



Seventh Annual Tennessee Herpetological  
Society Conference  
Lincoln Memorial University  
Oct.25 – 27, 2001

**Tennessee Herpetological Society**  
**Seventh Annual Meeting**

**Schedule of Events**

**Thursday:**

- 12:00 – 1:00 p.m. Registration
- 1:00 – 1:15 p.m. Welcome, Announcements
- 1:15 - 2:15 p.m. Keynote Address: **Endangered Herpetofauna: An Overview on the Attempts of an Ongoing Salvage Operation.** Johnny R. Arnett, Cincinnati Zoo & Botanical Gardens, Cincinnati, OH
- 2:15 - 2:30 p.m. Break
- 2:30 – 3:15 p.m. **Update on the West Tennessee FARAWG Plan.** Paul Brown, Tennessee Wildlife Resources Agency, Region I
- 3:15 – 3:40 p.m. **PARC, Partners in Amphibian and Reptile Conservation.** Lisa Powers, Tennessee Herpetological Society
- 3:40 – 4:05 p.m. **The Role of a Wildlife Rehabilitator in Herpetology.** Lynne McCoy, Wildlife Rehabilitator, New Market, TN
- 4:05-4:15 p.m. **Funding.** Richard Kirk, Tennessee Wildlife Resources Agency, Nashville, TN
- 7:00-? P.m. **Herpetology Auction**

**Friday:**

- 9:00 – 10:00 Poster presentations:
- Activity of Common Snapping Turtles in a Seasonally Drying Wetland.** Tamara J. Berthel and Brian T. Miller, Middle Tennessee State University
- The Distribution of Selected Reptile Species in Great Smoky Mountains National Park.** J. Ennen, J. O. Webb, and W. B. Cash, Maryville College

**Calling Dynamics of the Wood Frog, *Rana sylvatica*, in Great Smoky Mountains National Park: Evaluation of the North American Amphibian Monitoring Protocol.** W. B. Cash and M. E. Allen, Maryville College

- 10:00 – 10:25 a.m. **The Effect of Predatory and Nonpredatory Snake Cues on the Foraging Behavior of the Zigzag Salamander (*Plethodon dorsalis*).** John S. Placyk, Jr., University of Tennessee, Knoxville
- 10:25 – 10:50 a.m. **Alligator Snapping Turtle Restoration in West Tennessee, A Continuing Project.** Alan Peterson, Tennessee Wildlife Resources Agency, Region I
- 10:50 – 11:15 a.m. **An Annotated List of Tennessee's Imperiled Herpetofauna 2001.** Pete Wyatt, Tennessee Wildlife Resources Agency, Region IV
- 11:15 - 11:40 a.m. **Legal Protection Afforded Tennessee's Reptiles and Amphibians.** Pete Wyatt, Tennessee Wildlife Resources Agency, Region IV
- 11:40 – 1:00 p.m. **Lunch**
- 1:00 – 2:30 Panel Discussion: **"Tennessee's Herp Laws – Antiquated or Adequate?"**
- 2:30 – 2:45 Break
- 2:45 – 3:10 **The Next Frontier: Environmental Enrichment and Play in Reptiles and Amphibians.** Gordon M. Burghardt, University of Tennessee, Knoxville.
- 3:10 – 3:35 p.m. **TAMP: Frogs and Toads of Tennessee.** Lisa Powers, Tennessee Herpetological Society
- 3:35 – 4:00 p.m. **TAMP: Salamanders of Tennessee.** Lisa Powers, Tennessee Herpetology Society
- 4:00 - ? p.m. **Tennessee Herpetological Society General Membership Meeting**

**Saturday**

- 10:00 a.m. - ? **Herp Field Trip in Cumberland Gap Historical National Park,** James Petranka, University of North Carolina, Ashville and John MacGregor, United States Forest Service

## Abstracts

**Endangered herpetofauna: an overview of the attempts of an ongoing salvage operation.** Arnett, Johnny R., Cincinnati Zoo & Botanical Gardens, Cincinnati, OH.

The Cincinnati Zoo and Botanical Gardens has long been a groundbreaking force in the research and captive breeding of Reptiles and Amphibians. When we developed this interest in the mid 1960's, a birth was a curiosity and happy surprise, not a planned and orchestrated event. Births and deaths were hardly considered important; you could always just get new animals for your displays.

