



Missouri Master Naturalist

Winter Issue 2019

Volume 9

Number 1



Oyster Mushroom, *Pleurotus ostreatus*
Photo by © Glen Horton ©2019



In three words I can sum up everything I've learned about life:

It goes on.

~Winston S. Churchill



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Front Cover

Oyster Mushroom – Photo by Glen Horton

Back Cover

Fall Colors at Mastadon State Park – Photo by Barb Cerutti

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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,

My profile picture is taken at one of my favorite places in the city: Carondelet Park. My wife and I took our kids there in the 80s when we lived down the street on Alaska Avenue. It reminds me that our



placement as the Great Rivers Chapter should remind us of our attachment to our urban areas. For many folks in the city, these nature oases will be the only contact they have with the flora and fauna of our region. Our chapter stretches from the center of the city to very rural locations. While I enjoy going to Shaw Nature Reserve, I have also had real pleasure working with many of you at O'Fallon Park or South Grand and soon to be Calvary Cemetery. While more of a suburban setting, the work Larry Conant and Diane Goulis are driving at Spanish Lake is having a major impact on the park. Our urban areas are so vital to the growth and well-being of St. Louis. I hope that we can work as a team to keep a focus on these jewels of the city.

Bob Ochs
President,
Great Rivers Chapter

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View us on the web at www.greatrivers.org



www.facebook.com/MMNGreatRiversChapter and www.facebook.com/groups/150751118803379



WINTER of 2018-2019

*It's been a crazy rollercoaster ride of a winter.
Here are few reminders:*

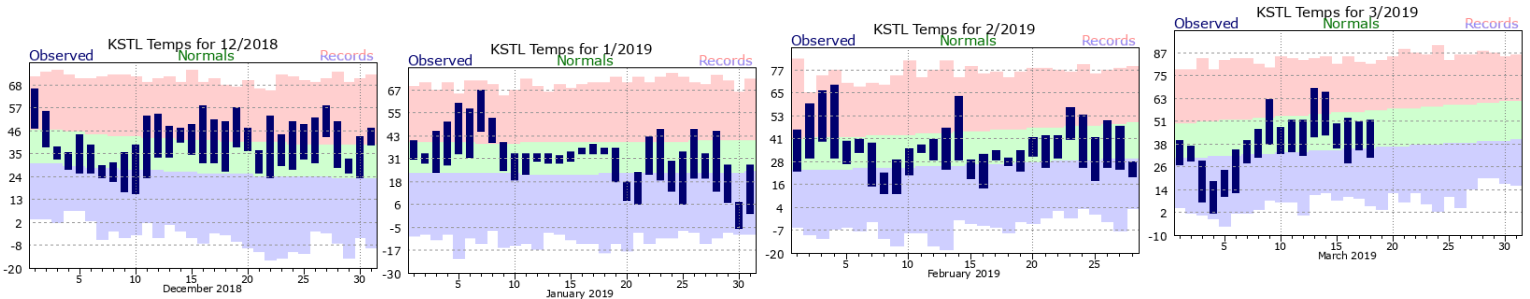
For those who think on the right-side of their brains --



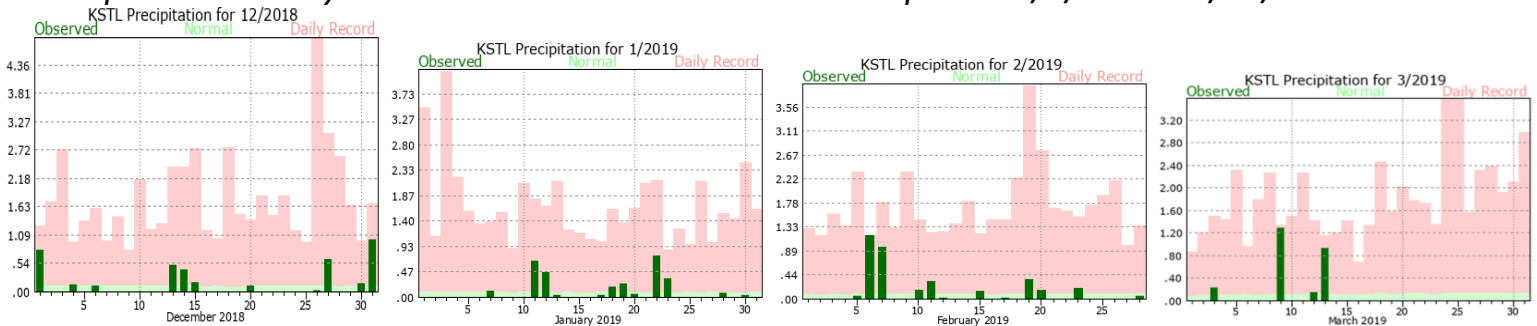
Frozen Bubble - photo courtesy Michelle Lynz Fritz ... [see the video here](#)

For those that think on the left-side of their brains –

Temperature History at St. Louis Lambert International Airport 12/1/2018 – 3/19/2019



Precipitation History at St. Louis Lambert International Airport...12/1/2018 – 3/19/2019



*Ordnate axis adjusted to scale

Monthly Climate Data courtesy [NOAA National Weather Service](#)

BTW...in this same time period, [Australia reported record blistering summer heat records.](#)



Great Rivers Citizen Science – Winter 2019

Claire Gempp Davidson

2018 Bird Survey Analysis

---by Sherri Schmidt, March 6, 2019

The results are in: a year of surveys provides a clearer picture of what birds can be found at Claire Gempp Davidson



Project Overview

Great Rivers Missouri Master Naturalist Chapter members have volunteered at the Claire Gempp Davidson (CGD) Conservation Area in Sunset Hills for over 5 years. At the request of the chairman of the Claire Gempp Davidson Memorial Conservation Commission that oversees the area, we initiated a project to make the area more attractive to birds. As a start, we wanted to inventory the species and number of birds currently seen in the Conservation Area throughout the seasons. We asked the St Louis Audubon Society for assistance with the surveys, to better identify birds, and make the surveys more accurate, especially during migrations. With Audubon members leading the surveys, it also offered an opportunity to educate participating Missouri Master Naturalists on bird identification.

Four St. Louis Audubon members agreed to lead the surveys: Mary Dueren (who is also a member of the Great Rivers Missouri Master Naturalist Chapter), Sue Gustafson, Karen Meyer and Mike Thelen. The Audubon members also determined the survey protocols and frequency.

Results Analysis

The four St. Louis Audubon members led 48 bird surveys at Claire Gempp Davidson from December 7, 2017 to November 28, 2018. After the initial project meeting at the site on November 25, 2017, each member led 1 survey a month for a year. One of the surveys was an owl prowl done during the evening with Brenda Hente (another Great Rivers Chapter Member).

After each survey, the Audubon members submitted their survey checklist to the eBird website maintained by Cornell Lab of Ornithology, so the data could be shared. Checklist data from the initial project meeting on November 25, 2017 was also included. Information on CGD checklist data submitted is available from the following eBird website:

<https://ebird.org/hotspot/L2146120>

The eBird website also offers an Illustrated Checklist for CGD, showing the data in bar charts, with photos when available: <https://ebird.org/hotspot/L2146120/media?yr=all&m=>

Note: the eBird website referenced above contains data submitted by all visitors, not just the data compiled by the participating Audubon team members. After all the surveys were completed, the data from the Audubon led surveys and the initial meeting checklist was entered into a spreadsheet for further analysis. The results of the analysis are summarized below.

Annual Data

The eBird website lists the total number of species observed at Claire Gempp Davidson Memorial Wildlife Area as 110 (all years). In a list of 98 eBird hotspots in St. Louis County, CGD ranks 25th by number of species reported. During the year-long survey period, the St. Louis Audubon team members reported viewing 103 species. This does not include birds reported as "sp" (such as "buteo, sp") or combined categories like "Carolina/Black-capped Chickadee" (when those species were listed separately).



Annual Data

For the data gathered during the survey period from November 25, 2017 to November 28, 2018:

Total Number of Species Observed During a Survey

- **60** Highest for the Year (5/07/2018) during Peak Migration
- **7** Lowest for the Year (12/07/2017)
- **23** Average Number for the Year

Total Number of Birds Observed During a Survey:

- **536** Highest for the Year (3/21/2018)
- **48** Lowest for the Year (6/28/2018)
- **144** Average Number for the Year

Birds commonly seen year-round (birds observed in most surveys):

- American Crow
- American Goldfinch
- American Robin
- Blue Jay
- Carolina Chickadee
- Carolina Wren
- Downy Woodpecker
- Mourning Dove
- Northern Cardinal
- Northern Flicker
- Red-bellied Woodpecker
- Red-shouldered Hawk
- Tufted Titmouse
- White-breasted Nuthatch



Red-shouldered Hawk

Birds seen year round, but not as common:

- Canada Goose
- Common Grackle
- Eastern Bluebird
- Eurasian Tree Sparrow
- European Starling
- House Finch
- House Sparrow

Of Special Note

The female Cape May Warbler observed by Mike Thelen during the August 22, 2018 survey was the earliest fall record for the species in the state of Missouri.

