

## NEWSLETTER OF THE HOOSIER HERPETOLOGICAL SOCIETY

A non-profit organization dedicated to the education of its membership and the conservation of all amphibians and reptiles.

Volume 35 Number 10

October 2024

# **HHS Monthly Meeting**

Wednesday, October 16<sup>th,</sup> 7:00PM

# Holliday Park Nature Center

## **Guest Speaker – Jim Horton**

## **Topic** – The Fascinating World of Carnivorous Plants

Jim is a herpetological enthusiast with an interest in pitcher plants, Venus flytraps, and others. Jim will cover finding and photographing wild specimens with care and propagation of cultivars.

## WELCOME NEW MEMBERS!

Thank you and welcome to the Hoosier Herpetological Society! Thank you to our returning members! Without all of you, we wouldn't be the organization that we've grown to be today!

#### Renewals

Ian Hahus Bob & Ellie Hammond Mike McNeely John Olson David Stahl Douglas Stemke

### **New Members**

Erika & Angelo Alcauter Colson Lamm

Maxwell Vernon

Jennifer Tuttle

## **September Meeting Review**

by Holly Carter

Our guest speaker and recipient of the first Sherman Minton Student Presentation award, (we changed the name of our former award (with permission of Minton Family) to honor Dr. Minton for being a driving force behind the Hoosier Herpetological Society).

Congratulations to Suzie Ronk, a Biology and Secondary Education Major at Hanover College. Topic is: Assessment of Tetrodotoxin toxins across life history stages of The Eastern Newt.

Four subspecies of this newt live approximately 8-10 years and breed autumn to summer. Lifestyle starts aquatic egg-larval, then becoming terrestrial eft, then aquatic adult, and rarely adult terrestrial.

This newt is toxic throughout its life with a neurotoxin Tetrodotoxin (which we will shorten to TTX). This toxin is also like the Puffer Fish toxin and immobilizes muscles. And was known to be toxic in all of its life stages, but was not known how much TTX was in each life stage.

Samples of these stages were collected and tested at various times of year and techniques such as minnow traps, seines, dip nets and general herping. Processing included freezing, taking skin punch sample,

weigh, record, refreeze, extraction, ground up then heated to 100 centigrade, centrifuged for 20 minutes, strained and centrifuged, samples refrozen. ELIZA Assay Plated and washed, diluted with antibodies, and rewash samples were read every 5 minutes for 40 minutes data (although still incomplete showed).

Eggs have 8.5 nanograms of TTX Larval have 5,000 ng Eft has 7,000 ng Adult has 55,000 ng and up

#### Discussion

Why does TTX increase between egg and larval? Where does TTX come from? Symbiotic with bacteria or viruses? Does maternal TTX correspond with egg toxicity?

Also, studies with the Western Newt have shown that this species is running an arms race with the local western Garter Snakes that have evolved to prey on these newts.

The Western Newt has been steadily making its toxicity stronger to avoid predation and the Garter Snake has been steadily evolving to cope with these higher toxins.

Susie also was doing studies on the Yellow-Legged Frog In Sierra Nevada with the San Francisco Zoo. This frog has secretions and mucus with TTX in them. The survey site is at a mountain pond where the students have caught a large sampling of these frogs, and they have been catching and relocating Garter Snakes to a different area so as to do sampling with these zoo raised frogs which have been microchipped and treated with a treatment for Chytrid Fungus to make them more resistant. They have proposed a symbiotic bacterium as a source for making TTX. Susie recounted an event with her trying to catch a Garter Snake which she found at the test pond, caught it, and scanned it for a pit tag. Yes, it turned out to one of the test subjects.

As she was holding the snake, it stared to writhe and threw up a frog encased in mucus. She put the supposed dead frog in the water to rinse it off and it raised up in her hand and when she put it on the ground, it hopped off and swam away in the pond. The snake was rubbing its mouth on the ground trying to get rid of an obvious bad taste.

# **AXOLOTLS!**

#### by Mary A. Hylton

In last month's newsletter, I focused on salamanders, sharing about their mythology and symbolism. This month, in keeping with the salamander theme, we'll segue into one of my (and perhaps your) favorite and quirky salamanders -- our little friend, the Axolotl.

