



12th Annual Meeting

October 27th - 29th 2023
Camp McDowell, Nauvoo, AL



About Our Meeting

Welcome to the twelfth annual meeting of the Alabama Chapter of Partners in Amphibian and Reptile Conservation (ALAPARC) at Camp McDowell in Nauvoo, Alabama.

Accommodations

Please check in at Hall Hall where the talks take place (see map). Linens and blankets are not provided for dorm-style housing, but they are provided for private rooms. Camp McDowell does not furnish soap, shampoo, hair dryers, or any other personal items.

Meals

All meals will be served at Doug Carpenter Hall. Please make it to meals in a timely manner out of courtesy to the staff.

Internet Access

Camp McDowell has wireless internet across most of the campus.

Sustainability

Please consider bringing your own coffee mugs and beer steins to our meeting so that use of disposable cups will be minimized.

Website

For more information about Camp McDowell, please visit <https://campmcdowell.org/>

Field Outings

Field outings will be planned but are contingent on weather. Please make sure to bring a flashlight/headlamp.

Check-Out

Turn off all lights and heating/air conditioning before departing. If you are staying in a private room, please toss sheets, pillowcases, and towels down the laundry chute.

SCHEDULE

Friday October 27th

Time	Event
3:00	Check-in (Hall Hall)
5:30	Introductions & Housekeeping (Hall Hall)
6:00	Dinner (Doug Carpenter Hall)
7:00	Frogs of Alabama. Mark Bailey (Hall Hall)
7:30	Poster Viewing/Social (Hall Hall)

Saturday October 28th

Time	Event
8:00	Breakfast (Doug Carpenter Hall)
9:30	Talks Begin (Hall Hall)
9:30-9:50	An Update on Conservation Initiatives, Policies, and Growth of Southeast Partners in Amphibian and Reptile Conservation (SEPARC). Ericha S Nix
9:50-10:10	<i>Status Assessment and Management Needs for the Rainbow Snake (Farancia erytrogramma) in Alabama.</i> M. Worth Pugh
10:10-10:30	<i>Conecuh National Forest Eastern Indigo Snake Monitoring Update and Preliminary Occupancy Analysis Results</i> Francesca Erickson
10:30-10:50	<i>Implications of the Diamondback Terrapin, Malaclemys terrapin pileata, Reproductive Biology after Raccoon Removal at Cedar Point Marsh, Alabama.</i> Forrest Collins
10:50-11:10	Break
11:10-11:30	<i>Eleutherodactylus rogersi (Bahamian Flat-headed Frog): Notes on Body Size, Reproduction, Habitat and Range.</i> Kristin A. Bakkegard
11:30-11:50	<i>Thicker than a Snicker: Effect of a Diet Subsidy on Eastern Musk Turtles (Sternotherus odoratus)</i> Grover J Brown
12:00	Lunch (Doug Carpenter Hall)

1:00-1:20	<i>Documenting Wood Frogs (Lithobates sylvaticus) at the Southern Terminus of their Range in North America.</i> Christian Braswell
1:20-1:40	<i>Upland Microhabitat Use by Gopher Frogs (Rana [Lithobates] capito) on the Conecuh National Forest.</i> Krista M. Ruppert
1:40-2:00	<i>Basking in Abundance: Distribution and Abundance of Alabama Map Turtles (Graptemys pulchra) in the Upper Coosa River</i> Abigail Wilkins
2:00-2:20	Update on Gopher Tortoise Conservation Status in Alabama Ericha S Nix
2:20-2:50	ALAPARC housekeeping: next year's meeting and selection of new co-chair. Tyler Burgener and Andrew Cantrell
3:15-5:30	Field Outings: Canyon Herp Hike at Camp McDowell with Joseph Jenkins
6:00	Dinner (Doug Carpenter Hall)
7:00	Poster Viewing/Social <i>*Halloween costumes welcome</i> (Hall Hall)
7:30	Herp Trivia with Jimmy Stiles and Andrew Cantrell
9:00	Silent Auction Benefitting ALAPARC Ends (Debit/Credit Cards Only)

Sunday October 29th

Time	Event
8:00	Breakfast (Doug Carpenter Hall)
9:00	Check-Out

Abstracts

Oral Presentations

Mark Bailey (baileycse@gmail.com), Conservation Southeast Inc., and **Craig Guyer**, Auburn University. *Voices of the Night: Frogs and Toads of Alabama.*

Alabama's rich anuran fauna is represented by 32 indigenous species in five families: Hylidae (15 species), Ranidae (11), Bufonidae (4), Mycrohylidae, and Pelobatidae (1 each). Unique among the other herpetofaunal groups—and part of their appeal to many—these animals can be detected by ear, sometimes from considerable distances. In the words of Robert Mount's Ph.D. adviser Archie Carr, Frogs do for the night what birds do for the day: They give it a voice. And the voice is a varied and stirring one that ought to be better known.