Seasonal Data

This analysis uses seasons defined by Missouri Bird Records Committee (MBRC) seasonal editors:

- Spring = March thru May
- Summer = June and July
- Fall = August thru November
- Winter = December through February

Winter

For the data gathered during the survey period from December 8, 2017 to February 21, 2018:

Total Number of Species Observed During a Survey:

- **22** Highest for the Winter (1/07/2018)
- **7** Lowest for the Winter (12/07/2017)
- **18** Average Number for the Winter

Total Number of Birds Observed During a Survey:

- **263** Highest for the Winter (12/20/2017 morning)
- **52** Lowest for the Winter (12/07/2017)
- **136** Average Number for the Winter

Birds often seen during winter surveys (in addition to birds seen year round):

- Cedar Waxwing
- Dark-eyed Junco
- Rusty Blackbird
- Yellow-rumped Warbler
- White-throated Sparrow

Birds occasionally seen during winter surveys (in addition to birds seen year round):

- Barred Owl
- Brown Creeper
- Brown Thrasher
- Northern Mockingbird
- Red-breasted Nuthatch
- Red-tailed Hawk
- Song Sparrow
- Trumpeter/Tundra Swan
- Yellow-bellied Sapsucker



Red-bellied Woodpecker



Spring

For the data gathered during the survey period from March 9, 2018 to May 28, 2018:

Total Number of Species Observed During a Survey:

- **60** Highest for the Spring (5/7/2018) during Peak Migration
- **18** Lowest for the Spring (3/9/2018)
- **28** Average Number for the Spring

Total Number of Birds Observed During a Survey:

- **536** Highest for the Spring (3/21/2018)
- **58** Lowest for the Spring (3/28/2018)
- **167** Average Number for the Spring

Birds often seen during spring surveys (in addition to birds seen year round):

- Brown-headed Cowbird
- Cooper’s Hawk
- Eastern Phoebe
- Yellow-rumped Warbler
- White-throated Sparrow



Eastern Phoebe

Birds occasionally seen during spring surveys (in addition to birds seen year round):

- American Kestrel
- American Redstart
- Baltimore Oriole
- Barn Swallow
- Black-and-white Warbler
- Blackburnian Warbler
- Blackpoll Warbler
- Black-throated Green Warbler
- Blue-gray Gnatcatcher
- Blue-headed Vireo
- Brown Creeper
- Brown Thrasher
- Cedar Waxwing
- Chestnut-sided Warbler
- Chimney Swift
- Chipping Sparrow
- Dark-eyed Junco
- Eastern Kingbird
- Eastern Towhee
- Eastern Wood-Pewee
- Fox Sparrow
- Golden-crowned Kinglet
- Golden-winged Warbler
- Great Blue Heron
- Great Crested Flycatcher

- Gray Catbird
- Gray-cheeked Thrush
- Hairy Woodpecker
- Hermit Thrush
- House Wren
- Indigo Bunting
- Magnolia Warbler
- Mallard
- Nashville Warbler
- Northern Parula
- Ovenbird
- Purple Martin
- Red-eyed Vireo
- Red-winged Blackbird
- Rose-breasted Grosbeak
- Ruby-crowned Kinglet
- Ruby-throated Hummingbird
- Rusty Blackbird
- Song Sparrow
- Summer Tanager
- Swainson’s Thrush
- Tennessee Warbler
- Turkey Vulture
- Warbling Vireo
- White-crowned Sparrow
- White-eyed Vireo
- Wilson’s Warbler
- Yellow-bellied Sapsucker



Ruby-throated Hummingbird



Tennessee Warbler

Summer

For the data gathered during the survey period from June 10, 2018 to July 28, 2018:

Total Number of Species Observed During a Survey:

- **33** Highest for the Summer (6/27/2018)
- **19** Lowest for the Summer (6/28/2018 & 7/9/2019)
- **24** Average Number for the Summer

Total Number of Birds Observed During a Survey:

- **221** Highest for the Summer (6/27/2018)
- **48** Lowest for the Summer (6/28/2018)
- **121** Average Number for the Summer

Birds often seen during summer surveys (in addition to birds seen year round):

- Blue-gray Gnatcatcher
- Brown-headed Cowbird
- Chimney Swift
- Eastern Phoebe



- Eastern Wood-Pewee
- Gray Catbird
- Great Crested Flycatcher
- House Wren
- Mississippi Kite
- Red-eyed Vireo
- Ruby-throated Hummingbird
- Song Sparrow

Birds occasionally seen during summer surveys (in addition to birds seen year round):

- Black-capped Chickadee
- Brown Thrasher
- Chipping Sparrow
- Cooper's Hawk
- Eastern Towhee
- Hairy Woodpecker
- Indigo Bunting
- Purple Martin
- Rock Pigeon
- Turkey Vulture
- Yellow-throated Vireo



Coopers Hawk
--by Sherri Schmidt

Birds occasionally seen during fall surveys (in addition to birds seen year round):

- American Redstart
- Bald Eagle
- Barred Owl
- Black-and-white Warbler
- Blue-gray Gnatcatcher
- Blue-headed Vireo
- Blue-winged Warbler
- Broad-winged Hawk
- Brown Creeper
- Canada Warbler
- Cape May Warbler
- Chestnut-sided Warbler
- Chimney Swift
- Chipping Sparrow
- Common Yellowthroat
- Cooper's Hawk
- Dark-eyed Junco
- Eastern Wood-Pewee
- Golden-crowned Kinglet
- Great Crested Flycatcher
- Great Horned Owl
- Hairy Woodpecker
- Hermit Thrush
- House Wren
- Least Flycatcher
- Magnolia Warbler
- Mississippi Kite
- Nashville Warbler
- Northern Harrier
- Pine Warbler
- Red-breasted Nuthatch
- Red-eyed Vireo
- Red-headed Woodpecker
- Red-winged Blackbird
- Rose-breasted Grosbeak
- Scarlet Tanager
- Song Sparrow
- Swainson's Thrush
- Tree Swallow
- Turkey Vulture
- Yellow-bellied Sapsucker
- Yellow-billed Cuckoo
- Yellow-rumped Warbler
- Yellow-throated Vireo
- Warbling Vireo
- White-eyed Vireo
- White-throated Sparrow



Bald Eagle

Fall

For the data gathered during the initial project meeting on November 25, 2017 plus data gathered during the survey period from August 5, 2018 to November 28, 2018:

Total Number of Species Observed During a Survey:

- **34** Highest for the Fall (9/26/2018)
- **17** Lowest for the Fall (9/18/2018, 10/23/2018, 11/08/2018)
- **23** Average Number for the Fall

Total Number of Birds Observed During a Survey:

- **283** Highest for the Fall (8/22/2018)
- **71** Lowest for the Fall (10/8/2018)
- **144** Average Number for the Fall

Birds often seen during fall surveys (in addition to birds seen year round):

- Brown Thrasher
- Cedar Waxwing
- Eastern Phoebe
- Gray Catbird
- Northern Mockingbird
- Red-tailed Hawk
- Ruby-throated Hummingbird



Brown Thrasher



Claire Gempp Davidson 2018 Bird Survey

Acknowledgements

Many thanks to Mary Dueren, Sue Gustafson, Karen Meyer and Mike Thelen, our St. Louis Audubon partners on this project – without their involvement, expertise and dedication the surveys of birds observed at CGD wouldn't be nearly as complete or accurate! Also thank you to Brenda Hente for letting us experience an Owl Prowl at CGD!

A number of Master Naturalists were able to participate in some surveys. Sean Tracy deserves special recognition - he attended many surveys, took all but one of the photos displayed in this report, and our St. Louis Audubon partners praised his keen eye and spotting skills that contributed to the productivity of the surveys. Other Master Naturalists who attended included Barb Cerutti, Barb Davidson, Carl Davis, Tom Fasl, Jack Hambene, Bill Hoss, Mary Kreppel, Melissa Leech, Abby Wilde and Carol Wray (if I missed anyone, my apologies!). Hopefully those that participated had an enjoyable time and learned something new about bird identification.



Juvenile Red-shouldered hawk

Next Project Phase:

The water, food and shelter resources currently available for birds at CGD will be evaluated, to determine what possible improvements could be made to make the area more attractive to birds, both year-round residents and migrants.

If any Master Naturalists are interested in participating in the next phase of the project, please contact Sherri Schmidt.





Audubon Center
at Riverlands

Trumpeter Swan Watch 2018-2019 Summary & Results ---by Pat Lueders, ACR



Sunrise at Riverlands Migratory Bird
Sanctuary December 11, 2018
--- photo by Pat Lueders

Introduction : The 2018-2019 Great Rivers Trumpeter Swan Watch was the seventh conducted by community science volunteers at Riverlands Migratory Bird Sanctuary (RMBS); a partnership of the following agencies: The Audubon Center at Riverlands, the Audubon Society of Missouri (ASM), the St. Louis Audubon Society (SLAS), and the US Army Corps of Engineers, River Project Office.

Background: Since 1991, Trumpeter Swans have been arriving at RMBS and the surrounding area to use the area as their Wintering grounds. The Great Rivers Trumpeter Swan Watch was established in 2012 to share information regarding the numbers and behavior of this reintroduced species with the Trumpeter Swan Society and the partners of the watch.

Procedure: At dawn, to collect an accurate count, volunteers are assigned to count the swans at their roosting locations. The counts are conducted every two weeks between the arrival of swans, around November 1, and their departure, around February 1.

The dates for the 2018-2019 watches were:

| | | | |
|-------------------|-------------------|------------------|------------------|
| November 13, 2018 | December 11, 2018 | January 8, 2019 | February 5, 2019 |
| November 27, 2018 | December 26, 2018 | January 22, 2019 | |

Swan Collars: When Trumpeter Swans were reintroduced in Wisconsin by the state's DNR, cygnets were "collared" with yellow neckbands with codes of numbers and one letter in black. Over the past seven seasons, watch volunteers have identified 91 collars, registering three new ones this season. This season fifteen returning swans were identified, including one that was collared 16 years ago, one collared 13 years ago and has been seen every year, and one that hadn't been registered since 2014. All sightings are reported to the Federal Banding Lab.

Weather: Winter weather arrived early in 2018 with snow and very cold temperatures in early November. The 11/13/2018 count had 20° temperatures but open water in Heron Pond, the favorite roosting location of the swans. It was 17° 11/27/2018 but open water continued in Heron Pond. By 12/11/2018, Heron Pond was frozen and the swans were roosting in the main body of water, Ellis Bay. By 12/26/2018, open water had returned to the area with 33° temperatures, and swans were roosting in multiple locations. 1/8/2019 was the most temperate count of the season with 45° and open water. However, by 1/22/2019, the area's water was mostly frozen, and the season's largest number of swans were gathered in a few small areas of open water. Usually, by February the swans have left to return to their breeding grounds in Wisconsin. Possibly, with temperatures around -30° in the Chicago area and north of there, the swans remained in the RMBS area and seemed to be staging, with some estimates of 2,300 swans on 2/1/2019.

