



## Midwest PARC Quarterly Newsletter - April 2023

Compiled by members of the **Outreach and Communications Team (OCT)**  
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### Amphibian Week 2023

PARC kicked off the first ever **#AmphibianWeek** in 2020 as a way to raise awareness about amphibians and to celebrate all things amphibian. PARC is excited to celebrate this year during the week of **May 7-13th!** Currently, PARC has a [social media toolkit](#) with ideas for daily posts and [sample images](#) for free use. PARC also plans to kick off a K-12 art contest! We are looking for [Amphibian Biologists to share brief videos](#).



Hop on over to [check out all that we have to offer](#), and consider hosting your own Amphibian-centric events to celebrate!

**Image description:** Amphibian Week logo featuring a green salamander with black spots sitting on top the word 'Amphibian' with the text 'week' below it and a green frog with black spots next to the text. The words are surrounded by a black box.

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## Herp Highlight: Boreal Chorus Frog

The Boreal Chorus Frog (*Pseudacris maculata*) is a widespread amphibian species throughout much of the Midwest. Although this species is small in stature, reaching up to only 30mm in length, they are capable of producing calls that can be heard from up to 400m away. They are early spring breeders and are often some of the first to begin calling during the mating season. Breeding sites may include wetlands, lakes, ponds, and even roadside ditches. Adult individuals are often brown, beige, or



greenish in coloration with darker stripes or spots across the body. Tadpoles of this species are dark brown or black with a golden belly, golden eyes, and a bicolored tail. Due to their widespread distribution, this species is subjected to a variety of threats and environmental stressors including environmental contaminants (pesticides and fertilizers), disease (*Batrachochytrium dendrobatitis* (Bd, chytrid) and ranavirus), and habitat loss.

One fascinating characteristic of this species is that they utilize freeze tolerance to survive the harsh, cold winters that are common to middle and northern North America. Freeze tolerant species produce cryoprotectant molecules such as urea or glucose. These molecules coat vital internal organs and act as “antifreeze” to prevent these organs from freezing. While the internal organs are protected, up to 65% of remaining bodily fluids freeze solid. When temperatures warm in the springtime, individuals thaw, and will begin foraging to restore their energy for the upcoming breeding season. Freeze tolerance is not unique to this species, other midwestern amphibians which utilize this strategy include the Wood Frog (*Lithobates sylvatica*), Cope’s Gray Treefrog (*Hyla chrysoscelis*), Spring Peeper (*Pseudacris crucifer*) and Gray Treefrog (*Hyla versicolor*).



**\*\*Disclaimer: all individuals pictured in this section were handled with the appropriate permits and with IACUC approval by trained researchers. No individuals were harmed during these projects.\*\***

**Image description: Top left:** Boreal Chorus Frog (*Pseudacris maculata*) tadpole facing the left on the palm of a hand. **Bottom right:** Frozen Boreal Chorus Frog (*Pseudacris maculata*) adult with an ice crystal on its back. The frog is being held by a gloved hand. Photos by Danielle Galvin.

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## Salamander Saturday

Salamander Saturday is **6 May 2023!**

Join the “sala-bration”! Help the Foundation for the Conservation of Salamanders (FCSal) raise awareness about salamanders, their habitats, and their role in the ecosystem by hosting an event on this day. We encourage you to share your plans with FCSal by emailing [sallysat@fcsal.org](mailto:sallysat@fcsal.org) and tagging FCSal on [Instagram](#), on [Facebook](#), and by using hashtag #SalamanderSaturday. Make sure to send us the event tile/program name, organization hosting, location/time, and website (if applicable). To learn more about Salamander Saturday visit their [website!](#)

Salamander Saturday events should be catered to your organization's strengths and schedules; it can be as simple as hosting an education table, or as involved as a fundraising event.

**Image description:** Promotional image for Salamander Saturday encouraging participation in the celebration of salamanders and to visit their website for more information with background image of a Spotted Salamander (*Ambystoma maculatum*).



