



Midwest PARC Quarterly Newsletter - September 2024

Compiled by members of the **Outreach and Communications Team (OCT)**

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Herp Highlight: Kirtland's Snake

The Kirtland's Snake (*Clonophis kirtlandii*) is a relatively small snake between 36 – 45 cm in length with the record only 66 cm. There are two interpretations for the etymology of the Kirtland's Snake suggesting the Greek *klon* meaning twig and *ophis* meaning snake or *klonos* translated to “violent, confused motion” referencing the snake's movement upon capture (Wynn and Armitage 2021). However, the species name, *kirtlandii*, recognizes an Ohio naturalist and physician Jared P. Kirtland. Visually Kirtland's Snakes have a reddish-brown dorsum with four rows of alternating spots featuring larger spots on the most lateral rows. Their heads are relatively narrow colored black on top with a white chin and throat. The showstopper is the deep red venter (sometimes varying from pink to white) highlighted by the diagnostic rows of black spots along each edge of the venter. Kirtland's Snakes are nocturnal, active hunters pursuing a broad prey base composed mainly of earthworms and slugs. They can be found year-round under suitable conditions (Conant 1943), but are most active from



early spring to fall with breeding occurring typically late April to early May and parturition in mid-late summer (Wynn and Armitage 2021).

The Kirtland's Snake range extends across the Great Lakes region of the Midwest as far east as central Pennsylvania, west as Missouri, north as southeast Wisconsin, and south as Kentucky. This range corresponds with the post-glacial expanse when prairie conditions were at their peak suggesting that Kirtland's Snake is a prairie immigrant (Conant 1943). However, succession of these areas to forest likely restricted some portions of the range to remnant wet prairies (Conant 1943). While most frequently found in open, grassland to wet prairie habitats, they are known to inhabit wooded areas when associated with pools, streams, or bogs as well as urban areas (Wynn and Armitage 2021). Within these wet habitats, Kirtland's Snakes can be found sheltering in crayfish burrows as retreats or winter hibernacula.

Kirtland's Snake has no federal protection but is listed as **Endangered** in Indiana, Michigan, and Pennsylvania; **Threatened** in Illinois, Kentucky, and Ohio; **Species of Conservation Concern** in Missouri. The most often mentioned threats to Kirtland's Snakes are habitat loss primarily the draining of wetlands and ecological succession, pollution, and road mortality (Wynn and Armitage 2021). Current management activities such as controlled burns and mowing are enacted outside of the active period of the snake to combat succession and keep habitat available to the species (Gibson and Kingsbury 2004). Additionally, various methods have been suggested to alleviate road mortality including erecting speed bumps, enforcing seasonal road closures, and "animal crossing" signage (Gibson and Kingsbury 2004). Overall, the secretive nature of and limited literature on the Kirtland's Snake hamper the ability to manage effectively suggesting the need for long-term and detailed studies on the ecology of the species and status of populations (Gibson and Kingsbury 2004, Stewart et al. 2023).

Works Cited

- Conant, R. 1943. Studies on North American Water Snakes-I *Natrix Kirtlandii* (Kennicott). American Midland Naturalist 29:313. DOI: <https://doi.org/10.2307/2420794>
- Gibson, J., and B. Kingsbury. 2004. Conservation Assessment for Kirtland's Snake (*Clonophis kirtlandii*). USDA Forest Service, Eastern Region.
- Stewart, T.M., A.R. Kuhns, C.A. Phillips, J.A. Crawford, and M.J. Dreslik. 2023. Estimating the effort required to detect Kirtland's snakes (*Clonophis kirtlandii*). Wildlife Society Bulletin 47:e1498. DOI: <https://doi.org/10.1002/wsb.1498>
- Wynn, D and B.J. Armitage. 2021. Kirtland's Snake. Pp. 441–452 in Reptiles of Ohio (J.G. Davis, G. Lipps Jr., D. Wynn, B.J. Armitage, T.O. Matson, R.A. Pfingsten, and C. Caldwell, eds.). Ohio Biological Survey.