I first became acquainted with the word, "axolotl", back in the early 1990s when our daughter was first learning to talk and to combine words into complete sentences. Her dad would occasionally play a little game with her which she appeared to thoroughly enjoy. He would call out an unfamiliar (and often unusual) word to her and her task was to repeat it. "Axolotl" was one that brought a giggle to all of us. Although I assumed it was a real word, I was unfamiliar with it and, at the time, was not strongly inclined to look up its meaning.

Twenty years later, at an HHS monthly meeting, I heard that same word and learned that it was a salamander! I'd been familiar with salamanders since childhood but certainly not these amazing creatures! I was fascinated by how much they looked like little stuffed toys-- with engaging smiles! To quote one source regarding axolotls' current popularity: "Take one look at an axolotl, and it's easy to see why it's so popular. With their wide eyes, upturned mouths and pastel pink coloring, axolotls look cheerful and vaguely Muppet-like."

I mean, what's not to love about this face!



Natural habitat cousin ↓

(Photos courtesy of PBS Nature and of Daniel Cardenas/Anadolu/Getty Images)

According to another source, "axolotIs have skyrocketed in pop culture fame, in part thanks to the addition of axolotIs to the video game Minecraft in 2021. These unusual salamanders are now found everywhere from Girl Scout patches to hot water bottles." AND... a critter bearing a name like "AxolotI" just begs one to go on an expedition in search of more information! Onward, we go!

Axolotl is a word from Nahuatl, the Indigenous Mexican language spoken by the Aztecs and an estimated 1.5 million people today. The animals are named for the Aztec god of fire and lightning, Xolotl who, as legend has it, disguised himself as a salamander to avoid being sacrificed. The original Nahuatl pronunciation is "AH-show-LOAT"; in English, "ACK-suh-LAHT-uhl" is commonly used.

The axolotl has a long tail, flat head, and four lizard-like limbs, which it uses to move around the lake floor. Axolotls are distinguishable from other salamanders because they are neotenic which means they retain their juvenile characteristics into adulthood. How so? Unlike other salamanders,

the axolotl remains aquatic, like larvae, their entire life. While it develops functional lungs, it uses its feathery gills to breathe underwater. Like youngsters, they retain external gills, a tail, and a body fin, and lack moveable eyelids.

Axolotis range in color depending on the individual. They are most often dark-colored, ranging from black, brown or gray, accompanied by small spots all over their bodies. While they are often dark-colored, they can shift their hue a few shades lighter or darker as needed for camouflage. Pink and light-colored axolotis are often bred in captivity by humans as pets.

One of the most astonishing characteristics of the axolotl is its ability to regenerate almost any lost body part faster than any other species. It can regenerate its limbs, lungs, heart, jaws, spines, and even parts of its brain! For this reason, axolotls are used in research to apply this ability to human nerve cells and organs.

While they retain their juvenile characteristics, axolotls are effective predators despite their undeveloped teeth. Meals consists of worms, mollusks, crustaceans, insect larvae and small fish. During the day, they burrow into the aquatic vegetation and mud to avoid predators. At night, they hunt for food using a suction technique. While suctioning up food, gravel may also get inhaled, which helps grind up food in its belly.

Axolotls' behavior can range from social to solitary and active to dormant. They reach sexual maturity at six months of age. The breeding season occurs between March and June. Prior to mating, a waltz occurs between a male and female. They rub and slide against each other while twirling in a circular fashion. After about 30 seconds of this display, the male drops a cone of his sperm, which the female collects with her cloaca. The fertilization of her 300 to 1,000 eggs begins. She lays her eggs individually, placed on plants or rocks to avoid predators. The eggs hatch about two weeks later and the young swim off. The young are on their own, as there is no parental care. Their lifespan averages 10 to 15 years.

Axolotls measure 6 to 18 inches in length and weigh 2 to 8 ounces and are lentic, meaning they inhabit stillwater lakes unlike running streams or rivers as other salamanders do. Only two freshwater lakes: Mexico's Lake Xochimilco and Lake Chalco, are home to them. These lakes are also Mexico City's primary water source.