Swan Results

| Date | Trumpeter Swans | Adults | Cygnets | Tundra Swans | Mute Swans |
|------------|-----------------|--------|---------|--------------|------------|
| 11/13/2018 | 400 | 300 | 100 | 1 | 0 |
| 11/27/2018 | 285 | 253 | 32 | 60 | 0 |
| 12/11/2018 | 427 | 354 | 73 | 15 | 0 |
| 2/26/2018 | 521 | 479 | 36 | 5 | 1 |
| 1/8/2019 | 503 | 402 | 101 | 0 | 0 |
| 1/22/2019 | 1295 | 1163 | 120 | 12 | 0 |
| 2/5/2019 | 542 | 472 | 70 | 62 | 0 |



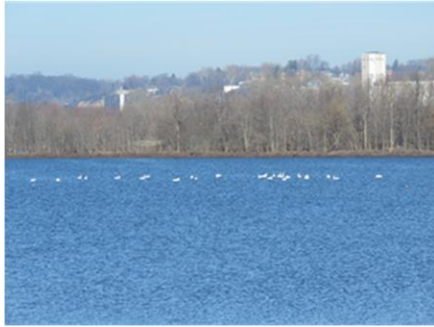
Swan Survey volunteers Pat Lueders (author), Bob Wanless, Michael Meredith, Herb Huebner, and Marv Stolach
- Photo by Bob Virag



Additional Species Recorded

Geese: Canada, large numbers recorded all season; Snow Geese; Cackling Geese; Greater White-fronted Geese: Largest number recorded in watch history, refuge estimate on 2/1/2019 was 4,500

Duck species: Mallard, Black Duck, Gadwall, Long-tailed Duck (1), American Wigeon, Common Goldeneye, Canvasback, Redhead, Bufflehead, Rudy Duck, Pintail, Northern Shoveler, Ring-necked Duck; Common, Hooded & Red-breasted Merganser, Greater & Lesser Scaup



Swans in Ellis Bay, Riverlands Migratory Bird Sanctuary --- photo by Pat Lueders



Trumpeter Swans, left & middle, Tundra Swan on right 12/20/2018 --- photo by Pat Lueders



Trumpeter Swans, left & middle, Tundra Swan on right, Mute Swan on left with Trumpeter on right, 12/22/2018 --- photo by Pat Lueders

Summary

The 2018-2019 Trumpeter Watch season produced some interesting results, and some trends are emerging. Compared to the 2017-2018 season, the number of swans on each count in the 2018-2019 season was lower, averaging 500 swans. However, between official watch dates of 1/22/2019 and 2/5/2019, the number of swans recorded by reliable observers roosting on the refuge ranged from 1,600 to 2,300. With them was a record refuge count of 4,500 Greater White-fronted Geese. It seems that the same number of swans are wintering in the general area but are possibly more widely distributed.

It appears that RMBS has become a staging area at the end of January for swans wintering in the area of the great rivers. In the 2017-2018 season, over 1300 swans were counted on the refuge in the middle of January to be gone by January 30th. This year, with an especially late polar vortex in the northern states, an even larger number of swans waited in the RMBS area to migrate, resulting in a record number of swans on 2/2/2019.

In summary, in the 2018-2019 season, the RMBS area was the wintering home of 400-600 Trumpeter Swans. The swans began arriving around the middle of October, the earliest recorded date. Probably as a result of the polar vortex, the swans remained in greater numbers into the first week of February. Cygnet percentages were difficult to measure, ranging from a low of 8% to a high of 30%, averaging 16%.

The number of Tundra Swans has increased every year of the watch, the largest amount seen at the beginning of the season and at the end, seemingly roosting elsewhere during the middle of the winter.

Each year of the watch has seen an increase in the number of Greater White-fronted Geese wintering at RMBS. This year it appears the refuge became a staging area for this species with a count of 4,500 on 2/2/2019.

Thank-you!

Without our reliable group of community science volunteers, the Great Rivers Trumpeter Swan Watch would not be possible. Their willingness to spend many of their mornings at dawn under difficult weather conditions to record our wintering swans is commendable and appreciated!

We also thank the staff of the Audubon Center at Riverlands, especially Jean Favara, for the warmth of the center and their delicious coffee that welcomes our return each season!

--- Pat Lueders, ACR Volunteer Coordinator

Trumpeter Swan Watch ...even more photos



Photo © Paul Moffett



Photo © Paul Moffett



Photo © Paul Moffett



Photo © Paul Moffett



Photo © Paul Moffett



Photo © Paul Moffett



Swan Survey volunteers Marv Staloch, Michael Meredith, Walt Dawson ,
Natalie Rekittke, Paul Moffett, and Jack Hambene



Photo © Bob Virag



Photo © Bob Virag



Great Rivers Stewardship Projects – Winter 2019

Spanish Lake Restoration Project

Project Leaders – Larry Conant and Diane Goulis

January 26, 2019 -- On a chilly 23° F snowy Saturday, three Missouri Master Naturalists from the Great Rivers Chapter, Bob Ochs, Diane Goulis, and Larry Conant, and a fourth volunteer from Dellwood, Ike Jacobs, spent their morning hacking bush honeysuckle at Spanish Lake County Park. These four volunteers, braving the deep freeze, spent their morning enjoying each others' company and the beautiful snowfall on the lake to hack away at the bush honeysuckle choking the shoreline. We meet at the Spanish Lake boat ramp at 9 AM on the last Saturday of the month (autumn, winter, and spring only). Contact Larry Conant if you wish to join us on the next event. Hope to see you there!

--- Larry Conant



Larry Conant helping a chilly turtle find overwinter shelter



Diane Goulis with a wickedly sharp new saw



Bob Ochs, reading the last rights to an invading honeysuckle



Before



After



Intrepid honeysuckle hackers Ike Jacobs, Diane Goulis, and Bob Ochs



Stewardship (continued)

Spanish Lake Restoration Project ...part 2

Project Leaders – Larry Conant and Diane Goulis

February 23, 2019 --Second Annual Spanish Lake **“TRASH BASH WITH YOUR RAINCOAT ON”** Event

Our intrepid Missouri Master Naturalist-Great Rivers Chapter volunteers tackled their “Second Annual Spanish Lake Trash Bash with your Rain Coats On” event this rainy winter Saturday morning. St. Louis County Parks and Recreation provided canoes and tools and the volunteers provided their spirit to rid Christian Pond at the lower end of Spanish Lake of its winter trash load. Over a dozen large trash bags were filled with floating bottles, cups and other debris of life. The morning load included two tires, plastic toys, tarps, and a heavy concrete pipe. Hats off to the soggy volunteers for leaving the pond squeaky clean...for now. Join us on the next trash bash and help us support our local environment.



Many thanks to our hard-working rain-soaked volunteers, Larry Conant, Diane Goulis, Tom Fasl, Evelyn Hall, Donna Scott, Michael Meredith, Bob Virag and Ike Jacobs.



After ... squeaky clean!



Steger 6th Graders in *Pollinator Paradise* -- by Lisa Picker

It all started with a question from Tessa Wasserman, as great projects often do: Have you ever considered involving students in a honeysuckle hack on your 16-acre campus in Rock Hill? The science department, which included my husband, another MMN intern, had long dreamed of ridding the campus of invasive species and opening it up as an ecology center for our school district.



Before

Our first hack was in spring of 2016 and included several wonderful volunteers from the Great Rivers chapter. We had to adjust our plans at the last minute when we learned that we couldn't have herbicide present when the students were outside. The volunteers hacked and painted like mad.



After

When the students came out, the volunteers kindly taught them about honeysuckle and identified other plants. The students gleefully carried bundles of cut honeysuckle branches to the playground, creating a mound beyond anything we had imagined and opening up areas of our campus that we hadn't seen in years.



We then planted native trees and shrubs donated by Forest ReLeaf (also Tessa's suggestion.) Students are now able to explore part of creek during class and at recess!

That day inspired us to look at an area of lawn that was never used. Through grants from the Webster

Groves School District Foundation, Deer Creek Watershed Alliance and MDC, we were able to hire Native Landscapes Solution to build Pollinator Paradise, which includes two demonstration gardens and a small prairie. Because of this garden, our students were able to join Webster University in a national study of pollinator behavior during an eclipse! We also participated in the City Nature Challenge.



Sunbeams in the Pollinator Paradise

--- by Lisa Picker; photos by Tessa Wasserman

Our fourth annual hack is scheduled for March 29, 2019 and we will need volunteers again!

This year, we will be an official site for biodiverCity St. Louis Honeysuckle Sweep.

We are also ending our maintenance program with the landscaping company, so we will be looking for volunteers to help maintain the pollinator garden. Please come by and visit the garden at 701 N. Rock Hill!



Great Rivers Outreach and Education – Winter 2019



Eagle Ice Festival at Audubon Center at Riverlands

Audubon Center
at Riverlands

January 4, 2019 Eight Missouri Master Naturalist-Great Rivers volunteers helped to introduce the locals to the wonders of the natural residents to the Audubon Center at Riverlands during their first of many “Birds of Winter” events throughout January and February. **Renee Benage, Larry Conant, Carl Davis, Chris Garhart, Eileen Hall, Dennis Honkomp, Robert Ochs, Karen Zelle** staffed the many learning stations throughout the Center on this balmy Sunday. Turnout was greater than expected thanks to the service provided by the Great Rivers volunteers.

And hats off to **Mary Duren** for her unending loyalty at staffing the front desk to the Center throughout the winter months!



Karen Zelle working the children's craft table
- ACR staff photos



Bob Ochs, fire and s'mores maker extraordinaire
-- ACR staff photo



Pam Wilcox guiding the crowds
-- ACR staff photo



Building the eagle nest
-- ACR staff photo



Bob Ochs and Carl Davis greeting the visitors
-- ACR staff photo



5 Ideas For Discovering And Appreciating Other Creatures Who Call St. Louis Home



Mark H.X. Glenshaw and Danny Brown
“On the Air”

January 7, 2019 -- St. Louis Public Radio “On the Air” host Don Marsh interviewed Missouri Master Naturalist-Great River Chapter member Mark H.X. Glenshaw and former MDC nature photographer Danny Brown on the topic of observing and appreciating urban wildlife in the bi-state area. Along with reviewing the sheer range of critters to be found in the region, the guests offered several suggestions for local listeners who are eager to learn more about and observe the region’s fauna, including the following pointers.

1. Listen closely to sounds when wandering parks, wilderness and even the backyard.
2. Be prepared to invest some time in order to capture a high-quality photograph of an animal.
3. Get in touch with Mark H.X. Glenshaw and convince him to conduct an “owl prowling.”
4. Be respectful of these fellow beings.
5. Keep in mind that encountering wildlife, by its very nature, means dealing with some wild stuff.



Mark H.X. Glenshaw and Danny Brown speak with Don Marsh, host of the St. Louis Air the Air program



Great horned owls Charles and Sarah are among those who have called Forest Park home in recent years.
--- photo © Mark H. X. Glenshaw

Listen to the full 27-minute discussion at the St. Louis Public Radio “On the Air” site :
<https://news.stlpublicradio.org/post/5-ideas-discovering-and-appreciating-other-creatures-who-call-st-louis-home>

**Mark has even more to say about his experience as a Missouri Master Naturalist.
Read more on page 30 of this Gazette**



Eagle Days on the Old Chain-of-Rocks Bridge

– by Pam Wilcox

January 16-20, 2019 Another Eagle Days on the Old Chain-of-Rocks Bridge event has come and gone and once again, Great Rivers volunteers were well represented. Chapter veterans John Vandover, Michael Meredith and Bob Virag manned the spotting scopes on the bridge, enabling the students to view eagles in the area, along with other birds that decided to drop by. Other members, Kathleen Kapayou, Vaughn Meister, Evelyn Tullos, and Pam Wilcox provided parking assistance and guided the students out to the center of the bridge. We also had two new volunteers, Debra Maurer and Sue Forquer helping out. Hopefully, they enjoyed the event and will return to become seasoned veterans. Fortunately, this year the weather was what you would expect in January, cold, overcast but not unbearable.