Image Description: A Kirtland's snake (*Clonophis kirtlandii*) being held in the hand of a researcher. Photo by Joey Cannizzaro.

Co-chair and Advisory Board Elections

We want you! To apply for MWPARC co-chair and MWPARC advisory board membership! We are accepting applications for these positions until September 15, 2024. These positions serve 2-year terms and participate in monthly board meetings. For more information regarding the roles and responsibilities of these positions, please [check out our website](#).

If you are interested in running for one or both of these positions, please email parcmidwest@gmail.com!

MWPARC Annual Meeting Recap

The 2024 Midwest PARC conference was hosted in conjunction with national PARC and with the Society for the Study of Amphibians and Reptiles (SSAR) at the University of Michigan from June 29th - 30th. Midwest PARC kicked off its portion of the weekend by hosting a student social with herp-themed trivia on Saturday night. The event was MC'd by Travis Kurtz. Around nine groups of 3 - 5 students competed for prizes and the title of "most knowledgeable about herps". Winning teams walked away with prizes including 3D printed salamanders and herp stickers.

On Sunday, PARC hosted our keynote speaker, Dr. Earyn McGee, the Coordinator of Conservation Engagement at the Los Angeles Zoo and the creator of #FindThatLizard on X (@Afro_Herper). Dr. McGee spoke about her research with squamates and about ways we can make science more equitable and inclusive for Black girls and women. Dr. McGee emphasized the importance of identifying cultural, socioeconomic, and institutional barriers, and creating actionable and measurable plans for breaking through them.

She also stressed the need to work with Black communities and Black-led organizations, including Black Greek Letter Organizations. PARC and Midwest PARC are grateful to Dr. McGee for opening the day of conservation oriented talks and for sharing her experiences and expertise!

PARC and Midwest PARC hosted three symposia on Sunday. Speakers in the "Conservation and Ecology" session shared about urban populations of mole salamanders (family Ambystomatidae), herpetofaunal surveys in northeastern Namibia, and the impact of a breeding bird colony collapse on a population of Florida Cottonmouths in the Florida Keys. Those in the "Disease and Conservation" session spoke to the utility of using "museomics" to understand historic outbreaks of amphibian disease, and the prevalence of snake fungal disease across species in Iowa. Finally, in the "Innovative Approaches" session, we learned about the pros and cons of different detection methods



(e.g., camera traps, pitfall traps, AI identification of frog calls). There were numerous speakers in each session, and you can view their abstracts through the meeting's Whova site.



Midwest PARC rounded out the day with our “Scale up your career” student workshop. There, several professionals working in zoos, federal and state agencies, and academia shared their experiences and some advice with attendees. Attendees worked in small groups to discuss how to get a foot in the door of their chosen field and how to stand out when applying for internships and jobs. The students who attended this workshop received direct feedback on their resumes, CVs, and cover letters, tailored specifically to the sector in which they were

pursuing employment. Midwest PARC gives a huge thank you to each of our volunteer professionals on the panel, including Matt Cross (Toledo Zoo), Michael Westphal (Federal Bureau of Land Management), Miranda Goss (U.S. Army Corps of Engineers), Dreux Watermolen (Wisconsin Dept. of Natural Resources), Bibiana Rojas (Uni. of Veterinary Medicine Vienna, Austria), and Jen Moore (Grand Valley State University).

Image Descriptions: Image 1: Dr. Earyn McGee sharing about aspects of her current job at the Los Angeles Zoo during her keynote presentation. Image 2: Student groups standing or sitting at tables with snacks while competing during Midwest PARC’s trivia event. Photos by: J.Y. Lamb.