***M. Worth Pugh** (mwpugh@ua.edu), University of Alabama, **Elijah Thompson**, Appalachian State University, **Jonathan Wells**, Appalachian State University, **James Stiles**, Auburn University, **Michael M. Gangloff**, Appalachian State University. *Status Assessment and Management Needs for the Rainbow Snake (*Farancia erythrogramma*) in Alabama*

The Rainbow Snake (*Farancia erythrogramma*) is a brilliantly-colored, aquatic snake that is rarely encountered in Alabama. Recently, there have been notable confirmed sightings and anecdotal reports of this species including the live capture of a specimen from the Conecuh River in August 2022. Here, records from museums, iNaturalist and natural heritage data were reviewed to assess the conservation status of this species in Alabama. Despite a broad distribution in the state, only 25 verified records of this species were found dating from 1909-2023 with six of those detections occurring in the same general area. This demonstrates a concerning lack of information regarding the distribution of Rainbow Snakes and their population status in Alabama. Future investigations should examine occupancy and detection probability by targeting stream habitats utilizing trapping, SCUBA/snorkeling surveys and eDNA to enhance the probability of detecting this often-cryptic species. Understanding the prevalence and migration patterns of the species' primary prey, American Eels (*Anguilla rostrata*), may also provide insight to the distribution and seasonal detectability of Rainbow Snakes. Lastly, outreach to the public could generate novel records and foster appreciation of this species in Alabama. Such efforts will greatly inform management decisions associated with Rainbow Snake populations and further elucidate aspects of this species' natural history.

Francesca Erickson, Auburn University (fte0001@auburn.edu), **James Godwin**, Auburn University. *Conecuh National Forest Eastern Indigo Snake Monitoring Update and Preliminary Occupancy Analysis Results*

The Eastern Indigo Snake was extirpated from Alabama in the late 1950's and was added to the Endangered Species List in 1978. A reintroduction program spearheaded by Auburn University began in 2010 and to date 244 individuals have been released into Conecuh National Forest (CNF). Systematic monitoring has been ongoing since 2019 in an effort to understand the status of the population, as monitoring is a crucial element of determining the success of reintroduction programs. In March 2022, 57 trail cameras with drift fences were deployed in CNF to increase

monitoring efforts. In 2023, an additional ten cameras were deployed at four more sites throughout CNF. We will present preliminary data on this project, giving an overview of the approximately 300 indigo snake observations gathered so far, as well as a general summary of the observations of herptile species in CNF. We will use these data for future analysis in abundance estimates, occupancy, and detection probability of the indigo snake population in CNF. Prior occupancy analyses indicate that low canopy cover and gopher tortoise burrows located on south-facing slopes influence gopher tortoise burrow use by indigo snakes in the winter, and with these new data we will be able to evaluate occupancy of microhabitats used by indigo snakes year-round. With these analyses we will be able to pinpoint areas of importance throughout CNF to further monitor for indigo snakes, as well as identify key habitat characteristics to manage for the indigo snake population's success.

Forrest Collins, University of Alabama at Birmingham, **Thane Wibbels**, University of Alabama at Birmingham, **Ken Marion**, University of Alabama at Birmingham. *Implications of the Diamondback Terrapin, *Malaclemys terrapin pileata*, Reproductive Biology after Raccoon Removal at Cedar Point Marsh, Alabama*

The diamondback terrapin, *Malaclemys terrapin pileata*, is a species of brackish water turtle that is listed as a species of "highest conservation concern" in Alabama. Since 2006, we have been monitoring nest depredation at Cedar Point Marsh, which is a major nesting beach for this species in Alabama. The current study evaluated nest depredation at Cedar Point Marsh after a raccoon (*Procyon lotor*) removal program by the USDA in the fall of 2019 and the spring of 2020 and compared those data to previous depredation levels. For the three years post raccoon removal, no depredated nests, or observations of potential indicators of raccoons, were found. These results were in distinct contrast to historic nest depredation data (as high as 151 depredated nests a single season). Further monitoring of Cedar Point Marsh nesting beaches will be critical to evaluate potential raccoon repopulation and recruitment in the area.