The highlight for the students is always the live eagles brought to the site by the World Bird Sanctuary. This year they were treated to Duncan, a golden eagle and Sanibel the bald eagle. Everyone should experience the faces of the students as the handlers bring the birds out of their cages. It’s a very special moment, even for the adults.

We should be proud of our continued support for MDC and Illinois DNR and the St Louis and Illinois school districts.

Here is the summary from the MDC project leader, Matthew Magoc:

Good afternoon, Eagle Days Volunteers,

I would like to thank you all, again, for helping ensure another successful Eagle Days event at the Old Chain of Rocks Bridge! Our event would be not be nearly as successful (or fun!) without all of you – who so generously give your time and expertise to the event. We all are grateful for you.

For the 2019 Eagle Days on The Old Chain of Rocks Bridge, **we saw 1,000 visitors on January 19th and 20th and had an additional 1,000 students, parents and teachers attend the event throughout the week.** Every student and most visitors had the opportunity to view eagles firsthand at The Old Chain of Rocks Bridge.

Additional kudos are due for braving all of the various weather this past week brought – rain, snow, high winds, fog, sunshine that brought temperatures to into the 40’s and then clouds with a North wind bringing the wind chill temperatures down into the single digits. Each day brought its unique challenges but we overcame them all and provided a memorable experience for everyone attending the event on each day.

Thank you and I hope to see you all soon!

Matthew Magoc
Conservation Education Consultant
Powder Valley Conservation Nature Center



Duncan the Golden Eagle from World Bird Sanctuary
--- Photo by Pam Wilcox



Sanibel the Bald Eagle from World Bird Sanctuary
-- Photo by Pam Wilcox



Outreach and Education (continued)

Eagle Days on the Old Chain-of-Rocks Bridge (continued)



Michael Meredith inspires a student -- photo by Bob Virag



Evelyn Tullos coaching a young student -- photo by Bob Virag



Bob Virag, in the news -- photo by [© Scott Cousins, Alton Telegraph](#)



Debra Mauer, Bob Virag, John Vandover, Michael Meredith -- photo by Pam Wilcox



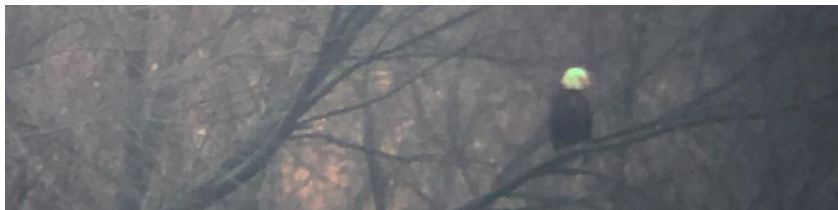
Kathleen Kapayou, Debra Mauer, Alison Robbins (Confluence), and Vaughn Meister -- photo by Pam Wilcox



Our MDC angels, Melissa Hurayt and Amy Wilkinson -- photo by Bob Virag



Missouri Master Naturalist John Vandover with his gaggle of 5th grade eagle watchers. -- photo by Bob Virag



The students' eye-view of an adult Bald eagle keeping a sharp look-out for lunch. -- Digiscope photo through a Nikon spotting scope by Bob Virag



The resident Peregrine Falcon put on a wonderful show for the students, complete with a flyover. -- Digiscope photos by Bob Virag



Winter in the Woods Festival

(formerly known as Maple Sugar Festival)

February 2, 2019 Under the leadership of our MDC advisor, Amy Wilkinson, nine Missouri Master Naturalists from the Great Rivers Chapter volunteered to help educate the crowds at the annual festival at Rockwoods Reservation: **Jan Castanis, Larry Conant, Carl Davis, Kathleen Evans Kapayou, Tom Fasl, Eileen Hall, Dennis Honkomp, Melissa Leech, Michael Meredith, Robert Ochs**

MDC's announcement of the updates to this year's festival

-- by MDC Dan Zarlenga

To celebrate everything wintertime offers, the Missouri Department of Conservation (MDC) is holding the Winter in the Woods Festival, Featuring Maple Sugar, Saturday, Feb. 2 from 10 a.m.-3 p.m. at Rockwoods Reservation in Wildwood. Known for years as the annual Maple Sugar Festival, the popular event is now expanding to embrace other aspects of the season.

In addition to maple sugaring, MDC and other local partnering organizations will help uncover many different outdoor activities winter offers at this free event. St. Louis Audubon will make sure winter birds are well-represented, and binoculars will be on loan for examining Rockwoods' feathered residents. The Missouri Nature and Environmental Photographers will have inspiration for great winter photo opportunities. The Endangered Wolf Center joins the festival to teach visitors some unique strategies canines use to survive challenging winter conditions. MDC educational displays will show how other animals cope with cold weather.

Everything that made the original Maple Sugar Festival popular is still there. Visitors will see firsthand how Native Americans and early settlers harvested sap—and boiled it down over an open fire to create sugar and syrup. Living history staff from the Historic Daniel Boone Home will show how maple sugaring was important to the Boone family. Guided hikes will teach visitors how to identify and tap sugar maple trees. Tasting sugar on snow, a toffee-like treat created when warm maple sap mixes with the cold snow, is popular with attendees of all ages. There will also be fun crafts for the kids.



MDC Amy Wilkinson and the Rockwoods and Busch Naturalists



MDC Educational Coordinator, David Bruns, explaining the maple sugaring process at the Winter in the Woods Festival

A letter from our advisor:

Dear staff and volunteers, THANK YOU for your work at the Winter in the Woods Festival last Saturday! It was an absolutely gorgeous day, and everything ran pretty smoothly. We had hoped for a bigger crowd because of the weather, but I think that those that came really enjoyed themselves. Based on the bus estimations, combined with some people driving, walking, and biking in, we probably had at least 1,200-1,300 in attendance, which is about what we had last year.

We could not put on these educational events without your assistance. Thank you for your continued support in helping people discover nature!

Sincerely,

Amy Wilkinson
*Interpretive Center Manager
Missouri Department of Conservation
Rockwoods Reservation and
August A. Busch Memorial Conservation
Area
Missouri Master Naturalist Advisor-
Great Rivers Chapter*



Outreach and Education (continued)

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. The event is curated by a panel of esteemed judges.

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

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

Website Photographs



Missouri feral horses
--- photo by Sandy Brooks ©2019



Winter sunset
--- photo by Sean Tracy ©2019



White-tailed doe
--- photo by Sean Tracy ©2019



Fall colors on Mark Twain Lake
--- photo by Barb Cerutti ©2019



Three-toed box turtle
--- photo by Carl Davis ©2019



Hawn State Park
--- photo by Rachel Becknell ©2019



Great Rivers Advanced Training Advanced Training Speaker Series – Winter 2019

October 16, 2018 Mussels of Missouri - by Stephen McMurray, MDC



Stephen McMurray, MDC, Resource Science Division, presented “The Gems of Missouri-Wonders Down Under.” Stephen gave a very detailed presentation/powerpoint on native freshwater mussels. Also known as bivalves, unionoids, naiads, or clams. NOT to be confused with the zebra mussels and Asian clams that have been introduced to our area or the very small native fingernail clams. He showed many graphics, pictures, and the anatomy of a mussel. How they eat and their importance to our waters. There were many slides showing the different kinds, their sizes, and where they can be found in Missouri. Mussels are also threatened by sedimentation, poor water quality, mining, overharvest and invasive species. Steve also generously shared two booklets for our reading pleasure “Freshwater Mussels of the Upper Mississippi River” and “A Guide to Missouri’s Freshwater Mussels. Thank you Steve!

---- Review by Diana Miller

Stephen graciously provided his presentation file to Missouri Master Naturalists for their educational/non-commercial use only: Click on the link (LOGIN REQUIRED) [20181016 Stephen McMurray MUSSELS](#)

January 15, 2019 Tree Identification - by Tom Ebeling, Forest ReLeaf



Another extraordinary presentation by Tom Ebeling, Community Forester, Forest ReLeaf. Tom, through a comprehensive slide presentation, explained leaf margins, leaf shapes, leaf venation, leaf composition, leaf orientation, leaf buds; and then on to opposite simple, opposite compound, alternate simple, and alternate compound. He also discussed tree bark and growth locations, and variations in lenticels. What to look for when in a wooded area. Keys to tree identification in the winter. Tom shared a vast amount of information concerning tree identification in the short amount of time he was given.

----- Review by Evelyn Tullos

Tom also graciously provided his presentation file to Missouri Master Naturalists for their educational/non-commercial use only: Click on the link (LOGIN REQUIRED) [20190115 Tom Ebeling-TREE ID](#)

Sadly, we just learned that, at the end of March, Tom Ebeling will be moving to Chicago in order to pursue a masters degree at DePaul University. He will be studying environmental sciences, with an emphasis in urban ecosystems. In his email announcement, he said “ I consider you all friends and role models and I cannot thank you enough for the wonderful time that we have spent together.”

February 19, 2019 Nature Photography - by Sandy Brooks, MMN-Great Rivers



An enviable presentation was given by Sandy Books regarding photography of plants and animals. Sandy had an outstanding slide demonstration plus numerous tips on photography equipment, techniques, and subject matter. She also gave us several names of apps that are helpful using cell phone cameras. If we could all take the stunning photos that Sandy takes, it would be very difficult for our Communication Committee to choose the best photos for our Web page, Gazette, and Annual Report.

----- Review by Evelyn Tullos

After the meeting, Sandy passed this additional information to the chapter members:

Free photography and drawing classes at Busch by Sandy Brooks:

March 16, 2018: 7-9 AM Photography, 9:30-12 PM Drawing

April 20, 2018: 7-9 AM Photography, 9:30-12 PM Drawing

To register (it is free) call Busch Wildlife Conservation Area at (636) 441-4554

Sandy also thought members might be interested in the [Hidden Gems calendar](#) on her website. It gives general dates when natural events occur in St Louis County Parks, links for directions to that park, links to MDC information about the event and, if appropriate, a link to the Kemper home gardening center. Sandy mentioned this because “the bluebells are awesome at Rock Hollow. Very few people know about it and it is much closer than Shaw. Also, there are wild orchids in the parks and lots of other neat things that a lot of people really do not know are there.” Sandy set up this calendar as part of her Missouri Master Naturalist volunteer service hours in support of St. Louis County.