In those times a Green Tree Boa cost just \$25.00. Today, that same animal would cost an institution 200 times that! Inflation? Perhaps, yes. Artificial price fixing? Possibly. Are they endangered? No! Are efforts being made in zoos to manage this taxa? Of course, these animals are pretty display animals. Not all efforts in zoos are inclined to breed and manage species not in trouble. In fact the vast majority of animals not kept in zoos are there because they are in "critical condition" in the wild. Habitat destruction, pollution, over-collecting, and disease are just a few of the reasons for the decline of the world's population of animals, and why it is so important for all institutions to work to preserve what is left of the world's eco-fauna.

The American Zoo & Aquarium Association (AZA), the umbrella organization for all American Zoo's and Aquariums has many different approaches to the captive management of endangered species. Some of these efforts include Species Survival Plans (SSP's), Population Management Groups, and studbooks. Each of these approaches help to ensure viable populations of animals, especially in the captive management. All of these committees report to a primary committee known as the "Wildlife Management Commission," which is international in scope. The result is a vast complex of information, action plans, and cooperation for the good of the most endangered wildlife worldwide.

The strength of the zoo's work is augmented by academics from universities and museums, wildlife agencies, and private individuals. Each brings their unique talents to bear, as the world's wildlife populations face disaster.

Finally seeing that a spirit of cooperation works better than the typical us vs. them attitude of past years, we are making some headway in protecting not our own reputations but the animals instead.

There are many examples of this happening. We now have more Aruba Island Rattlesnakes in zoos than exist in the wild. We have reproduced the Puerto Rican Crested Toad in large quantity, and have released these animals back into their natural habitat, where it was once considered near extinct. We have replaced the Wyoming Toad back into the Laramie basin of Wyoming, when none were left in the wild. These successes do not mean that the problems for these animals are over. We need to make sure that the causes of the conditions, which sent these animals to the edge, will not take them there again. So each success is just one small step up a ladder of unequalled proportions.

We need to confront the fact that without a coordinated effort on the part of everyone, we will just be stepping over each other and pushing the true reasons for doing the work we do into the background. Our earth is dying, because the human race is an unsuccessful parasite upon its own planet. We have committed the crimes; we now have to spend the time and effort to work together to repair the damage. Remember, if an amphibian can't live in the water, how can we drink it?

As a famous philosopher once noted: "*Extinction is illogical*" Dr. Spock, Starship Enterprise.

**Update on the West Tennessee FARAWG plan.** Brown, Paul, Tennessee Wildlife Resources Agency, Region I

In January 2000 the Tennessee Wildlife Resources Agency and United States Fish and Wildlife Service entered into an agreement to conduct comprehensive conservation planning on a landscape level. West Tennessee was chosen as the focus area for the master plan, which is called the West Tennessee Wildlife Resources Conservation Plan (WTWRCP). This plan is subdivided into the following units: waterfowl, shorebirds, songbirds, big game, farm game, wildlife species of concern, reptiles and amphibians, aquatic resources, and public use. Working groups, consisting of volunteering professionals, were formed for each unit. Working groups are responsible for conducting research and developing plans dealing with

species abundance, desired abundance, habitat needs, habitat acquisition needs, and management requirements. Maps are produced depicting species abundance, distribution, available habitat, and habitat acquisition priorities. The West Tennessee Focus Area Reptile and Amphibian Working Group (West TN FARAWG) was given the mandate to provide habitat and population information on reptiles and amphibians for the WTWRC. We limited the focus area to the Mississippi Alluvial Valley (MAV) and the East Gulf Coastal Plain (EGCP) of West Tennessee except in two instances of proposed habitat acquisition. This information along with input from the other working groups will be used to develop a multi-species landscape level habitat management plan for State, Federal, and private lands, rivers, and streams. The plan will determine how these habitats should be managed to derive the greatest benefits for fish and wildlife within the focus area. This presentation will update the work that has been completed to date.

**PARC, Partners in Amphibian and Reptile Conservation.** Powers, Lisa, Tennessee Herpetological Society.

This paper will be an introduction to the Partners in Amphibian and Reptile Conservation, who we are, and what our purpose is in the herpetological community. Current and ongoing projects will be discussed as will completed projects and informational resources provided by PARC.

**The role of a wildlife rehabilitator in herpetology.** McCoy, Lynne, Wildlife Rehabilitator, New Market, TN

Sick, injured and orphaned wildlife can legally be held in captivity by permitted Wildlife Rehabilitation facilities in Tennessee. Rehabbers raise orphans, treat injuries under the direction of a veterinarian, and prepare these animals for release into suitable habitats. The usual purpose of wildlife rehabilitation is to return a healthy animal to the wild. Some individuals cannot be released due to imprinting or other reasons. These animals are either euthanized or transferred to Education Permit holders. The Tennessee Wildlife Resources Agency (TWRA) regulates both Rehabilitation and Education facilities in Tennessee. Rehabilitators often become specialists in the native wildlife treated. Other situations arise which may cause wildlife to be held by these facilities. Abandoned wild pets, native and non-native to Tennessee, confiscated animals and contraband animals are often

surrendered to rehabilitation facilities by individuals, TWRA, courts and/or Animal Shelters. In these situations, the rehabilitator can become a liaison between TWRA, Herpetologists, and the public.