Kristin A. Bakkegard (kbakkega@samford.edu), Samford University. *Eleutherodactylus rogersi* (Bahamian Flat-headed Frog): Notes on Body Size, Reproduction, Habitat and Range

Eleutherodactylus rogersi (Bahamian Flat-headed Frog) is The Bahamas only endemic frog and one of three native species. Described in 1955 as a subspecies of *E. ricordi* before reclassification in 1965 as a subspecies of *E. planirostris*, it received full species recognition in 2007. Data on *E. rogersi* are limited to the 1955 description by Goin and a short review by Swartz (1974, as a subspecies of *E. planirostris*), thus little is known about this frog. I measured the snout-vent length (SVL) and weight of 517 *E. rogersi* from Andros, Cat Island, Eleuthera, Great Exuma, Long Island, and San Salvador over 148 days from October 2022 to June 2023. Based on measurements of San Salvador frogs, reproduction is seasonal, most likely late spring to early winter, rather than year around. One Cat Island frog deposited 27 eggs in the one-gallon plastic bag she was being held in overnight on 19 May 2023. They were similar in size to those of *E. planirostris*. One Long Island frog, most likely a gravid female, had a SVL of 37.2mm and 2.65g, larger than a previous record of 35mm. This frog occupies a variety of habitats to include black coppice, white coppice, and can be found around human-built structures and landscaping. They are found under cover objects during the day (rocks, boards, downed banana leaves,

discarded building materials), and are terrestrially active at night. While the dorsal patterns of many frogs matched Goin's description including striped and unstriped morphs, some had more ventral pigmentation than expected and a few San Salvador frogs looked more like *E. planirostris* than *E. rogersi*. It is possible that both species are present on San Salvador, but this remains to be confirmed via sequencing.

Grover J. Brown, Jacksonville State University (gjbrown@jsu.edu), **Anthony Wapshott**, Jacksonville State University. *Thicker than a Snicker: Effect of a Diet Subsidy on Eastern Musk Turtles (*Sternotherus odoratus*)*

An organism's diet and diet quality play a fundamental role in many aspects of its ecology, notably its energy budget. Since diet items, prey availability and prey abundance vary across habitats, populations of species may respond differently in how those resources are allocated for growth, maintenance, and reproduction. In this study, our objective was to study the effect of an invasive mollusk species, the Asian Clam (*Corbicula fluminea*), on two populations of Eastern Musk Turtles (*Sternotherus odoratus*) in Anniston, Alabama. When the Asian Clam was present, they made up a significant portion of the diet, and females in this population were significantly larger than all other turtles, regardless of sex or location. This translated to larger clutch sizes as well. Thus, the subsidy of Asian Clams seems to have an effect on the reproductive output of this generalist species.

Christian Braswell (cbraswell@jsu.edu), Jacksonville State University. **Grover Brown** (gjbrown@jsu.edu), Jacksonville State University. **Christopher Murdock**, Jacksonville State University. *Documenting Wood Frogs (*Lithobates sylvaticus*) at the Southern Terminus of their Range in North America*

Though widely distributed across the higher latitudes of North America, the wood frog (*Lithobates sylvaticus*) is an enigmatic species of the Southern Appalachians. The range of *L. sylvaticus* extends from Alaska, across Canada, and follows the Appalachian Mountains into the Southeastern United States. The species was first detected in Alabama in 1974, and since 1980, little to no work has focused on the species. The primary objective of this project is to document the contemporary range for *L. sylvaticus* in Alabama at the species' southernmost extent. Because of their cryptic nature, spotty distribution, and explosive breeding habits, this species can be very difficult to detect. Collection of environmental DNA (eDNA – the DNA shed by an organism into its environment) is a popular and cost-effective technique that allows for increased detection of otherwise cryptic species on the landscape. However, primers developed previously for the species were designed in Alaska and were not specific enough for Alabama populations. In this study, we have designed and tested new primers that can be used at the species' southern extent.

Krista M. Ruppert (kr1723@msstate.edu), Mississippi State University. **Scott A. Rush**, Mississippi State University. *Upland Microhabitat Use by Gopher Frogs (*Rana* [*Lithobates*] *capito*) on the Conecuh National Forest*