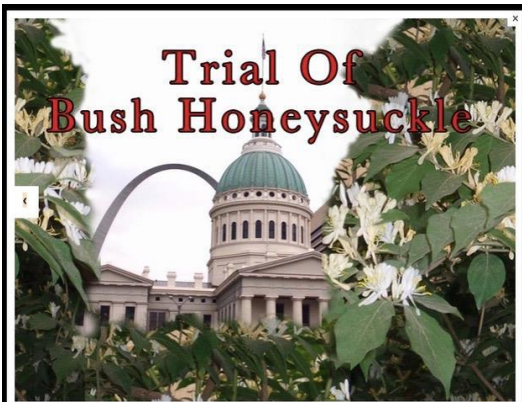
Advanced Training Speaker Series – 2019



Advanced Training Speaker Series 2019 Calendar

| | | |
|------------|--|---|
| 1/15/2019 | Tom Ebeling | Tree Identification |
| 2/19/2019 | Sandy Brooks | Nature Photography |
| 3/19/2019 | Kevin Diestch | Weather Spotter |
| 4/16/2019 | Chris Hartley | Native Bees, Bumble Bees |
| 5/21/2019 | Yvonne Hohmeyer | Dragonflies & Damselflies |
| 6/18/2019 | | PICNIC |
| 7/16/2019 | Lanny Chambers | Hummingbirds |
| 8/1/2019 | Vona Kuczynska | MO Bats |
| 9/17/2019 | Sandra Arango-Caro and Terry Woodford-Thomas | Soils |
| 10/15/2019 | Elizabeth Hasenmueller PhD SLU (tentative) | The Effects of Ground Water in Urban Creeks |
| 11/19/2019 | | ORIENTATION |
| 12/17/2019 | | HOLIDAY PARTY |

Trial of the Bush Honeysuckle



In the 2018 Spring issue of the Gazette, we posted the information on the National Park Service **TRIAL OF THE BUSH HONEYSUCKLE**. The YouTube video of the proceedings is now available for your enjoyment. Press the link in the window to the right and sit back and enjoy the lively discussion.

[YouTube Video Here](#)



For more information see their updated page online at

<http://www.woodworms.net/trial-of-bush-honeysuckle/trial-of-bush-honeysuckle-info.html>



Raptors buy One Way Ticket from Lambert St. Louis to Danville CA

by Jack Hambene



On Friday November 30, 2018 about thirty Master Naturalists, MDC staff and various other MDC volunteers witnessed the release of three raptors captured at Lambert St. Louis by the United States Department of Agriculture (USDA) at Danville Conservation Area in Montgomery County as part of the USDA wildlife mitigation efforts at St. Louis area airports. This unique educational opportunity was arranged by our very own MDC Advisor, Amy Wilkerson and super MDC volunteer, Aaron Jungbluth. Our USDA host was Steven Beza, Wildlife Specialist for the Department's Animal and Plant Health Inspection Service.

Each year, USDA captures and releases approximately 150 to 250 raptors from Lambert St. Louis and, after tagging each bird, releases them into the wild somewhere outside about a sixty-mile radius from St. Louis in hopes they do not catch a return flight. Most of the captured raptors are hawks of all types and owls drawn to the rodent population inhabiting the open fields surrounding Lambert. Mr. Beza reported the recent recidivism rate for captured Lambert raptors at about ten percent, down from about thirty percent in recent years. USDA performs this function for the FAA at all our regional airports along with removing other nuisance birds such as Starlings and Canada Geese. Capture methods include nets launched by rockets, noise cannons and steel drop traps, and vary by species. For the raptors, the steel drop trap as pictured in the attached photo, baited with a live bird placed in the lower and separated cage, is the capture method of choice. Bait birds are released unharmed but do require years of therapy.

The November 30 raptors released at Danville CA included two Red Tail Hawks and a Great Horned Owl. The raptors are transported in and released from a closed wooden box. Mr. Beltz carefully reaches a heavily gloved arm into the individual compartment of the box to retrieve these impressively sized birds. After a brief period to allow the birds to orient themselves, they are released to their new home.





Advanced Training (continued)

Raptors (continued)

All three birds appeared to be irritated at the inconvenience of the release and only agreed to stay at a nearby roost for the minimum contractual photo opportunity required under their contracts. After a few minutes, each bird flew off to begin terrorizing small game in their new home.

Close up observation of large birds of prey being released into the wild is another great example of some of the unique opportunities available to Master Naturalists. Make sure you take advantage of these when offered and thanks again to Amy Wilkerson for making this happen. After the release, some of the MDC staff stayed on to host a three-and-half mile hike through the glade and upland forest trails of Danville CA. Mark Grueber, the St. Louis MDC Forester, whom many of you will remember from our Powder Valley training days, led our hike and hosted a spirited game of “stump the volunteer” by pointing out every tree along the path. I do not think I will ever mistake the ridged branch pattern of the Blue Ash again.



USDA Naturalist Steve Beza demonstrates raptor trap





Great Rivers Holiday Party

The Boathouse at Forest Park

Thank you to everyone that helped put together this event and to all of the members that attended! What a fun way to end the year!

-- Kathleen Kapayou





Great Rivers Member Milestones

The Great Rivers chapter appreciates the hard work and consistent dedication to our mission of the following members.

Awards and Recognition

2018 closed out to be a record-breaking for the chapter!

- 18 major milestone pins earned in 2018
- 12 Initial Certification pins earned in 2018
- 71 Great Rivers Chapter members recertified in 2018
6 members were interns who also earned their Initial Certification Awards in 2018

**UPDATED 2018
YEAR-END RESULTS!**



**Gold Dragonfly
1,000 Hour Milestone Pin**

- Kathleen Evans-Kapayou
- Mark Glenshaw
- Rich Lesage
- Tessa Wasserman



**Pewter Dragonfly
500 Hour Milestone Pin**

- Al Koebbe
- Donna Scott
- Evelyn Tullos
- Mary Dueren
- Pam Fournier
- Peggy Morrison
- Rita Buckley
- Yvonne Von Der Ahe



**Bronze Dragonfly
250 Hour Milestone Pin**

- Barbara Cerutti
- Eileen Hall
- Jack Hambene
- Karen Zelle
- Linda Lesh
- Sean Tracy



**Initial Dragonfly
Certification Pin
Earned in 2018**

- Abby Wilde
- Barbara Brain *
- Bob Ochs *
- Carl Davis *
- Chris Garhart
- Deborah Frank
- Diane Goulis *
- Larry Conant *
- Mary Kreppel *
- Mike Nations
- Sue Forquer
- Tara Morton

* Also earned 2018 Recertification Award in the same year as Initial Certification



Great Rivers Member Milestones

The Great Rivers chapter appreciates the hard work and consistent dedication to our mission of the following members.

**UPDATED 2018
YEAR-END RESULTS!**

Awards and Recognition



ANNUAL RE-CERTIFICATION AWARDS for 2018

Congratulations to 71 Great Rivers Chapter members on earning their recertification as Missouri Master Naturalists again this year, as of 2018 year-end.

The 2018 annual award pin was the Mead's Milkweed.

Sharon Baldassare
 Rachel Becknell
 Renee Benage
 Barbara Brain *
 Rita Buckley
 Barbara Cerutti
 Tina Cheung
 Brenda Christ
 James Christ
 Larry Conant *
 Linda Cook
 Carl Davis *
 Carolyn DeVaney
 Mary Dueren
 Ann Earley
 Ann Eggebrecht
 Don Evans
 Kathleen Evans Kapayou
 Tom Fasl
 Pamela Fournier
 Don Frank
 Mark Glenshaw
 Diane Goulis *
 Eileen Hall
 Jack Hambene
 Brenda Hente

Jennifer Holder
 Dennis Honkomp
 Emily Horton
 Glen Horton
 William Hoss
 Amy Kilpatric
 Al Koebbe
 Jeanne Koebbe
 Mary Kreppel *
 Richard Lesage
 Linda Lesh
 Cynthia Lueder
 Debra Maurer
 Vaughn Meister
 Michael Meredith
 Claire Meyners
 Mary Mierkowski
 Diana Miller
 Peggy Morrison
 Bob Ochs *
 Kathy O'Neill
 Susan Orr
 Joan Park
 Peggy Parr
 Kari Pratt
 Ann Russell

Sherri Schmidt
 Donna Scott
 Michael Smith
 Cindy Steinbruegge
 Barbra Stephenson
 Geoff Stillwell
 Maxine Stone
 Brenda Switzer
 Christopher "Sean" Tracy
 Anene Tressler-Hauschultz
 Evelyn Tullos
 Sherri Turner
 Bob Virag
 Yvonne Von Der Ahe
 Tessa Wasserman
 Cori Westcott * *
 Pam Wilcox
 Michael Wohlstadter
 Karen Zelle

* Also earned 2018 Recertification Award in the same year as Initial Certification

* * transferred





ANNUAL RE-CERTIFICATION AWARDS for 2019

Congratulations to the first Great Rivers Chapter members to earn their annual recertification as Missouri Master Naturalists This year.

The 2019 annual award pin is the Blanding's Turtle.

- Jack Hambene
- Michael Meredith
- Evelyn Tullos
- Bob Virag
- Tessa Wasserman



Missouri Master Naturalist 2019 Certification Pin

Blanding's Turtle

Emydoidea blandingii

Description

A medium-sized turtle with an oval, moderately high-domed upper shell, that is slightly flattened along the midline, and is oblong when viewed from above. They have a long head and neck. The upper shell may be dark brown or black with many yellow spots or streaks. The lower shell is brownish yellow with a large, dark brown blotch on the outer portion of each scute. The front of the upper shell is hinged and moveable. Head and limbs are brown and yellow. The upper jaw may be covered with black pigment, while the chin and underside of neck are usually bright yellow.

Size

Upper shell length 5-7 inches.

Habitat and Life Cycle

This semiaquatic turtle may spend much of its time in shallow water along the edge of marshes, walking about on land, or basking in the sun on logs. They are active from late March to early October. It will wander far from water, particularly when nesting. Mating occurs in April and early June. It generally nests in sunny areas, with well-drained soil. A clutch of 6-15 eggs is normally laid in June. Hatching occurs in September.

Distribution in Missouri

Blanding's turtles are found in the extreme northeastern corner of the state.

Status

A Species of Conservation Concern, it is listed as Endangered in Missouri. This turtle was first discovered in Missouri in 1965. The largest range of this species is centered on the Great Lakes. It is listed as threatened or endangered in most of its range. The primary threat to Blanding's turtle is habitat fragmentation and destruction as well as nest predation.