World Congress of Herpetology Highlights

The [10th World Congress of Herpetology](#) was held in Kuching, Sarawak, Malaysia in early August. This meeting brought together researchers from around the world to discuss major topics including biogeography of herpetofauna, biobanking and genetic resource management for amphibians, conservation of Asian and Australasian herpetofauna, and improving animal welfare in laboratory experiments, among many others.



In total, over 1400 abstracts for oral and poster presentations were submitted for WCH10. Additionally, 8 plenary sessions were held covering topics ranging from sea snake radiation to reptile and amphibian conservation in Madagascar, and the potential consequences of *Batrachochytrium*

salamandrivorans introduction to North America, and much more. During WCH10 the inaugural Phil Bishop Conservation Award was presented to Logan Billet for his talk on ranavirus epidemics in Wood Frog (*Rana sylvatica*) populations. This award was founded in memory of Phil Bishop, a dedicated amphibian conservationist from New Zealand and is awarded to one student showcasing excellence in amphibian conservation research. For more information on the research presented at

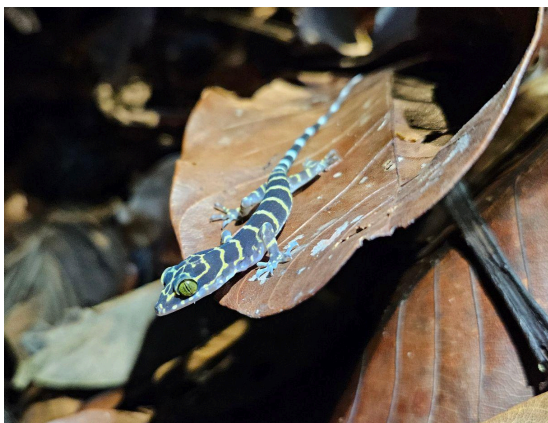
WCH10, [take a look at their website](#) where most of the abstracts are now available.



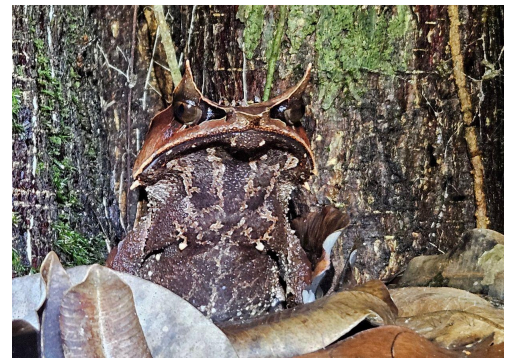
In conjunction with WCH10, the second Global

Amphibian and Reptile Disease (GARD24) meeting was held as a 3 day symposium. Over 100 individuals from over 25 countries participated in GARD24 through oral and poster presentations. Additionally, 25 travel grants were awarded to researchers from 21 different countries, providing the opportunity for researchers from around the world to participate. Planning for GARD26 is currently underway. For more information regarding travel grant participants and to view the recorded oral presentations, [take a look at their website](#).

While attending this conference, many of the attendees of the WCH10 had the opportunity to explore the beautiful wilderness of Borneo, boosting local ecotourism and increasing the documentation of many cryptic species throughout Sarawak. With an exceptionally high number of endemic species, many



researchers spent the bulk of their time outside of the meeting exploring the local



flora and fauna. Some of the most popular destinations included Kubah National Park, Bako National Park, and Gunung Mulu National Park. According to iNaturalist, excited herpers from around the world documented over 1700 amphibians and reptiles around Kuching and over 3000 across Sarawak. While amphibians and reptiles were often the focus such as the Flying Lizard (*Draco cornutus*), travel to these national parks also brought the opportunity to see

several endemic mammals and birds including the Malayan Colugo (*Galeopterus variegatus*) and Bornean Orangutan (*Pongo pygmaeus*).

The **11th World Congress of Herpetology** will be held in **Spain** in 2028!