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## Science Friday Citizen Science Month - Frog Month

Frog calling all educators! Citizen Science hops to center stage for National Frog Month! Join Science Friday and SciStarter on **April 6th, 2023 8:00 - 9:00 PM ET** to celebrate frogs and other amphibians! This informative and fun talk will focus on how to incorporate research projects like FrogWatch and HerpMapper into your classroom, use them with your students, and align with curriculum standards! The class is free to join!

Learn more or register [here](#). Also check out the [SciFri website!](#)



**Image description:** Gray treefrog sitting alert on a lily pad among other aquatic vegetation. Photo by Nate Engbrecht.

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## Meet an Amphibian Biologist

National PARC would like to promote you and your work for Amphibian week 2023 as a part of their [Meet and Amphibian Biologist video series](#). The video submissions should be simple (30 sec - 2 minute) clips introducing yourself, your research/work, and sharing a bit about life as a herpetologist!

Find more information the [guidance form](#) offers submission instructions and optional prompts.

Submissions are due **April 21, 2023**.

[Meet an Amphibian Biologist](#)

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## 2023 Student Travel Grants for MWPARC

Are you studying herps in the field? Apply for a MWPARC student travel grant! These annual grants help offset transportation costs for enrolled or recently graduated high school, undergraduate, and graduate students who are conducting herp-focused field work.

To view the application and to read about the work conducted by previous recipients, [visit the website!](#)

Application deadline: **April 15th, 2023**.

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## Stories From the Field

**Alyssa Roberts:** More than once I have told myself “I definitely don’t want to do any more school”. To my own surprise, I am now pursuing a Master’s degree in biology at St. Cloud State University in Minnesota. I am studying the four-toed salamander (*Hemidactylium scutatum*) as part of my Master’s thesis and have had the pleasure of working with them over the past few years.

It started when I was working as a seasonal technician for the US Forest Service in the Chippewa National Forest in Minnesota. Past survey work had been done in the 1990’s when technicians first found four-toed salamanders in the state, which was a range expansion westward. So, I was encouraged to reach out to our state herpetologist to find out more. We were directed to perform nest search surveys, which meant we had to learn how to tease apart fragile mosses to seek out egg masses and their devoted nest-guarding mothers. We now had some searching to do. “Eggs!”, my co-worker cried out. “No way! We’ve been only searching for like 2 minutes.”, I reacted. He was known to pull my leg once in a while. But there they were, glimmering in the spring sunshine, a dozen or more little pearls of life and their slender mother slinking into the bright green moss to get away. I imagine we all remember our first encounters as field biologists. To me, not much is more rewarding than finding that special something you have been searching for in the woods.



**Image description:** Alyssa in a hat and blue rain jacket smiling and looking over a small brown salamander on her hand.  
Photo courtesy of Alyssa Roberts.

**Stories From the Field Submission:** Do you have a story to share? Submit your story [here!](#)

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## Meetings and Conferences

**Mark your calendars!**

### DoD PARC Annual Meeting

Join us on **May 29 - June 2nd**, 2023 at **Fort Hood, TX**.

### [2023 Joint Meeting of Ichthyologists and Herpetologists](#)

This year's Joint Meeting will be held **July 12 -16 in Norfolk, VA**. [Visit the website](#) for more information regarding registration and workshops.

### [21st Annual Symposium on the Conservation and Biology of Tortoises and Freshwater Turtles](#)

**July 31 - Aug. 3**, 2023 in **Charleston, SC** hosted by the Turtle Survival Alliance and the IUCN/SSC Tortoise and Freshwater Turtle Specialist Group.

### MWPARC Annual Meeting

Save the date for the upcoming meeting **Sept. 26 - 28**, 2023 at Pere Marquette State Park in **Grafton, IL**.

### [2023 North American Box Turtle Conservation Workshop](#)

If you are interested in participating in this workshop, save the date for **Sept. 29 - Oct 1**, 2023 at the Elachee Nature Science Center in **Gainesville, GA**.

### [The Wildlife Society Annual Conference](#)

The nationwide meeting of The Wildlife Society will be held **Nov. 5 - 9**, 2023 at the Galt House Hotel in **Louisville, Kentucky**.