Ecosystem Connections

Blanding turtles help control populations of the relatively small animals they eat. But many predators including raccoons, coyotes, and foxes prey on them by following the turtle's relatively strong scent trails.

Human Connections

This species is of interest in longevity research, as they show little to no common signs of aging, and are physically active and capable of reproduction into eight or nine decades of life.



Great Rivers Member Milestones

The Great Rivers chapter appreciates the hard work and consistent dedication to our mission of the following members.



Rich Lesage

Congratulations to Rich Lesage on earning his 1,000 hour milestone award



Missouri Master Naturalist
Rich Lesage at the Great Sand Dunes National Park and Preserve visitor center explaining the local ecology and geology.

It only took me eight years but I guess 1000 hours is some sort of milestone. For those who know me, they know my interest is mostly in education.

My major MMN activities have been through St. Louis Audubon, Shaw Nature Reserve and Stream evaluations. SLAS and SNR have given me opportunities to introduce nature and environmental topics to both children and adults. Only through education will we ever gain the public support this planet needs to save it from pollution and climate change.

As the current SLAS V. P. of Education I ask those who have free time to consider helping to educate the public in this urgent endeavor.

Thank You.

Rich Lesage
education@stlouisaudubon.org.
636-394-1251



Tessa Wasserman

Congratulations to Tessa Wasserman on earning her 1,000 hour milestone award



Missouri Master Naturalist
Tessa Wasserman at Owl's Bend trail on Ozark Trail -- photo by Peggy Morrison

When becoming an intern, it seemed daunting to acquire 40 hours of volunteer time and 8 advanced training hours. But then so many diverse opportunities opened up and I became eager to rack up my hours for certification and set goals for the big "100". And then a funny thing happened. Milestone hour achievements snuck up on me as I was out having fun and joining more and more events. I became a part of an ever increasing network of like-minded people. That lead to more interesting learning opportunities through lectures and hands on training. It lead to memberships with other environmental groups. It lead to collaborating and leading new volunteer projects. It lead to becoming a Master Pollinator Steward and soon to be Master Gardener. It even lead to getting paid to work in the dirt and create beautiful gardens!

The journey to 1,000 hours may have only taken 3 years, but in those three years an unforeseen path emerged leading to wonderful friendships, the satisfaction of giving back, and hopefully lasting positive affects on our world around us.

I'm so grateful for the chance meeting of a Master Naturalist during a native garden tour at my home who urged me to sign up for the program in 2015 even though I didn't even know what that meant at the time.





Great Rivers Member Milestones

The Great Rivers chapter appreciates the hard work and consistent dedication to our mission of the following members.



Mark H.X. Glenshaw

Congratulations to Mark H.X. Glenshaw on earning his 1,000 hour milestone award



Missouri Master Naturalist and St. Louis Owl Man, Mark H.X. Glenshaw on one of his many famous owl prowls in forest Park.

-- Photo by Edward Crim

I first heard of the Missouri Master Naturalist in the early 2000s when I began to study the wildlife in Forest Park; the crown jewel and backyard of St. Louis. An embarrassing realization about how little I knew of Forest Park, despite living near it since 1995, combined with a lifelong interest in and study of wildlife is what started this pursuit to learn about the critters in the park. A happy early discovery on the educational resources side of the equation was the number of publications available from MDC and Forest Park Forever at the park's Visitor and Education Center. Among the publications was the "Missouri Conservationist" which I happily brought home and soon subscribed to this fantastic magazine as it is free to all Missouri households. The magazine regularly mentioned the MMN program and I did some further research on it. I was immediately impressed by the depth and breadth of the program and how the program provided such knowledge and resources to its members and how the members gave back in turn and in such a wide variety of ways. I hoped that one day I would be able to participate in the program.

My work in Forest Park went to a whole other level when I happened upon a pair of Great Horned Owls one evening in late August-early September 2005. This amazing first sighting included the owls hooting together in a duet, flying several times and climaxed with one of the owls chasing an utterly terrified Great Blue Heron. This sighting took my love of Forest Park and its wildlife and poured gasoline on that fire. I had to learn everything about owls especially Great Horned Owls and get to see more of these owls in Forest Park. With a great deal of research, field work and collaboration I began to see that same pair of Great Horned Owls with more consistency starting on December 29, 2005. This is the date I use for what I call my "owliversary".

In addition to my constant field work and research with and about the owls, a side of my work began to grow into the field of outreach and education by leading tours in Forest Park called owl prowls and giving the occasional talk on the owls. I cannot recall how the initial contact was made but in April 2008 I was excited and nervous to be leading an owl prowl for the Great Rivers chapter of the Missouri Master Naturalist program. My reading about the program and its amazing members had continued and my respect for both was substantial. My nervousness was soon calmed as the members and their MDC rep could not have been nicer and were so keen to learn. We had a great time looking for and observing Charles and Sarah and the three owlets they had that year: Bart, Lisa and Maggie. A highlight was showing everyone a pellet cast by the owls I had found the night before our prowl which contained the first partially intact skull I had ever found in the owls' pellets. The MDC rep took it with her so she could examine it closer and ID it. She reported back that it was the skull of Wood Duck-further testimony to the predatory prowess of Great Horned Owls. (continued on the next page)



Member Milestones (continued)

Mark H.X. Glenshaw – (continued)

In the summer of 2013, I joined the cadre of MMN trainees along with my good friend, Brenda Hente, who I met via our mutual love for and fascination with Great Horned Owls. It was an honor and a growth experience to learn so much more about Missouri's diverse habitats, flora and fauna from experts and to visit these places and experience them firsthand. Two of my favorite field experiences were the visit to Onondaga Cave and the float trip; my first cave visit and my first float trip! After training was completed it was a no brainer, as a resident of the City of St. Louis, to join the illustrious Great Rivers Chapter. Myself and all the other new members were warmly welcomed into the chapter and we felt at home right away. The veteran members were and continue to be role models of nature knowledge and dedicated volunteerism.

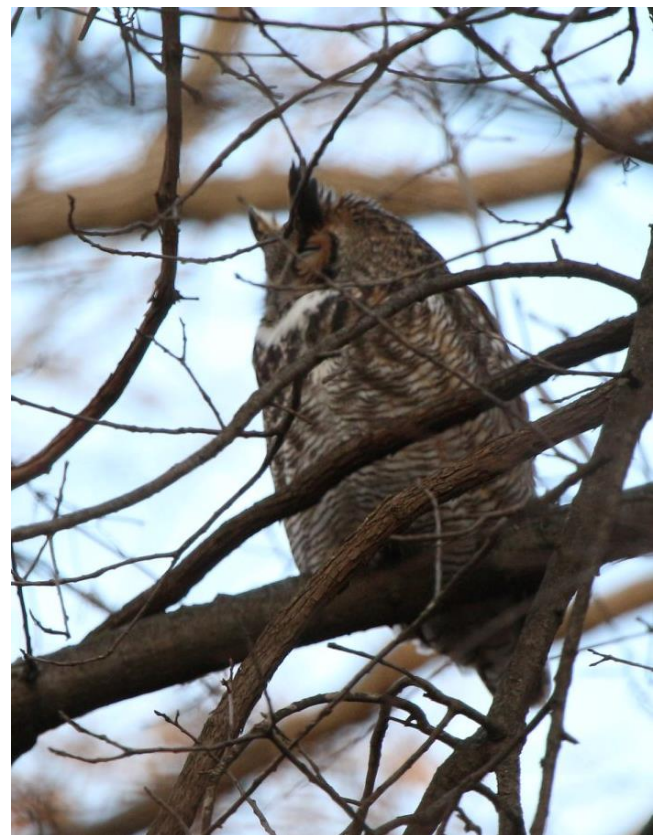
Since my owl prowl in 2008 with Great Rivers the outreach portion of my owl work has grown significantly. Each year I lead dozens of owls prowls in Forest Park and give scores of talks across Missouri and Illinois. I lead owl prowls on a volunteer basis and as a result of the large number of prowls I lead, I was able to complete my initial certification in time for the January 2014 chapter meeting. Another early honor was to present the first of two Advanced Training session for our chapter. In the ensuing years it has been a delight and honor to have presented several AT sessions for our other local chapters; Miramigua and Confluence and even one for the Meramec Hills chapter in Rolla. In addition to owl prowls my volunteer hours have been increased by becoming the co-leader in October 2013 of the Forest Park Beginner Birder Walk, a joint Forest Park Forever and St. Louis Audubon Society venture. All of these have combined nicely allowing me to hit the 1000 hours of volunteering milestone at a good pace. Especially for someone who works full-time, 12 months a years-if I may say so myself. :)

As my work as an MMN is primarily focused on the owls I study and is quite time-intensive, I feel uneasy at times, that I am unable to attend chapter meetings more regularly and to participate in s regular invasive removals, tree planting, seed sorting and the like. That said, the diversity of work that one can do is one of the many strengths of the MMN program. When possible, I try to connect in conversation my owl work with the work of others, such as telling Sherri Schmidt about seeing the owls mate in Hidden Creek Prairie or letting Maxine Stone know

I found some puffball fungi in the owls' woods. To be associated with such experts and the agencies that make this program not only possible but a thriving and effective one is a very real honor and pleasure. In the opening monologue of his multiple Oscar-winning film from 1977, "Annie Hall", Woody Allen's character paraphrases a Groucho Marx quip (with possible origins in Freud) by saying,

"I would never belong to any club that would have someone like me as a member."

The Missouri Master Naturalist program and the Great Rivers chapter are happy exceptions to this truism.



Yesterday, December 29, 2018, was my owl-iversary making it thirteen years that I have been studying Charles and his amazing mates, Sarah, Olivia and now Samantha in Forest Park. Here he is sleeping yesterday in Sarah's Autumnal Perch. Beyond lucky and grateful to know him and share him with others! Thank you for letting me share about these owls on this page!



Learn more about Mark and his work with St. Louis Owls in his many posts on the [Missouri Master Naturalist - Great Rivers Chapter \(Members Only\)](#) Facebook page.





Member Milestones (continued)



Jack Hambene

Congratulations to Jack Hambene on earning his 250 hour milestone award

Missouri Master Naturalists 101

... or How I Maximized my Great Rivers Membership

You have completed your formal Missouri Master Naturalist training, joined the Great Rivers Chapter and are excited to apply all your new knowledge to help save the planet. Now what? As you probably suspect, most of that depends on you.

