

Tennessee Herpetological Society

32nd Annual Meeting



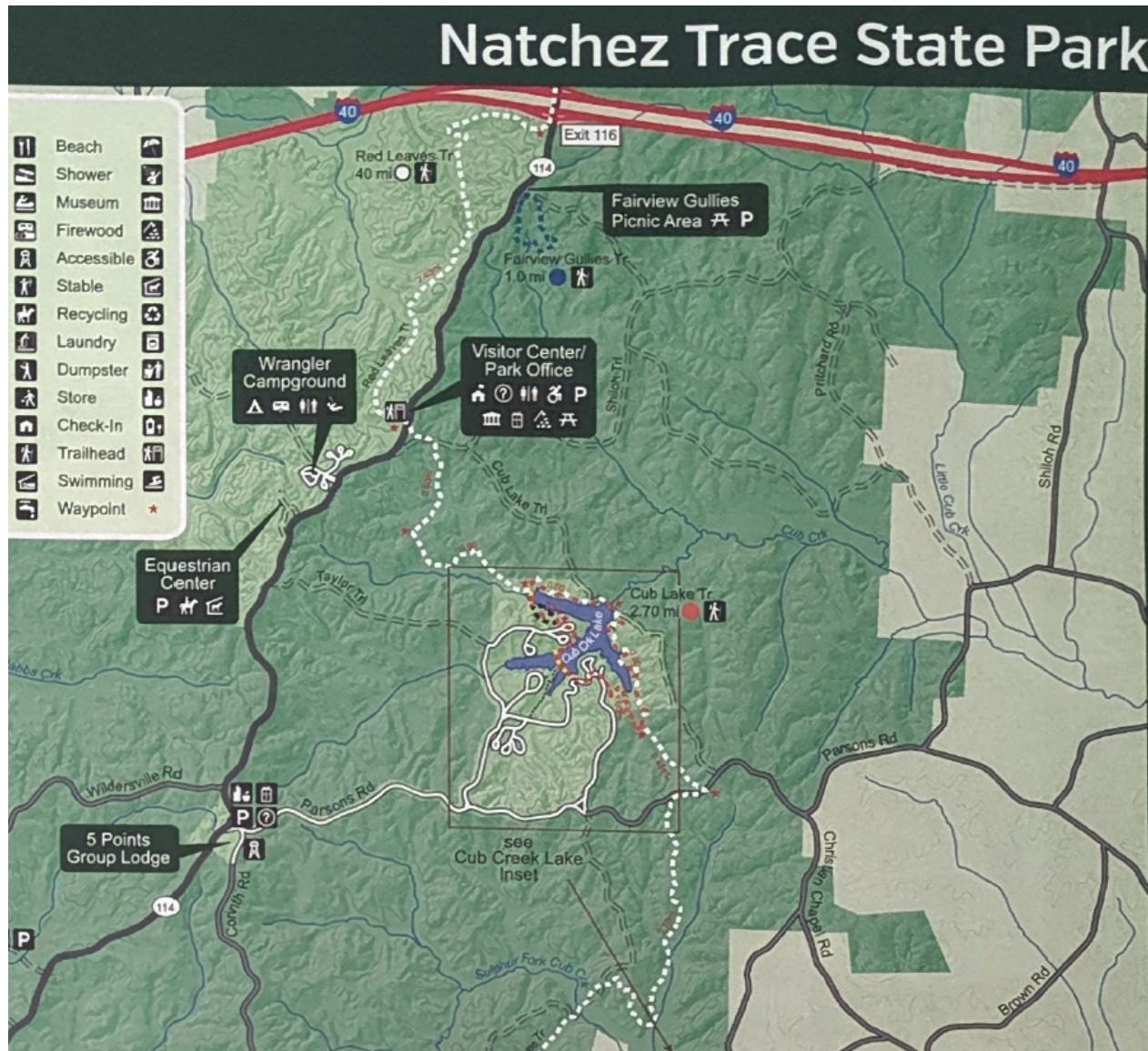
Natchez Trace State Park, Wildersville, TN

September 24-25, 2026



Front Cover: [Barking Treefrog \(*Hyla gratiosa*\)](#), Joshua Hall, TN Tech University

Artwork for T-shirts: [Gray Treefrog \(*Hyla chrysoscelis*\)](#), Spencer Bradford, Ontario, CA



Directions:

Take exit 116 south from I-40 onto highway 114. Drive about 10 minutes to get to the 5 Points Group Lodge. The Lodge is located directly south of the Park Grocery Store.