**Activity of common snapping turtles in a seasonally drying wetland.**

Berthel, Tamara J. and Brian T. Miller, Middle Tennessee State University, Murfreesboro, TN.

Although common snapping turtles are a well studied species, relatively little is known about how they cope with seasonally drying habitats. Daily and seasonal activity patterns of common snapping turtles (*Chelydra serpentina*) were investigated from June to September 2001 at Sinking Pond, Coffee County, Tennessee, using radio-telemetry techniques. Hydrographs of Sinking Pond are characterized by abrupt seasonal rises and falls with maximum water depths ranging from zero feet in the summer and fall to 11.5 feet in the winter and spring. Turtles began to dig down into the leaf litter of the pond basin as water levels began to fall in mid July. Rather than migrating to other bodies of water, the turtles remained buried in the basin after the pond was completely desiccated, possibly in a state of estivation. Individuals continued to stay buried in the dry basin and were located at the same sites two months later.

**The distribution of selected reptile species in Great Smoky Mountains National Park.** Ennen, J., J.O. Webb, and W.B. Cash, Maryville College, Maryville, TN

We are currently involved in a reptile inventory in Great Smoky Mountains National Park as part of the All Taxa Biodiversity Inventory (ATBI). The overall directive of the project is to completely catalog all living organisms in the Park. While current knowledge of reptile species in the Park is listed as "well-known," closer inspection of available data reveal that much of the information related to occurrence and distribution are often based on few actual accounts (or sometimes just one). There are 36 reptile species recorded from Great Smoky Mountains National Park. Montane habitats of the Southeast are not generally known for their reptile diversity. Add to that the very cryptic nature of most reptile species and 520,000 sq. acres to cover, and this in large part explains why there is so little information on occurrence and distribution of reptiles in the Park.

We are using a variety of methods to elucidate knowledge of the species richness and distribution of reptiles in the Park. In addition to turning rocks and logs (a typically fruitful method where large geographic areas can be covered), we are employing a diversity of methods to sample for reptiles. We are placing temporary drift fences with screen funnel traps at selected areas in an effort to catch individuals on the move, particularly snakes. Roofing tin has been spread at various sites and has proved to be very successful. Animals found dead-on-the-road are also being collected. Turtle trapping is being conducted in streams, rivers and impoundments in the Park. And finally, historic records from museum data are being collected to provide more distributional information. Currently, no species new to the Park have been recorded, but much new information has been gathered to better understand the distribution of reptile species in the Park. We will present data on selected species regarding their historic distribution and our added data.

**Calling dynamics of the wood frog, *Rana sylvatica*, in Great Smoky Mountains National Park: Evaluation of the North American Amphibian Monitoring Protocol.** Cash, W.B. and M.E. Allen, Maryville College, Maryville, TN

The circadian calling dynamics of the wood frog, *Rana sylvatica*, were monitored during the 2001 breeding season (January 2001 – March 2001) at selected localities in Great Smoky Mountains National Park. Our objectives were to evaluate the effectiveness of the North American Amphibian Monitoring Protocol (NAAMP) for detecting wood frogs and to describe certain aspects of the circadian calling behavior of wood frogs. Calling male wood frogs were recorded throughout the 24-hour cycle using an automated, remote frog-logging device at multiple temporary aquatic habitats. Wood frogs are classified as explosive breeders and may only be present at the breeding site from 2 to 5 days. Little is known about their calling dynamics or the associated abiotic variables (i.e., temperature and rainfall). We found that the NAAMP protocol, as written, would be ineffective in detecting or describing wood frog breeding populations. We will present data that describe the circadian calling characteristics of wood frogs and the potential abiotic correlates associated with this behavior. These data will be important both in terms of learning about the basic natural history of the calling behavior in wood frogs, and the important conservation implications of understanding when wood frogs are likely to breed.