Gopher frogs (*Rana [Lithobates] capito*) are pond-breeding amphibians native to longleaf pine forests of the southeastern United States. In Alabama, gopher frogs are a protected species known to consistently breed in two ponds, both located on the Conecuh National Forest. Outside of the breeding season, gopher frogs can be found in and around burrows in sandy uplands, such as stump holes, small mammal burrows, and gopher tortoise burrows. As longleaf savanna specialists, gopher frogs are thought to rely on fire-maintained areas with open canopy, wiregrass presence, and complex ground cover; however, information on specific upland microhabitat use of gopher frogs is scant. As gopher frogs spend most of their lives in upland areas, understanding how gopher frogs use these uplands, and what features they rely on, are essential to their conservation. Here, we describe the refugia and microhabitat use of gopher frogs tracked via radiotelemetry on the Conecuh National Forest in 2021 and 2022. We compare habitat type, ground cover, canopy cover, tree basal area, soil type, and NDVI values of points occupied by gopher frogs (n=23) to random points (n=25) within the maximum observed migration distance from their breeding ponds. Points occupied by gopher frogs were more likely to have less dense canopy cover, less leaf litter, more wiregrass, and lower NDVI values, and were more likely to occur in upland longleaf pine areas with loamy fine sand as compared to random points. Through this study we aim to improve the knowledge base surrounding gopher frogs in Alabama to better inform conservation decisions and aid in the identification of suitable wetlands for restoration based on surrounding land characteristics.

Abigail Wilkins (awilkins3@stu.jsu.edu), Jacksonville State University, **Grover Brown**, Jacksonville State University. *Basking in Abundance: Distribution and Abundance of Alabama Map Turtles (Graptemys pulchra) in the Upper Coosa River*

Using two survey methods: mark-resight population surveys (3 sites) and bridge surveys (150 bridge crossings), we studied the distribution and abundance of the Alabama Map Turtle (*Graptemys pulchra*) in the Upper Coosa River drainage in Alabama. In addition to *G. pulchra*, there is one other native species of *Graptemys*, the Northern Map Turtle (*Graptemys geographica*) that cohabitates river and streams in the region. However, during our surveys, we also detected a well-established and invasive population of Ouachita Map Turtles (*Graptemys ouachitensis*) in the Coosa River. During our surveys, we found *G. pulchra* in abundance throughout most of its historical range, along with an abundance of *G. ouachitensis*, though it was found in lower densities than *G. pulchra*. *G. geographica* was observed only during bridge surveys, but in extremely low numbers, and not at all from the Coosa River proper. Based on our preliminary data analysis, *G. pulchra* is still one of the most abundant species in the Upper Coosa, even in highly degraded riverine habitats. Further investigation should be done to better understand the impact that *G. ouachitensis* have on native *Graptemys* species given the lack of *G. geographica* found throughout regions of the Coosa drainage where they were found historically.

Poster Presentations

Seamus O'Brien (sobrien1@stu.jsu.edu), Jacksonville State University, **Grover J. Brown**, Jacksonville State University. *Population Status of the Flattened Musk Turtle (*Sternotherus depressus*) in the Upper Locust Fork.*

The flattened musk turtle (FMT), *Sternotherus depressus*, is one the most endangered turtles in North America. The species is endemic to the Black Warrior River above the Fall Line in Alabama in the Sipsey, Mulberry, and Locust Forks. Flattened musk turtles are currently classified as threatened under the Endangered Species Act and critically endangered by the International Union for Conservation of Nature (IUCN). From the middle of the 20th century until present the Black Warrior Drainage has been degraded by surface coal mining, hydroelectric impoundment, and poultry production. This coupled with pet trade collection and disease outbreaks have caused significant population decline, even in the protected Bankhead National Forest of the Sipsey Fork drainage. Populations outside the national forest have dwindled, and from 1990 to 2021, no FMT's were detected from the Locust Fork. Then in 2021, two old males were found during extensive wading surveys in the region, sparking some optimism the species may be hanging on in places. Later that year, a yearling turtle was found in another stream within the Upper Locust Fork, and subsequent visits have produced males and even a gravid female. This was the first recorded documentation of recruitment from the Locust Fork in 30+ years. This study seeks to (1) understand the demographics of those populations in the Locust Fork, (2) trap additional sites to see if other populations exist in the area and (3) to investigate the population genetics of these turtles to determine if they are suitable for *ex situ* captive propagation by US Fish and Wildlife.

About Our Chapter

Alabama PARC is co-chaired by Tyler Burgener and Andrew Cantrell and is a chapter within Southeast PARC (SEPARC), co-chaired by Ericha Nix and Keri Lejeune. For more information about SEPARC visit www.separc.org. ALAPARC's website is www.alaparc.org. National PARC's website is <https://parcplace.org>.

Thanks to Our Donors and Sponsors



Yellow Star = Hall Hall (Check-in, Talks, Poster Session, Social)

Red Star = Doug Carpenter Hall (Meals)