Lake Xochimilco, a unique 10-square-mile body of water, is a natural drainage basin with slightly salty water. More than 1,000 years ago, Xochimilca people in the region invented an agricultural system of human-made floating islands called chinampas. The chinampa system, with its drainage canals surrounding the islands, is still used by farmers called chinamperos today. The islands provided habitats and hiding places for the axolotls, which thrived among the chinampas for 1,000 years. However, the chinampas of Lake Xochimilco are no longer thriving, and neither are the salamanders. "The problems started at the beginning of the last century," Zambrano said.

As Mexico City grew and became more industrialized, the need for water brought pumps and pipes to the lake, and eventually, "it was like a bad, smelly pond with rotten water," says Dr. Luis Zambrano, a professor of zoology at the National Autonomous University of Mexico. "All of our aquatic animals suffer with bad water quality, but amphibians suffer more because they have to breathe with the skin."

To add to the axolotls' problems, invasive fish species such as carp and tilapia were introduced to the lake, where they feed on axolotl eggs. And a 1985 earthquake in Mexico City displaced thousands of people, who found new homes in the area around the lake, further contributing to the destruction of the axolotls' habitat.

These combined threats have devastated axolotl populations. According to the International Union for Conservation of Nature, there are fewer than 100 adult axolotls left in the wild. The species is considered critically endangered.

Conservationists are working to save the axolotl by building shelters in Xochimilico, with stacks of rocks and reedy plants to help filter clean water that is pumped in. These shelters are created with the hope that the species will breed and thrive. A widespread return to the chinampa system, he said, would benefit the axolotls, because it would ensure cleaner habitat space for the salamanders than the lake's current, more industrial uses provide.

The axolotl pet trade probably doesn't directly harm the wild populations since wild salamanders aren't being poached or taken from Lake Xochimilco. However, Zambrano said, axolotls' ubiquity in pop culture and pet stores might make people assume that because axolotls "live in all the tanks around the world, they are not in danger."

Such active efforts in habitat improvement would require policy changes, but according to Zambrano, worldwide enthusiasm for the axolotls could bolster such a campaign. People who love them can even symbolically adopt an axolotl to help fund conservation programs. Getting people to recognize that their favorite, friendly faced salamander doesn't just exist in the vacuum of the internet, but in the real world where it faces dire conservation challenges, Zambrano said, is "a huge achievement."

I enjoy writing these articles because I'm always learning something new-and hope you are, too!

[Sources:] https://www.pbs.org/wnet/nature/blog/axolotl-fact-sheet/

San Diego Zoo Wildlife Alliance and Detroit Zoo.

https://www.nationalgeographic.com/animals/amphibians/facts/axolotl

https://www.cnn.com/2024/03/16/americas/axolotls-pop-culture-endangered-conservation-mexico-scn/index.html "Why axolotls seem to be everywhere - except in the one lake they call home" by Kate Golembiewski, CNN-March 16, 2024

## HHS AT 2024 INDIANA BAT FESTIVAL

by Holly Carter

Indiana State University has for many years had an annual Bat Festival to teach people all about our native bats and those around the globe.

Bats have had many superstitions and a bad reputation over the centuries. From witchcraft to health hazards to attacking women in beehive or afro hairdos to making our homes into bat guano infested nightmares.

The university started this program to help people learn that bats are necessary for pollenating plants, controlling insects and (in my opinion, being darn cute).

This year the university had decided to add to their festival of learning by inviting other conservation societies to come and provide information on their group projects.

The Hoosier Herpetological Society was asked to bring a few examples of our animals and to do three PowerPoint presentations highlighting our society.

Ethan Esterbrook, Roger and Holly Carter, and Jim Horton presented the following:

Ethan= His introduction to herpetology, amount of Indiana herp species, then on the HHS activities.

Roger= Showed how to find herps in the field with an inspection camera and spoke of HHS field trips.

Jim= Brought several of the more exotic herps as well as native ones.

The Bat Festival continued at a nearby park where mist netting had been strung, and hopefully some live bats would make their appearance.

Jim and Ethan gave a live reptile presentation at Dobb's Park afterwards.

My thanks to Indiana State University for the opportunity to add our Society to this event.