Image Descriptions: Image 1: This image depicts the photo banner for WCH10 attendees to pose in front of. The banner includes a photo of the Rainbow Toad (*Ansonia latidisca*) on the right side of a white background. The logos of sponsors for WCH10 are included on the left side. The foreground shows a statue that says “WCH 10”. Photo by Danielle Galvin. Image 2: The attendees of GARD24 standing in front of the GARD shield logo. Photo courtesy of Matt Gray. Image 3: A Bornean Horned Frog (*Megophrys nasuta*) sitting on top of leaf litter in front of the trunk of a tree. Photo by Danielle Galvin. Image 4: A Bow Gecko species (likely *Cyrtodactylus consobrinus*) sitting on top of leaf litter on the forest floor. Photo by Danielle Galvin.

Illegal Herpetofauna Trade Workshop

PARC goes global to reduce illegal and unsustainable reptile and amphibian trade

In August, representatives from PARC’s [Collaborative to Combat the Illegal Trade in Turtles \(CCITT\)](#), in partnership with [Monitor Conservation Research Society](#), co-hosted and participated in the symposium, “**Reducing unsustainable and illegal trade in reptiles and amphibians**” and targeted breakout sessions at the 10th World Congress of Herpetology, held in Sarawak, Malaysia.

The symposium and breakout sessions were focused on ways to share information, build relationships, identify strategies, and inspire partnerships to mount a trans-disciplinary, international response to the issue. The symposium was livestreamed and included wide ranging topics on illegal and unsustainable trade from around the world including case studies from the Philippines, Papua New Guinea, and Indonesia. While the topics of the symposium and working sessions ranged broadly in terms of geography and focus, common themes emerged, such as data gaps, policy loopholes, the shifting nature of demand, and the need to collaborate across disciplines and agencies. Outcomes from the symposium and sessions include a multi-partner planning team that will take the lead in setting up an international working group, and a forthcoming report that will summarize and share outputs from each of the working sessions. So, stay tuned for more information coming at a later date!

Wisconsin DNR Partnership for Greensnake Surveys



The Wisconsin Department of Natural Resources (WDNR) announced a partnership with student volunteers from the University of Wisconsin-Madison and the University of Wisconsin-Stevens Point. Following discussions with Allison Sacerdote-Velat, a nationally recognized expert on greensnakes, WDNR developed protocols for the baseline survey. The purpose of this survey is to gather baseline data on greensnake populations in the state of

Wisconsin to detect future declines, in the event of their occurrence. The Smooth Greensnake (*Opheodrys vernalis*) is one of 21 snake species in Wisconsin, and although they are currently common throughout the state, they are a regional species of greatest conservation need. Neighboring states have observed significant declines in Smooth Greensnake populations in recent years, therefore baseline surveys are necessary to help anticipate future declines and to provide a way to more accurately quantify such declines.

For more information on this partnership and these surveys, take a look at [the Herps of Wisconsin webpage](#).

Image Description: Image of a Smooth Greensnake sitting on dead grass. Photo by Emma Pauly-Hubbard, courtesy of Wisconsin Department of Natural Resources.

Stories From the Field

Why did the Blanding's Turtle cross the road?

Because the Minnesota Department of Transportation (MnDOT) approved the construction of under road passages! The MnDOT recently approved a new standard construction detail for a small box culvert that can be used to facilitate amphibian and reptile passage under roadways. "Plate 3021B" is a new standard construction detail for a 3 ft x 3 ft box culvert that can be installed shallowly in roads with reduced vertical clearances, and may be suitable for areas bisecting wetlands and other habitats.

Do you have any questions about these passages? Contact Chris Smith, MnDOT wildlife ecologist (Christopher.E.Smith@state.mn.us).



Image description: Blanding's Turtle (*Emydoidea blandingii*) basking adjacent to the roadway. Photo by Erica Hoaglund, MnDNR.

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

2024 Meetings and Conferences

Mark your calendars!

[31st Annual Meeting of The Wildlife Society](#)

19-23 October 2024. This meeting will be held in **Baltimore, MD**. The Disease Task Team is hosting a symposia on Managing Herpetofaunal Health. We hope to see you there!