**The effect of predatory and nonpredatory snake cues on the foraging behavior of the zigzag salamander (*Plethodon dorsalis*).** Placyk, Jr., John S., University of Tennessee, Knoxville, TN

Many animals show a variety of behavioral responses to predator chemical cues, including avoidance of, or reduced activity, within areas that contain such cues. These behavioral responses are generally costly in that they can interfere with both foraging and reproductive behavior. However, there is still little information on how these cues influence the foraging behavior of reptiles and amphibians, and even fewer studies on diet-associated predator discrimination have been conducted with terrestrial animals in general. I examined the foraging behavior of zigzag salamanders (*Plethodon dorsalis*) in the presence of chemical cues deposited by snakes that normally prey on salamanders (i.e., ring-necked snakes (*Diadophis punctatus*)), as well as by snakes that do not include salamanders in their natural diet (i.e., African house snakes (*Lamprophis fuliginosus*)). When salamanders were tested in a control treatment with no exposure to snake chemical cues, they exhibited a passive sit-and-wait foraging strategy during the day and an active foraging strategy at night. This switch in foraging mode as a result of photocycle and circadian rhythms may be common for individuals in this genus. Conversely, when either predatory or nonpredatory snake cues were present, the salamanders became significantly less active at night than when they were tested in the control treatment. In spite of this change in foraging mode, foraging success remained constant: salamanders exhibited latencies to attack, number of attacks and number of prey eaten equivocal to those seen in the control treatment. My study indicates that foraging mode, but not foraging success, is directly influenced by the presence of snake chemical cues, whether they were deposited by predatory or nonpredatory snakes. This conclusion allows me to further hypothesize that all snakes may emit similar chemical cues regardless of their diet as a result of phylogenetic inertia and that salamanders may avoid all snakes as the result of an effective antipredator strategy.

**Alligator snapping turtle restoration in West Tennessee, a continuing project.** Peterson, Alan, Tennessee Wildlife Resources Agency, Region I

In Tennessee, alligator snapping turtles are included on the TWRA In-Need-of-management list. The division of Natural Heritage lists them as S3, rare and uncommon. At one time, alligator snappers were a C2 candidate species

with the U.S. Fish and Wildlife Service. They are currently a Species of Management Concern with the Service.

The known distribution of alligator snappers in Tennessee is from Kentucky Lake and its tributaries, west to the Mississippi River. However, in recent years, they have been much reduced in the western rivers, due in part to habitat changes, but mainly due to past commercial take. They appear to have a small, but stable, population in Kentucky Lake, although not much data regarding that population is available.

Beginning in July, 2000, a project to restore alligator snapping turtles in west Tennessee was initiated. Restoration involves only those tributaries which flow directly into the Mississippi River and does not involve the Tennessee River drainage or Kentucky Lake where a known population already exists.

Commercial harvest of alligator snapping turtles is legal in Louisiana. In July, 2000, eleven, wild-caught, adult alligator snapping turtles were purchased from a commercial trapper in and released in the Hatchie River. In June, 2001, eleven, wild-caught, adult turtles were released in the Forked Deer system and eleven into the Obion River system. In addition, in July 2001, 86 juvenile turtles, purchased from a commercial turtle farmer in Louisiana and donated to the project, were released in the Hatchie and Forked Deer systems and at T.O. Fuller State Park.

The goal of the project is to restore a healthy, viable, reproducing population of alligator snapping turtles to the river systems of west Tennessee and will continue until the goal is achieved.

**An annotated list of Tennessee's imperiled herpetofauna 2001.** Wyatt, Pete, Tennessee Wildlife Resources Agency, Region IV

Since 1974 the Tennessee Wildlife Resources Agency has been required by law to list endangered, threatened and In Need of Management species of mollusks, crustaceans, fish, amphibians, reptiles, birds and mammals. It is the focus of this presentation to discuss the herpetofauna (amphibians and reptiles) found on those lists and give an overview as to the status, distribution and future needs of those species in Tennessee.

**Legal protection afforded Tennessee's reptiles and amphibians.** Wyatt, Pete, Tennessee Wildlife Resources Agency, Region IV

Tennessee Code Annotated Laws, Rules and Regulations, Proclamations and Federal laws protect reptiles and amphibians in Tennessee. This presentation will present an overview of how these laws protect some species more than others and why. A discussion of the evolution of these laws, relative to Tennessee, and enforcement of these laws will be presented. Although a formal paper will not be presented a handout will be provided to the audience present.

**The next frontier: environmental enrichment and play in reptiles and amphibians.** Burghardt, Gordon M., University of Tennessee, Knoxville, TN

As more reptile and amphibian species are bred for several generations in captivity, concerted efforts will be needed to address the psychological well-being of these animals irrespective of any hopes or claims for release programs. The recognition that these issues are relevant to captive reptiles and amphibians is being dealt with much too slowly. In this presentation the issue of play and enriched environments will be discussed with some examples of turtle and lizard play, the factors underlying such performance, and what we can do to both recognize and encourage it. Ongoing studies on brain imaging and enrichment in lizards will also be briefly mentioned.