Google Maps Pinpoint for the lodge: <https://maps.app.goo.gl/jfGuV1PYHtbvabVZA>

Virtual Park Map:

https://tnstateparks.com/sites/default/files/2026-05/Natchez_Trace_web.png

Thursday Afternoon, September 24, 2026

<i>Five Points Group Lodge Dining Hall</i>	
8:00 AM - Park Opens	
8:00 - 10:00	On your own: View the Park, Visitors Center, Walk Trails, etc.
10:00-12:45	Registration/Mix and Mingle. Snacks and beverages provided by THS. **If you are presenting a talk on Thursday, you can upload your presentation.** **If you are presenting a poster, you may hang your posters during this time.**
12:45-1:00	Opening Remarks (President Lee Barton) <u>Business Meeting</u> : Reading of the 2025 Business Meeting Notes (Lee Barton)
<i>Session I (Professional Presentations)</i>	
1:00-1:15	Natural thermal fluctuations do not increase phenotypic variation in developmentally plastic traits (Joshua M. Hall)
1:15-1:30	Everything but a Pinesnake: A Summer of Fun Fails (Michaela J. Bass Zaidan)
1:30-1:45	<u>Business Meeting</u> : Treasurer's Report (Chris Ogle)
1:45-2:00	15 minute break, mix and mingle. Snacks and coffee provided by THS. ** Session II and III Speakers, please upload your presentation if you haven't.** **If you are presenting a poster, you may hang your posters during this time.**
<i>Session II (Professional Presentations cont...)</i>	
2:00-2:15	Call Phenology of the Wood Frog (<i>Lithobates sylvaticus</i>) at Restored Vernal Pools in Morgan County, Tennessee (Anthony Brais)
2:15-2:30	Using summer CURES to pilot herpetological studies at Belmont and beyond (Chase T. Kinsey)
<i>Session III (Student Presentations)</i>	
2:30-2:45	A Dry Season Turtle Survey of a Protected Site in Southern Belize (Audrey Wilson)
<i>This Concludes the Oral Presentations</i>	
2:45-3:00	15 minute break, mix and mingle. Snacks and coffee provided by THS. **If you are presenting a poster, you may hang your posters during this time.**

3:00-4:15	<u>Business Meeting:</u> (Lee Barton) Elections New Business Committee Reports Potential 2027 Meeting Sites
<i>Five Points Group Lodge Dining Hall</i>	
4:15-5:30	Poster Session and mix and mingle <i>**Please remove posters at the end of the poster session**</i>
<i>Five Points Group Lodge Dining Hall</i>	
5:30-8:30	Banquet, Live Auction, and Society Awards (Best Student Talk, Best Student Poster, Travel Awards, Chadwick Lewis Memorial Grant) (Lee Barton)
8:30	Closing Remarks (Lee Barton)

Friday, September 25, 2026

<i>Five Points Group Lodge Dining Hall</i>	
8:00-10:00	Field Trip Led by Jesse Eaker . Details given on Thursday. For those not attending the field trip, this time can be for mix and mingle; Snacks and coffee provided by THS

Tennessee Herpetological Society Business Meeting Agenda

This agenda will be dispersed throughout the conference to increase member participation.

Reading of the 2025 Meeting Notes

Treasurer's Report

Elections - Positions to be elected during the 2026 meeting:

- Vice President
- Treasurer
- Middle TN Representative
- East TN Representative
- Publication Secretary (listed in by-laws)

New Business

Committee Reports

- Education Committee (listed in by-laws)
- Conservation Committee (listed in by-laws)
- Library/archives Committee (listed in by-laws)
- Membership Committee (listed in by-laws)
- Society Awards Committee
- Social Media Committee

Potential 2027 Meeting sites

Current Tennessee Herpetological Society Board Members

President: Lee Barton

Vice President: Stephen Nelson

Secretary: Joshua Hall

Publication Secretary: Joshua Hall and Matthew Grisnik

Treasurer: Chris Ogle

West TN Representative: Brian Butterfield

Middle Tennessee Representative: Michael Fulbright

East Tennessee Representative: Scott Dykes

Sergeant at Arms: Chase Kinsey

Abstracts of the 32nd Annual Meeting of the TN Herpetological Society

Student Oral Presentations

A Dry Season Turtle Survey of a Protected Site in Southern Belize

Audrey Wilson, Lee J. Barton, Brian P. Butterfield, Haley Suggs, Zoe Imel, Kenna Smith, Kate Busby, Katherine Powers, Caraline Riddle, Chris White, Madeliene Morrison, Emma Thomson, Tom Pop, Eric Munscher