As a 2017 Missouri Master Naturalist Intern, I am happy to pass along what I have learned about the organization before I forget the experience and become an amnesia suffering seasoned veteran. Initially, joining Missouri Master Naturalist it is a little overwhelming as you get to know your fellow members and the eighty-plus sponsored organizations. Luckily, you will find both the Great Rivers Chapter and our client organizations full of very welcoming



Jack Hambene planting trees for Forest Park Forever

and dedicated individuals open to sharing their love of Missouri's natural world. Many of your fellow naturalists are experts in their specializations. Get to know them. Mark Clenshaw and Brenda Hente know more about local owls and raptors than almost anyone in the State. Maxine Stone actually wrote the book on Missouri mushrooms and Bob Virag helps train new MO Stream Team members, to name just a few. A good way to get to know folks is to volunteer to share some of the organization committee work (all of which counts toward your 40 volunteer hours needed for annual certification) or help organize events on an ad hoc basis.

For volunteer work outside the Great Rivers Chapter organization, a good place to start is our 2018 Chapter annual report, which details where our members spend their time. It's a pretty safe bet that if Chapter naturalists are spending a lot of time in one place, the sponsoring organization must provide a great opportunity to volunteer in a meaningful way. Otherwise no one would go back. The annual volunteer fair can be a one stop shop for you to talk to organizations without making a commitment. If you missed the September fair held at last year's Tri-Chapter event, you will find every organization of any size has a volunteer coordinator and our members can put you in touch with the coordinator at each of the sponsored organizations. Chapter members are happy to share their experience with the personality of each organization. They are your best resource.

Don't ignore smaller sponsor organizations, however. Their work may be very meaningful to you because they are close to

your home or you are drawn to their charisma, their mission, or the personalities just fit. This is the part where you need to discern your own motivation. If you are not passionate about the work, or it's a bad personal fit, your interest will wane quickly.

You will also find sponsor organizations work hard to keep you engaged. Most have holiday or volunteer appreciation events or give out swag like free memberships, tickets to shows or member only invites to cultural events. Most will feed you during a typical three to four-hour shift.

Our monthly Chapter meetings are another great resource and I encourage you to take full advantage of the benefits. You will get to know your fellow members, learn something about a new topic and become aware of emerging volunteer opportunities, all in the same place. You can also fulfill 100% your annual advance training requirement of eight hours just by showing up at less than 70% of the meetings. Bring something sweet to share and people will remember your name quickly. If you loved being a scout, you will revel in all the various achievement pins you earn along the way.

Becoming a Missouri Master Naturalist was a long-time personal goal. I considered becoming a Master Gardener, but I find being a Missouri Master Naturalist engages me on so many more levels of interest, not just plants but birds and bees, fish and reptiles, streams and soil and on and on. Volunteering provides structure to my post-retirement week and I can get all my aggressions out by killing invasives like Japanese honeysuckle. For now, I look for field work opportunities in ecological restoration. Someday I may slow down and switch to education gigs but for now I am still learning so much and I like the physical workout.

To get the most from your membership in Missouri Master Naturalist, you need to first know yourself and what will keep you engaged. All work with little learning is no fun and will get old. Life is also way too short to put up with difficult people, especially if they are not paying you. Congratulations on joining a nurturing and caring community, one enthusiastic about what they do and very willing to teach you all they know. Have fun and don't sweat the small stuff because, in the end, it's all mostly small stuff.




Member Spotlight *Sharing members accomplishments*



Welcome, Great Rivers Interns, Class of 2018

-- By Bob Ochs

First, welcome to the Great Rivers Chapter of the Missouri Master Naturalists. You probably chose this chapter because of the location of the meetings is close to where you live. Most of us do. I hope you stay and get deeply involved because of all the great people we have helping the program thrive.

You are an essential part of our program the day you join. I like to reference the model that our St. Louis Cardinals use with rookie players. They consider every player an asset the day they step into the clubhouse. There is no hazing. No "let's see what you can do kid." You are already considered a valued contributor to our team.

As a member of the class of 2017, I can tell you that my fellow classmates have already had a big impact on the accomplishments of the chapter. Some of my really good friends from class: Tom Fasl, Carl Davis, Jack Hambene, Brenda Switzer, Mary Dueren, Karen Zelle, Larry Conant, Diane Goulis and others have already made significant contributions to our twelve year old chapter.

The Class of 2018 can have an immediate impact for both our Chapter and the volunteer agencies for whom we work. You just need to get started. To assist you in this effort please read the above first year reflection from one of my fellow classmates, Jack Hambene. You will find that all Great Rivers board members, as well as our veteran chapter members, will readily assist you like a longtime friend. We look forward to your longtime friendship.



give yourself time

Member Spotlight *Sharing members accomplishments*



Geoff Stillwell

My Experiences at Great Rivers as a Journey ... Or how everyone has helped me. --- By Geoff Stillwell

I would like to thank everyone in Great Rivers for accepting me and helping me over the last year to the present time. As many know I have been going through the certification process with MEEA (Missouri Environmental Education Association) as an environmental educator. This certification is not recognized by the state, though it is recognized by NAAEE (North American Association for Environmental Education) and sought by teachers involved in environmental education. You can find out more about MEEA certification at <http://www.meea.org/certification.html>

This does not mean I am an environmental educator. It means that I thought this was a rational way to learn to become one after coming from a strict science and engineering background. Last year I finished level 2 and am on track to finish level 3 this year. The most difficult work I have done in the last couple of years was the "Environmental Cause Analysis" as part of certification. In this project I analyzed knowledge of stream monitors about their data, a systems analysis of the shortfalls of the current clean water system to manage water resources into the future, and if biases exist in how people determine monitoring sites that might lead to which water resources are not adequately represented in the data stream. These conclusions were very beneficial in helping shape what I wanted to focus on as a citizen scientist.

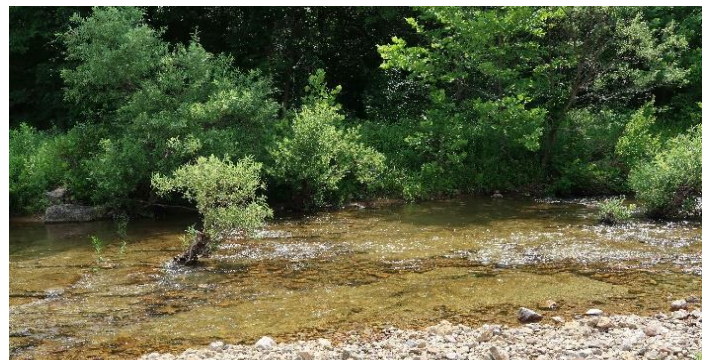
I did a poster session at the 2018 MEEA conference on Ocean Acidification. Here is a bad photo of the conference group;



2018 MEEA Conference ... Geoff Stilwell on the left

From these experiences I wanted to be working on wilderness streams with an eye towards analyzing the ecological degradation of urban streams and providing data

on wildland streams. I was working on a stream team investigation into intermittent and perennial streams when I transferred into great Great Rivers. Due to personnel changes in DNR, I found a new project with the USGS (United States Geological Survey) using stream team techniques. There are different working groups within the National Water Quality Council <https://acwi.gov/monitoring/>. One of the working groups is the National Network of Reference Watersheds <https://my.usgs.gov/nnrw/main/home>. A reference watershed is one that is thought to have minimum corruption from development or use. A core reference watershed is the highest designation among reference watersheds and are quite rare. At this moment there is only one in Missouri; The East Fork of the Black River where it flows into Johnson Shut Ins.



East Fork of Black River

I know there are actually more in Missouri and I am changing my monitoring portfolio to match Missouri Natural and Wilderness Areas. I am also recommending to USGS this list of watershed areas for designation as core reference watersheds. I have put forward the following portfolio to USGS and am currently working this issue;

I would like to add Lower Rock Creek as well as one or two areas in the Sunland this year. In case you do not know about the Sunlands, it is a very large conservation area above the Current River. There are actually karst features here that appear more as valleys than sinkholes here with mixed surface/groundwater flow. It is a lost world botanically and geologically. Visit <https://nature.mdc.mo.gov/discover-nature/places/sunklands>



Member Spotlight (continued)

GEOFF STILLWELL – (continued)

Late last year I asked the chapter and Stream Teams United for permission to be a liaison for them on the MEEA Environmental Literacy Board. All parties granted that request. Environmental Literacy is a term defined by William Stamp to describe what people need to know about natural systems to make their own decisions about sustainability in their place. It is meant to be a liberating step where we take our values and needs to make communal decisions about who we are, how we live, and what heritage we pass on to the next generation and it is the goal of environmental education. We monitor streams, help Monarchs, staff educational events, and ..., because Citizen Scientists are working to promote environmental literacy for the freedom and future of humanity. Based on The Mission Statement, The Environmental Literacy Board is where everyone

(agencies and orgs) can learn what is going on in and help guide environmental education in Missouri.

Representatives of member organizations have that opportunity and I would be happy to hear what chapter members think about this subject. So at the end of my first year, I have many new ways to help everyone that would not have come about without chapter friends and chapter support. I don't seem to be on a well-planned linear path, but I seem to be living in a world of opportunity, friends, and worthwhile things to do.

Thank You!

-- Geoff Stillwell



Paddy Creek (Paddy Creek Wilderness Area)



Upper Castor River (Amidon Natural Area)



Little Taum Sauk and Taum Sauk Creek



Hickory Creek



Naturalist's Journal

Mandarin Duck by Sandy Brooks

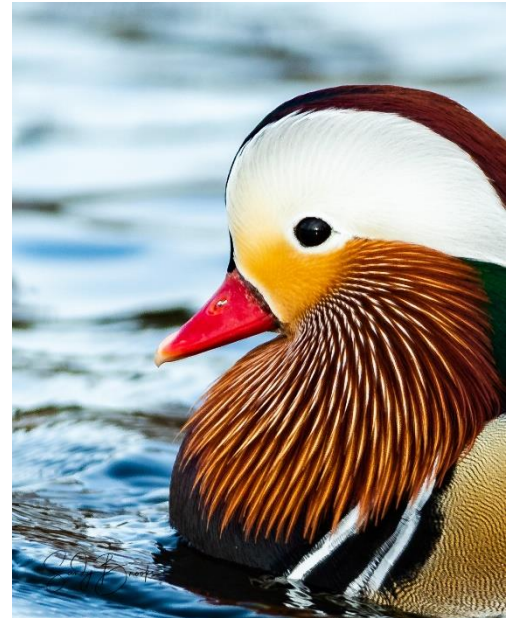
Perhaps you have heard about our new resident duck? No? Ah, he is a handsome fellow. Mandarin Ducks are some of the most colorful of the ducks. Related to our colorful wood duck, they are indigenous to East Asia. Though listed as species of least concern by IUCN, their numbers there have been decreasing in their natural range due to the usual cause: loss of habitat. Hunting is not an issue as the duck is known for its unpleasant taste.