# 2024 Midwest Herpetological Symposium review

by Pat Hammond

Last weekend September 20-22, 2024 the St. Louis herpetological society hosted the 40th Midwest herpetological symposium. This was the first in person symposium since covid. It was a welcome return to my favorite annual herp event. The weekend kicked off to a meet and greet ice breaker Friday evening. St Louis herp society president Bill Keith welcomed everyone in a short talk followed by an open hospitality area for socializing and pizza.

Saturday's talks were both educational and entertaining. I especially enjoyed learning about the care and reproduction of the protobothrops species at the St. Louis Zoo by Rachael Bohem and HHS's own Holly Carter's informative talk on indigos and cribos. My favorite talk was on the Armenian Viper by Jeff Ettling. I've seen Jeff talk about this species in the past so it was great to have a follow up with updated information on the species survival plan.

Junior herper winner Mason Holcomb gave a presentation on the eastern Hellbender. It was great to see the next generation herper getting involved in the event.

Justin Elden talked on conserving the Virgin Island Boa. This is a species I was not aware existed. This is one of the rarest boa species in the world with an extremely limited range.

John Miller presented us with a story of a two headed snake named tiger lily who's life was spared thanks to the internet. The snake was a wild caught western ratsnake that has become a local celebrity in southwest Missouri thanks to people sharing information and pictures of the snake on the internet. The snake is now used as an educational animal.

Bob Lanning gave an interesting talk on the growth study of the three toed box turtles which he raised on his property and was able to study for a few years.

Simon Harper examined whether color of cattle tank style troughs made a difference in the survival and metamorphosis rates for larval amphibians. His study placed several amphibian larvae in black or blue troughs to see if the difference in color would affect the temperatures of the water and make any sort of a difference in the growth rate and survival of amphibian larvae. The outcome was inconclusive.

The Banquet was probably the best meal I've ever had at an event like this. The food was fantastic! After the banquet was the main fund raiser for the event, the silent and live auctions.

This year's auction had some interesting and unique items. The coolest group of items was an Alice Cooper signed concert shirt, hat and photo.

After the auction wrapped up a small group of us hung out well into the night talking herps and herping. It was a great time.

As always I look forward to the next symposium, hopefully I will see some of the new friends I met this year as well as all my old friends there.

# www.hoosierherpsociety.org



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### HHS Board of Directors - 2024

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### 2024 HERPETOLOGICAL EVENTS

October 16, 2024 – HHS meeting, Guest speaker: Jim Horton (HHS), topic – The Fascinating World of Carnivorous Plants. Local and regional temperate species and how to care for them.

October 10, 2024 – Live Amphibian and Reptile Exhibit at Greenwood Nature Center. 7PM-9PM

November 20, 2024 – HHS meeting, Guest speaker: Jackson Schoettle (Indiana DNR), Topic – TBD Nominations for 2025 elections.

November 3, 2024 - Midwest Reptile Show, 10:00 a.m.- 4:00 p.m. Indiana State Fairgrounds, Indianapolis. \$5.00 admission, reptiles, amphibians, books, cages, feeder animals, and other supplies. Sell your herps and dry goods free of charge at our H.H.S. information booth (HHS members only), www.midwestreptile.com

# President's message

Jim Horton

Suzie Ronk delivered a wonderful presentation on Tetrodotoxin levels in eastern newts. She was the recipient of the Sherman Minton Student Presentation Award. We presented her with a \$300 check for her efforts.

We had a great time in the Terre Haute area at the Bat Fest event last week. Thanks to Ethan Estabrook and Holly and Roger Carter for dedicating their day to this worthy cause!

Thanks so much to Mary Hylton and Holly Carter for their contributions to this newsletter. If you would like to write for the Monitor, please feel free to send your work my way.

Some of our members attended the 2024 Midwest Herpetological Symposium last month. Pat Hammond wrote a review of the event in this issue. We hope to host this event again in the future.

This month, we will be accepting nominations for 2025 officer positions.

Some of you know me as an amateur herpetologist but also a naturalist. I have a strong interest in plants as well. Carnivorous plants are another category of botany that I find interesting. I'll be giving a presentation on these interesting plants and their care this month.

## **Membership Form**

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