Freed-Hardeman University, 158 East Main Street, Henderson, TN 38340

Turtles are among the most imperiled vertebrates on the planet, with many species listed as threatened, endangered, or critically endangered by the International Union for Conservation of Nature (IUCN). Many taxa are understudied and little information is available about their life histories and general behaviors. Further exacerbating this issue is the remote areas in which some of these turtles inhabit. In July 2021, the Turtle Survival Alliance (TSA) and the Belize Foundation for Research and Environmental Education (BFREE) began a 10-year, freshwater and terrestrial turtle inventory of the 467 ha BFREE property. This area of southern Belize is located between two nationally protected wildlife areas. Here, we report the results of our first dry season sampling session conducted during March 2026. We specifically report turtle species richness, diversity, and abundance at three locations on the BFREE property. We then compare our results with those from a July 2026 wet season sample. A Hutcheson's t-test revealed that diversity was similar between seasons at two locations, whereas diversity was greater during the wet season at the third. Our work adds to an understanding of turtle ecology within BFREE and provides important baseline data for long-term monitoring and future research on turtles at BFREE as well as southern Belize.

Professional Oral Presentations

Everything but a Pinesnake: A Summer of Fun Fails

Michaela J. Bass Zaidan

TWRA 5107 Edmondson Pike Nashville, TN 37211

During spring and summer 2026, drift fence arrays were operated at Laurel Hill Wildlife Management Area, The Farm, Swan Conservation Trust property, and nearby private properties to survey for Eastern Pinesnakes. Across 1,230 trap nights, the arrays recorded 406 individual animals—including

153 amphibians, 145 mammals, 92 reptiles, and, somewhat unexpectedly, 16 birds. Captures included eastern hog-nosed snakes, timber rattlesnakes, eastern box turtles, salamanders, frogs, shrews, voles, mice, and several particularly uncooperative wrens. Despite the diversity and abundance of wildlife encountered, the number of pinesnakes captured remained firmly at zero. This presentation highlights the summer's most interesting, unexpected, and occasionally chaotic captures while demonstrating the broader biodiversity information that can emerge from a survey—even when the target species never shows up.

Call Phenology of the Wood Frog (*Lithobates sylvaticus*) at Restored Vernal Pools in Morgan County, Tennessee

Anthony Brais

Stantec, 601 Grassmere Park Suite 22 Nashville, TN 37211

Wood frogs (*Lithobates sylvaticus*) are associated with short, explosive breeding events. This study describes the call phenology of *L. sylvaticus* at five restored vernal pools on a stream restoration site in Morgan County, Tennessee. An automated recording unit (ARU) collected 15 second recordings every 15 minutes during January and February 2023. Recordings were reviewed for male *L. sylvaticus* vocalizations, and each detection was assigned a call intensity of 0, 1, 2, or 3 following North American Amphibian Monitoring Protocol (NAAMP). Cumulative and mean call intensities were determined by day and hour and compared with daily average temperature from the Crossville Memorial Airport weather station. *L. sylvaticus* called between 4 January 2023 and 27 February 2023, with four calling pulses observed between 25 January 2023 and 17 February 2023. Calling pulses were separated by periods of colder weather. Peak call intensity of *L. sylvaticus* occurred between 1000 and 1300 hours with a minimum in the late afternoon and early evening. *L. sylvaticus* utilizing restored vernal pool habitat exhibited call phenology similar to that reported in prior studies. Egg masses were not counted; therefore, whether call intensity reflected breeding activity is unknown. Further study is also needed to identify factors influencing variability in call phenology among vernal pools such as site-level climatic or topographic differences.