Mandarin ducks have been imported throughout the world as specimens or pets. Followers of Feng Shui recommend a pair of ducks for their symbolism of love and fidelity. Several escaped pets, over time, created a wild population in California. A wild, non-native population.

Aix galericulata means wigged or capped diving bird. The *Aix* in the mandarin duck's scientific name is Greek for an unknown diving bird mentioned by Aristotle. The *galericulata* is something like "wig" or "cap" and references the bright breeding plumage on the male's head.

Though native to China, Japan and North Korea, they have been imported all over the world. Escaped populations are noted in California, Florida and Southern England among other places (see iNaturalist app or eBird for locations). While the populations in California and Southern England appear to be self-sustaining, other non-breeding populations are maintained by addition of individuals.

As far as is known, the Mandarin ducks do not breed across species, even with their close cousin the wood duck. While there are anecdotal reports of ducks that appear to be a cross, there is no scientific support for it. As with their American cousin, both ducks have claws of sorts. They are hole nesting birds which breed in tree cavities. The claws allow the bird to literally, climb the tree to create the nest. Once born, the baby birds jump out of the nest falling to the ground to make their way to the water.



Mandarin Duck – photo by Sandy Brooks



Mandarin Duck, St. Ferdinand Park, Florissant, Missouri November 24, 2018 -- photo by Sandy Brooks



Mandarin Duck in St. Louis (continued)



1Mandarin Duck in
– photo by Sandy Brooks

Okay, so is Ferdinand (the Mandarin Duck in St Ferdinand Park in Florissant), wild or an escapee? Audubon suggests considering these aspects: geographic logic, migratory habits, good timing, status in the wild, status in captivity, signs of captivity. In the case of Ferdinand,

1. this bird is not native anywhere near Florissant,
2. does not have a migratory route anywhere near Florissant,
3. timing of its appearance does not “fit” with migration,
4. there is a decreasing population of native Mandarins so it is unlikely they have suddenly expanded their territory to Florissant, and,
5. Mandarin ducks are common in captivity.
6. While it would have been easy to say Ferdinand was an escaped captive duck if he had a band on his leg (as some collectors do), it is harder to tell if his hind toe is clipped (as some collectors do) or if he was never marked in the first place.

According to Audubon Society at Riverlands, Ferdinand is thought to be an escapee.

So from a conservation standpoint, should we be concerned?

Much is known about the English population:

The first mandarins were imported to Britain in the mid-18th century, but it wasn't until the 1930s that escapes from wildfowl collections started breeding here. The first birds to escape did so from Alfred Ezra's collection at Foxwarren Park, near Cobham in Surrey, and this area remains one of the strongholds of mandarins in England. The first birds to escape did so from Alfred Ezra's collection at Foxwarren Park, near Cobham in Surrey, and this area remains one of the strongholds of mandarins in England. China historically exported hundreds of thousands of mandarins, but the export trade was banned in 1975. Despite the closeness of the relationship with the wood duck, no hybrids have ever been recorded. This is because the mandarin has a chromosome aberrance that makes it impossible for it to produce hybrids with other ducks. The mandarin is one of the few introduced species in Britain that has not created any environmental problems, mainly because it uses a habitat not favoured by our native wildfowl.

In an exhaustive study in Netherlands, researchers concluded:

Although some competitive behaviour has been observed, there is no evidence of a negative impact as a consequence of competition for nesting cavities or food in the wild between Mandarin Duck and other native species. The Mandarin Duck is threatened in its native range and the European population may have a conservation value in a global context. Hybridisation with native species rarely occurs and is not likely to cause any negative impact. The probability of ecological impact is low. So far no evidence was found of any negative impact on native species. Also no evidence was found of economic or social impact.

Since so far, Ferdinand is a lone duck, there appears to be little risk to the ecology. Now, risk to the area around the lake from the increased human population feeding bread to the ducks, trampling the grassy areas etc is a topic for a different article.

<https://www.audubon.org/news/is-exotic-waterfowl-you-just-found-wild-or-escapee>

<https://www.livingwithbirds.com/tweetapedia/21-facts-on-mandarin-duck>

<file:///C:/Users/Lenovo/Downloads/RA+Mandarijneend.pdf>



Mandarin Duck, St. Ferdinand Park, Florissant, MO
November 24, 2018 – photo by Sandy Brooks

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Naturalist's Journal

I See i-Tree – by Jack Hambene



On the evening of February 12, 2019, MOBot, biodiverseCity, the Academy of Science and the U. S. Green Building Council co-hosted a training event titled, “Calculating Tree Benefits: Easy as One, Two, Tree”. The presenters were **Meridith Perkins**, Senior Urban Forestry Consultant for the Davey Resource Group, and **Tom Ebeling** of Forest ReLeaf. Members will remember Tom’s presentation on trees from our January meeting. The purpose of the presentation was to introduce the **I-Tree** on-line tool for calculating tree benefits ranging from a single tree to large public tree canopies. Naturalists may find this suite of tools useful for home use or to assist volunteer organizations in quantifying the benefits of their tree cover or in planning where to place trees in a new installation.

I-Tree can be accessed at www.itreetools.org. The tool was developed by the U.S Forest Service, the Arbor Day Foundation and private tree service companies. It is user friendly and I would suggest you first access the **My Tree** and **i-Tree Design** programs as an introduction before exploring the more institutional tools available. The base information needed is an address plus common name tree species and trunk diameter (not circumference) of each tree for which you want to calculate benefits, with measurements taken at four-and-one-half feet from the ground. For the members of the class of 2017, this is a good excuse to use the Log Scale Stick you may have received during our MDC training but a measuring tape works just fine.

Tree benefits are calculated in terms of stormwater interception, energy savings based on local utility rates (both electric and heat), air quality removal or absorption of eight different pollution sources and the amount of carbon dioxide both sequestered and avoided. You can calculate benefits for the current year or extrapolate benefits decades into the future. The program prints out a nice tree/yard benefit summary similar to the FDA Nutrition Facts labels for packaged food products. A printed copy of this label attached to the tree would make a great public education tool.

The screenshot shows the i-Tree Canopy v6.1 web interface. On the left is a Google Maps view of Lafayette Square in St. Louis, with a red polygon indicating the study area. On the right, the 'Percent Cover (±SE)' is displayed as 31.3 ±4.66. Below this is a table with 10 rows of tree data:

| ID | Cover Class | Latitude | Longitude |
|----|-------------|----------|-----------|
| 1 | Non-Tree | 38.61389 | -90.21571 |
| 2 | Non-Tree | 38.61872 | -90.21040 |
| 3 | Non-Tree | 38.61322 | -90.21207 |
| 4 | Tree | 38.61948 | -90.21502 |
| 5 | Tree | 38.61706 | -90.21794 |
| 6 | Non-Tree | 38.61937 | -90.21036 |
| 7 | Non-Tree | 38.61448 | -90.21097 |
| 8 | Non-Tree | 38.62016 | -90.21111 |
| 9 | Non-Tree | 38.61856 | -90.21333 |
| 10 | Tree | 38.61443 | -90.21610 |

Below the table are options to 'Save Your Data' and a note: 'Remember, the more points you survey, the lower your Standard Error, and the more precise your sampling will be. More points surveyed provide for a better estimation of Land Cover across your study area.'

The only improvements I would suggest are adding additional tree species to the dropdown list (i.e. Black Gum was not a choice), make it easier to delete trees without starting over under **i-Tree Design** and include calculations for a section on natural benefits for different species of native trees. Tree selection suggestions for natives must be done manually.

While the original intent of this suite of programs may have been targeted to landscape designers it has many uses Master Naturalists will appreciate in planning for tree plantings or as an educational tool. All you will need to add is your knowledge of beneficial native tree species.

[i-Tree database example of Geolocated trees using Google aerial image maps](#)

Tom Ebeling graciously provided the presentation file to Missouri Master Naturalists for their educational/non-commercial use only: Click on the file link in the Chapter/Advanced Training-Speaker Presentations page (LOGIN REQUIRED)
[20190219 Tom Ebeling-CALCULATING TREE BENEFITS i-Tree](#)



Naturalist's Journal

Spring is in the Air

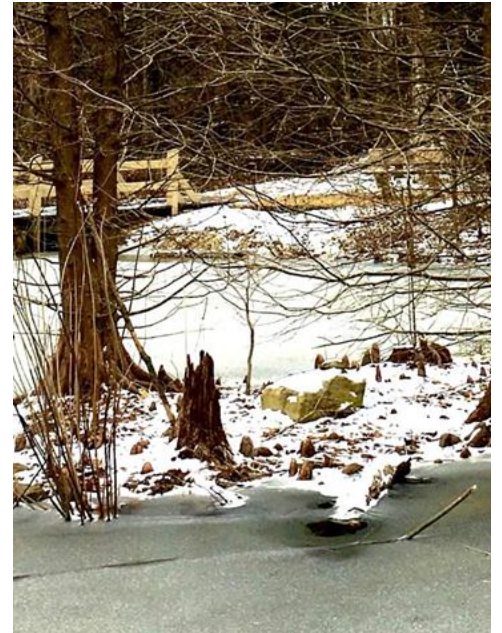
by Barb Cerruti



Happy Valentines Day in Powder Valley Nature Center
-- photo by Barb Cerutti

Myriad treasures
Discovered on winter walks
Warming my chilled soul

life is good
~\(^ツ)^/~



Claire Gempp Davidson Memorial Conservation Area
-- photo by Barb Cerutti



Witch Hazel - Harbinger of spring
-- photo by Barb Cerutti



Logo Wear Order Form 2019



50/50 fleece
(kelly green)
men or women
\$33



microfleece no hood
(aqua green)
women
\$35



bright green tee
women
\$15



khaki/hunter ball cap
\$17



kiwi short sleeve tee
\$14.00



military green hoodie
\$23.00



tan long sleeve tee
\$16.00



expandable drawstring
(blue/red/or black)
\$25



We can also bring in our own items to be embroidered for \$8.50 each item.

Member's Name:

Phone Number:

| Name of item | size (s/m/l/xl) | quantity | total |
|--------------|--------------------|----------|-------|
| | | | |
| | | | |
| | | | |
| | | | |

SAVE, then EMAIL and ATTACH COMPLETED FORM TO:

Kari S. Pratt

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Nature always wears the colors of the spirit.

– Ralph Waldo Emerson

Fall Colors at Mastadon State Park
Barb Cerutti ©2019