Amphibian Disease Meeting

This meeting is planned for **November 16-17, 2024** at Vanderbilt University in **Nashville, TN**. To register for this meeting, please [complete this form](#) by September 30, 2024. For more information and to be added to the mailing list, please contact Dr. Louise Rollins-Smith (louise.rollins-smith@vanderbilt.edu).

Midwest Fish and Wildlife Conference

This meeting will be held **January 19-22** in **St. Louis, MO**. The MWPARC is hosting a symposium titled "[Conservation of Crawfish Frogs and Other Amphibians and Reptiles of the Midwest](#)" at this meeting! This symposium is open to anyone with relevant research. Abstracts are due by **September 23, 2024**.

Hot Off the Presses! - Recent Publications

Scientific Journal Articles Featuring Herps in the Midwest

A flash of color keeps the predators away: Through the use of palatability studies and clay model field studies, researchers determined that the hidden color patches, or flash colors, of the Eastern Gray Treefrog (*Hyla versicolor*) serve as aposematic signals. The palatability study determined that Gray Treefrog skin secretions are unpalatable, while the clay model field study revealed lower rates of predation for clay models painted with yellow and black spots similar to the Gray Treefrog flash coloration.

Cannizzaro, J. S. IV, and Höbel, G.. 2023. Hidden black and yellow thigh color acts as an aposematic signal in the Eastern Gray Treefrog (*Hyla versicolor*). *Ethology* 129(12): 679-685 (2023). Accessible at: <https://doi.org/10.1111/eth.13404>

Recently discovered fungal pathogen has low prevalence in Illinois turtle populations: The recently discovered fungal pathogen *Emydomyces testavorans* is associated with skin and shell disease in aquatic chelonians. There is currently very little known about the distribution and prevalence of this novel pathogen in free-ranging chelonians. Researchers conducted surveillance for *E. testavorans* in 6 aquatic and terrestrial chelonian species (n=835 samples) in Illinois. The results of this surveillance indicate a prevalence of 0.6% in sampled Blanding's Turtles (*Emydoidea blandingii*, n=437) and 1.6% in Red-eared Sliders (*Trachemys scripta elegans*, n=62).

Fredrickson, K., Adamovicz, L., Terio, K., Davidson, A., Ryan, M., Waligora, M., Schroder, K., Bradley, S., Lionetto, C., Andersson, K., Engel, A., Graser, W., Anchor, C., Glowacki, G., and Allender, M. A. 2024. *Emydomyces testavorans* surveillance in multiple free-ranging terrestrial and aquatic chelonian species in Illinois, USA. *Journal of Wildlife Diseases* 00(00): 000-000 (2024). Accessible at: <https://doi.org/10.7589/JWD-D-23-00164>

New food item documented for Blanding's turtles: Analysis of a fecal sample collected from a female Blanding's Turtle (*Emydoidea blandingii*) in Illinois revealed clumps of Muskrat (*Ondatra zibethicus*) hair. This is the first documentation of a mammalian prey item in Blanding's Turtle. Researchers suggest this novel diet event may be the result of scavenging a Muskrat carcass or predation of a neonatal Muskrat.

Cannizzaro, J. S. IV, Koch, S. L., and Höbel, G. 2023. First evidence of Muskrat (*Ondatra zibethicus*) in the diet of the Blanding's Turtle (*Emydoidea blandingii*). Northeastern Naturalist 30(3): N31-34 (2023). Accessible at: <https://doi.org/10.1656/045.030.0306>

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 **Liam Feeney** (ohioherping@gmail.com) and **Danielle Galvin** (dgalvin2@utk.edu) if you would like to highlight your research.

Header photo description: A Kirtland's Snake (*Clonophis kirtlandii*) being held by a researcher. The red ventral scales of the Kirtland's snake are being displayed. Photo by Joey Cannizzaro.

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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