Natural thermal fluctuations do not increase phenotypic variation in developmentally plastic traits

Joshua M. Hall, Daniel A. Warner, Matthew E. Wolak
Tennessee Tech University, 1100 North Dixie Avenue, Cookeville, TN 38505

Embryonic temperature influences developmental trajectories in all organisms. Oviparous ectotherms are particularly amenable to thermal developmental plasticity because eggs are left in thermally variable environments. Some levels of thermal variation, such as differences in mean temperature or in minimum and maximum temperatures, induce substantial variation in physiology, morphology, and performance. However, it is unclear how the stochastic variation inherent in real nests affects phenotypic variance independent of mean temperatures. We incubated eggs of the brown anole (*Anolis sagrei*) in three treatments that differed in levels of variation: constant temperature, repeated sine waves, and a natural treatment which allowed temperature fluctuations to change daily. These were repeated across two mean temperatures in a 2 by 3 factorial design. We constructed linear mixed models and compared them with AICc to determine how treatments influenced phenotypic variation in morphology, physiology, and performance. Results varied by phenotype, but in no case did we observe greater levels of trait variation in response to the naturally fluctuating treatment. Our results demonstrate that relations between thermal variation and phenotypic variance are highly context-dependent for developmentally plastic traits. We suggest that some, not all levels of thermal variation meaningfully contribute to population-level trait variance. As global climate change progresses, it will be critical to determine the levels of thermal variation which most strongly correlate with trait variation.

Using summer CURES to pilot herpetological studies at Belmont and beyond

Chase T. Kinsey
Belmont University, 1900 Belmont Blvd, Nashville, TN 37212

The biology department at Belmont University maintains an undergraduate research model which includes intensive summer research for upper classmen (Summer Scholars) and lower classmen (SURFS). The summer experience lasts six weeks and culminates in a poster presentation on campus. Because of the quick nature of the course, projects tend to provide excellent opportunities to pilot research studies. This past summer (2026), students worked on a range of projects including how turtle shell morphology affects heat absorption, the effects of thyroid disruptors on locomotor behavior in developing frogs, and the prevalence of chytrid in local salamander populations. The turtle project was conducted at Nashville Zoo and chytrid swabbing occurred at Warner

Parks, while the thyroid project took place at Belmont. In this talk, I will share the main findings from these pilot studies and their current limitations. Furthermore, I will provide an outlook for each study moving into next year. Ultimately, the short but intensive undergraduate model provides an excellent framework for testing ideas and generating preliminary data. Furthermore, it provides valuable opportunities for undergraduate students to gain experience working with local non and not for profit organizations.

Student Poster Presentations

The Life History and Phenology of Salamanders at City Lake Natural Area

Jacey McKinley, Lily Bernhardt, Kennedy Anderson, Natalie Troth, Macie Skelton, Aileen Granados, Frankie Zerr, Thomas Laffoon, Quentin Deans, Logan Gaither, Joshua M. Hall
Tennessee Tech University, 1100 North Dixie Avenue, Cookeville, TN 38505

Amphibians are threatened by climate change and emerging infectious diseases but due to stochastic changes in population cycles, long term studies are required to identify normal vs pathological changes in populations. We initiated a long term population study of five species found in City Lake Natural Area in Cookeville, TN: Slimy salamanders (*Plethodon glutinosus*), zigzag salamanders (*Plethodon dorsalis*), dusky salamanders (*Desmognathus fuscus*), cave salamanders (*Eurycea lucifuga*), and two-lined salamanders (*Eurycea bislineata*). We conducted monthly samples for one year to determine the best times to sample in a long term study. We searched microhabitats such as streams, leaf litter, rocks, and rock crevices, collected all salamanders found, measured body mass and took photographs to measure morphology. When compared with the literature, we found regional variation in breeding seasons (except for zigzag and two-lined salamanders), which is expected based on climatic changes across latitudes. Based upon these data, we determined that April, May, early July, and November are the four best months of the year to sample at City Lake. These months provide the greatest diversity of life stages among populations and the most individuals active on the surface. After assessing our data, we have a better understanding of our regional salamander life history and phenology and how it varies from other nearby areas and similar habitats. In the future, we will focus our sampling efforts during these four months to optimize data collection.

A preliminary analysis of salamander morphology at City Lake Natural Area

Macie Skelton, Kennedy Anderson, Natalie Troth, Josh Hall, Jacey McKinley, Cindy Scruggs, Thomas Laffoon, Frankie Kerr, Quentin Deans, Alex O'Neal, Logan Gaither, Aileen Granada's, Grayson Hall