### PARC Regional and State Save-the-Dates:

#### [Northwest PARC \(NWPARC\) 2023 Joint Annual Meeting](#)

**April 24 - 29**, 2023 in **Grand Mound, WA** co-hosted by Society for Northwestern Vertebrate Biology (SNVB) and the Washington Chapter of The Wildlife Society.

#### [Northeast PARC \(NEPARC\) 2023 Annual Meeting](#)

**July 23 -25**, 2023 at Wesleyan University in **Middletown, CT**.

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## Hot Off the Presses! - Recent Publications Scientific Journal Articles Featuring Herps in the Midwest

***Climbing and Clinging of Urban Lizards are Differentially Affected by Morphology, Temperature, and Substrate:*** A research project conducted by a team of undergraduate students from Ohio Wesleyan University in the summer 2021 was recently published in the journal "Integrative Organismal Biology". In this study, they describe how both body dimensions and claw shape affect the ability of wall lizards to climb and cling on different substrates. While native to much of Europe, this



species has successfully established populations throughout the Cincinnati area.

Vaughn, P. L., Colwell, C., Livingston, E. H., McQueen, W., Pettit, C., Spears, S., Tuhela, L., Gangloff, E. J. (2023). Climbing and Clinging of Urban Lizards are Differentially Affected by Morphology, Temperature, and Substrate. *Integrative Organismal Biology*, 5(1), obad006. <https://doi.org/10.1093/iob/obad006>.

### **PVA-based assessment of resiliency, redundancy, and representation in Blanding's Turtles:**

Population viability analysis was used to evaluate resiliency using the conservation target that, in the absence of catastrophes, projected population extinction risk be  $\leq 5\%$  over 100 years. By this criterion, populations of  $\geq 50$  adults, occupying  $\geq 100$  ha of protected habitat, and possessing demographic characteristics consistent with stable or increasing numbers have high resiliency. PVA was used to evaluate redundancy based on the conservation target that, in the presence of catastrophes, metapopulations were projected to retain  $\geq 95\%$  of initial genetic diversity over 100 years. By this criterion, regions with intermediate and high resiliency subpopulations totaling  $\geq 200$  adults have high redundancy.

King R.B. 2023. PVA-based assessment of resiliency, redundancy, and representation in an imperiled freshwater turtle. *Global Ecology and Conservation* <https://doi.org/10.1016/j.gecco.2023.e02419>.

### **Modeling Occupancy and Detection probabilities inform status update for Massasaugas:**

This study utilizes single season occupancy and detection probabilities to provide management suggestions and update the status of Eastern Massasauga populations in Michigan. It highlights the need to monitor sites and verify those with unknown status or historical records. Assuming extant populations can prove risky. Results indicate that 50-80% of sites in Michigan have low occupancy probabilities which is concerning as all had historic records in the vicinity. Lower canopy cover and increased search effort lead to higher detection probability and occupancy. This supports the suppression of woody growth and succession as beneficial for massasaugas. Developing long-term conservation and effective management plans rely on knowledge of the species' distribution on the landscape.

Thacker, A. J., Hileman, E. T., Keenlance, P., McCluskey, E. M., Swinehart, A., Kovach, J., & Moore, J. A. 2023. Modeling occupancy and detection probabilities to update the status of threatened eastern massasauga rattlesnake populations. *Global Ecology and Conservation*, 43. <https://doi.org/10.1016/j.gecco.2023.e02422>.

**Image description:** Image of Wall Lizard (*Podarcis muralis*) captured in an urban setting. Photo by Eric Gangloff.

**Want to see your research highlighted?** Have you recently published on populations of amphibians or reptiles in the Midwest? We want to hear about it! Please reach out to **Jesse Sockman** ([sockman.15@osu.edu](mailto:sockman.15@osu.edu)) and **Danielle Galvin** ([danielle.galvin@coyotes.usd.edu](mailto:danielle.galvin@coyotes.usd.edu)) if you would like to highlight your research.

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**Header photo description:** Boreal Chorus Frog (*Pseudacris maculata*) sitting on a reed in water. The frog is surrounded by brown and green reeds. Photo by Danielle Galvin.

**We want your feedback:** What would you like to see in future volumes of our newsletter? Give us more information by filling out this survey: <https://forms.gle/Hz9ZkznEFfiTE8a48>

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