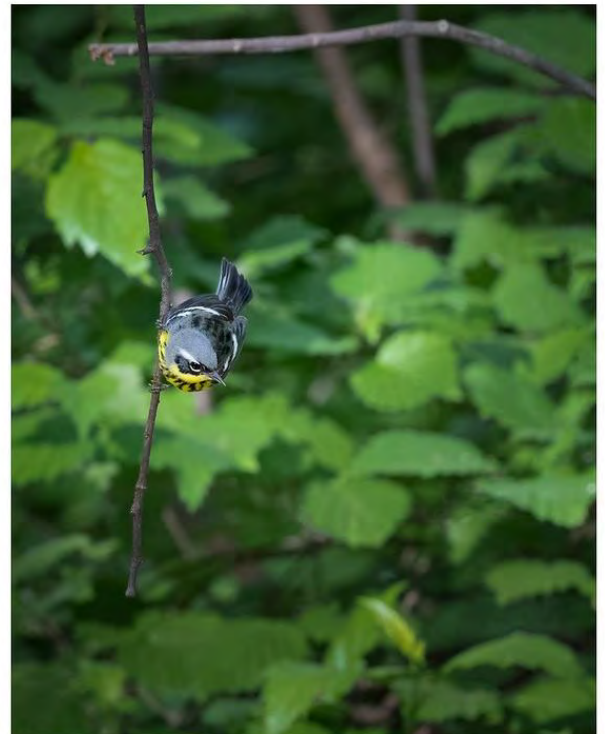
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Thanks for stopping by!

Spring of 2022, one of my goals – get better images of spring migrants!

The Magnolia Warbler (*Setophaga magnolia*) is a member of the wood-warbler family. The active, confiding Magnolia Warbler is fairly easy to find during its biannual migrations through the eastern and central United States. The male is especially eye-catching — a combination of bright yellow and black, with striking white wing and tail patches. Female and juvenile “maggies” are similarly colored, but in more muted tones.

The Magnolia Warbler in breeding plumage has black or black and green upperparts, a gray head with a white eyeline, a yellow throat and underparts, and heavy black streaking on the sides. A white bar across the center of a black tail can be seen in flight.



*Fotografía by Miguel*



# Logo Wear Order Form Spring-Summer 2022



**50/50 fleece**  
(kelly green)  
men or women  
\$35



**microfleece no hood**  
(aqua green)  
women  
\$35



**bright green tee**  
women's  
\$17



**khaki/hunter ball cap**  
\$19



**kiwi short sleeve tee**  
\$16.00



**military green hoodie**  
\$25.00



**tan long sleeve tee**  
\$20.00



**MMN logo patch**  
\$5.00



We can also bring in our own items to be embroidered for \$10.50 each item.

Member's Name:		Phone Number:	
Name of item	size (s/m/l/xl)	quantity	total cost

Orders due by the October 18, 2022, monthly meeting

SAVE, then EMAIL and ATTACH COMPLETED FORM TO:

Kari S. Pratt

[kari.pratt61@gmail.com](mailto:kari.pratt61@gmail.com)

636-391-2901





Small White Lady's Slipper  
*Cypripedium candidum*  
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