Tennessee Tech University, 1100 North Dixie Avenue, Cookeville, TN 38505

Ideal habitat for supporting a high diversity of salamanders in Middle Tennessee includes moist, rocky areas near a stream with abundant leaf litter. While these habitats are common throughout the Upper Cumberland, few studies document long-term population trends in body size and condition in this area. The purpose of this study is to gain foundational understanding of overall population dynamics and seasonal variation in morphology across age classes. Here, we assessed body size and condition through temporal variation of four different species, the zig-zag salamander (*Plethodon dorsalis*), slimy salamander (*P. glutinosus*), dusky salamander (*Desmognathus fuscus*), and cave salamander (*Eurycea lucifuga*). We performed monthly field samples at two transects at City Lake Natural Area from March 2025 to February 2026. Salamanders were caught, massed, photographed, and released. Size and mass data were analyzed and visualized via R to show residual body condition variation in each season of the year. ANOVA tests were used to differentiate cohorts. Body condition appears to exhibit species-specific variation throughout the year, and *P. dorsalis* shows age class differentiation over time. We present preliminary analyses for 12 months of collected data. Moving forward, we aim to assess optimal field collection months, define age class characteristics, and continue the study seasonally to expand our population data. This data should provide useful foundational knowledge for future field research at City Lake Natural Area.

Environmental Drivers of Gila monster (*Heloderma suspectum*) Detection in Southern Nevada

Collin S. Stratton, Sienna Solis-Stokes, Jason L. Jones, C. M. Gienger

Austin Peay State University, 601 College Street, Clarksville, TN 37044

The Gila monster (*Heloderma suspectum*) is a unique, long-lived venomous lizard endemic to desert regions of North America. They are elusive and difficult to study, as they spend most of their time underground in rocky crevices and burrows. As such, knowing the conditions that affect our ability to detect *H. suspectum* may be invaluable to future conservation and management efforts. We conducted 287 standardized 1-kilometer transect detection surveys across two sites in

southern Nevada. Both visual sightings and indirect signs such as tracks and body drags were recorded as a positive detection. Habitat and environmental variables were recorded at five points along each transect. We detected *H. suspectum* on 22 of the 287 transects (7.67%). Of those 22 detections there was a single visual sighting, with the other 21 occurrences being a sign or track detection. We used a model selection process to determine which environmental covariates had the greatest impact on detection. The highest performing model consisted of substrate structure, prey presence, ground temperature, and time of day. Substrate structure was the most influential variable, with our model predicting a higher probability of detection in sandier substrates ($p < 0.001$). Our results show how difficult it is to detect this species using standardized search methods even at sites where they are known to occur and give insight into the conditions that most influence detectability.

Investigating the Presence of a Non-native Mediterranean Gecko (*Hemidactylus turcicus*) at Tennessee Technological University

Bethany Stubblefield, Bradley Clayborn, Joshua M. Hall

Tennessee Tech University, 1100 North Dixie Avenue, Cookeville, TN 38505

Mediterranean House Geckos, *Hemidactylus turcicus*, are an old-world species native to Southern Europe and Northern Africa. Likely introduced through a Key West Port, *Hemidactylus turcicus* has continuously expanded its nonnative range throughout the Southeastern United States. Human infrastructure provides thermal refuge in cooler climates; therefore, colonies of geckos are increasingly found in urban centers at higher latitudes. Individuals were recently discovered on the campus of Tennessee Technological University, Cookeville, TN, but study is required to determine if this represents a viable population. We implemented visual encounter surveys to identify the buildings on campus that potentially support healthy populations. These surveys occurred during the summer breeding season and hours of peak activity. With this method, three buildings were identified to house a population. Twenty-seven total individuals were encountered during the surveys, with encounters only occurring on southeastern buildings. The detection of multiple age classes and sexes across survey efforts provides strong evidence that Tennessee Tech hosts a stable, naturalized population of House Geckos. Capture and release efforts are now underway to estimate population size on campus.

Professional Poster Presentations

An electric fence for protecting turtle nesting areas

Gregory A. Geller

E7503 County Road C, North Freedom, WI 53951

A method of reducing predation levels on nests at turtle nesting areas was developed using a novel electric fence. The method was particularly effective in reducing raccoon (*Procyon lotor*) access to fenced treatment areas, resulting in a 74-percentage point increase in Ouachita Map Turtle (*Graptemys ouachitensis*) nest survival relative to unfenced control areas. The fence design ensures safe passage for all freshwater North American chelonians except Alligator Snapping Turtles (*Macrochelys temminckii*). In contrast to methods protecting one nest at a time (typically nest screening), this method is an efficient way to increase turtle nest survival on a nesting area approach with little user cost or labor inputs once the fence is in place.