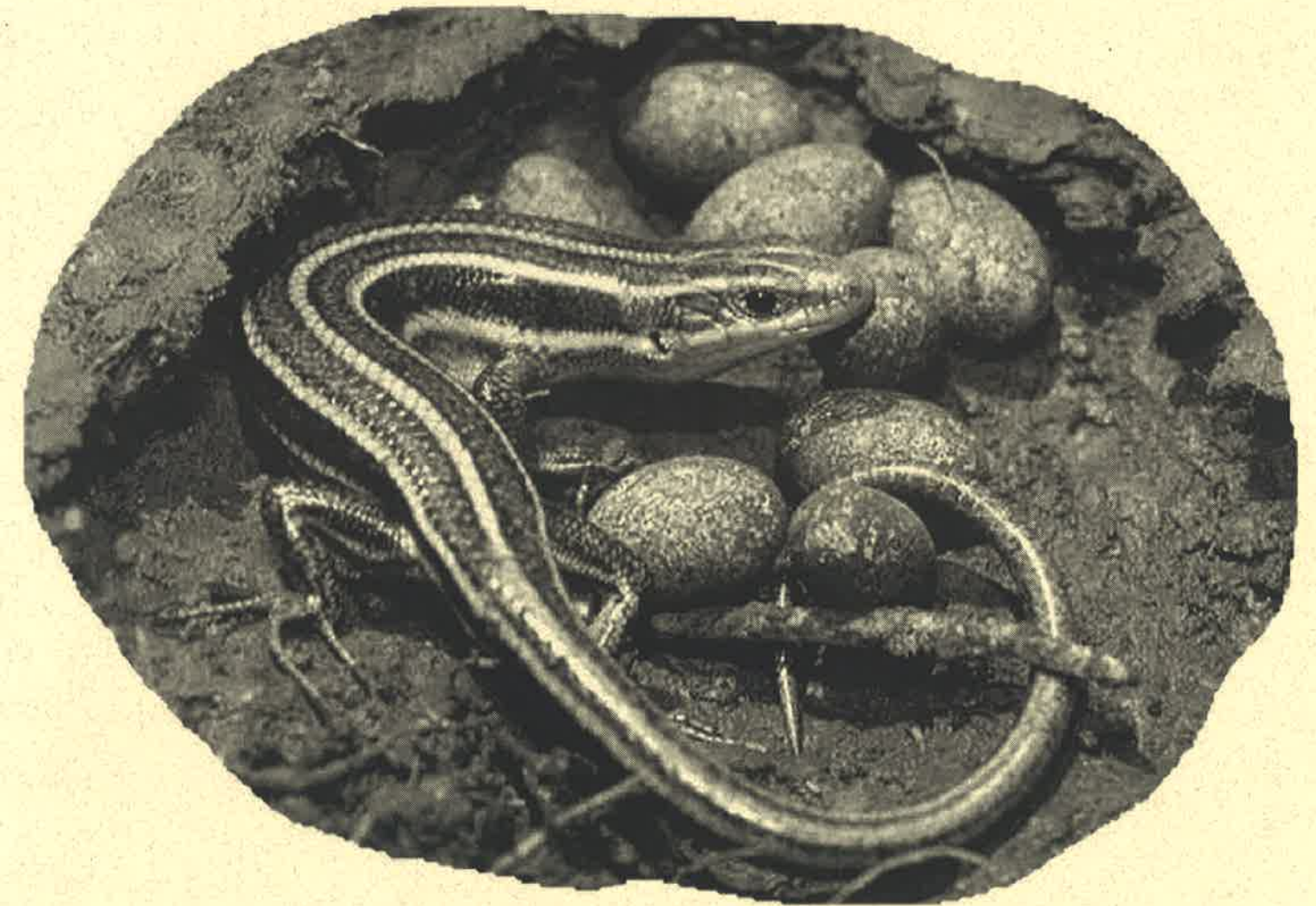


Tennessee Herpetological Society



Newsletter
Spring 2003
Volume 1, Number 1

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Five-lined Skink
Eumeces fasciatus

THIS ORGANIZATION WAS FORMED TO PROVIDE HERPETOLOGISTS IN TENNESSEE AND SURROUNDING STATES AN OPPORTUNITY TO MEET AND EXCHANGE IDEAS REGARDING CURRENT RESEARCH AND OTHER PROFESSIONAL ACTIVITIES ASSOCIATED WITH AMPHIBIANS AND REPTILES.

THE 8th ANNUAL MEETING OF THE TENNESSEE HERPETOLOGICAL SOCIETY TOOK PLACE OCTOBER 31 – NOVEMBER 1, 2002 ON THE CAMPUS OF AUSTIN PEAY STATE UNIVERSITY IN CLARKSVILLE, TENNESSEE.

A Word from the President

Greetings fellow Herpers:

When asked to write a "message", I thought it would be an easy task. On second thought, it really is not so easy. I look back on the Society's early days and remember how a few people were able to organize, pull together and accomplish some important things. A need was identified in those earlier times for a forum to share information about Tennessee's amphibian and reptile fauna. The network and circle of friends that has since been forged is as important, if not more so, than the information we have shared over the last decade.

Our Annual Meeting keeps getting better and better, thanks to a lot of hard work from dedicated members. Communication between members and from the Society to outside entities is evolving slowly, but in a positive direction. I am particularly proud and pleased with the progress of the Chad Lewis Fund. I feel confident that we (THS) will soon be able to help fund much needed research via student scholarship grants in Chad's memory.

As we approach the 2003 Annual Meeting, I would ask that each of you reflect on our past, look where we are now and pledge to take an active role in the future of the Tennessee Herpetological Society's future. Please help make the 2003 Annual Meeting a success by volunteering your time, talents and/or presence in Jackson in October.

I am always eager to hear from you.

Sincerely,

Pete Wyatt
3030 Wildlife Way
Morristown, TN 37814

The 9th annual THS meeting will be October 2-4 at Jackson State Community College in Jackson, Tennessee. For more information please contact John Koons, jkoons@jscc.edu or Pete Wyatt, Pete.Wyatt@state.tn.us



**The Bob Hatcher Conservation Award will be a permanent award of the herpetological society and will be presented annually to a person that "does good work for amphibians and reptiles."*

THE BOB HATCHER CONSERVATION AWARD

Pandy English, LEAPS

6228 Les Waggoner Rd., Franklin, TN 37067

At the 2001 fall conference, the Tennessee Herpetological Society (THS) awarded its first annual Bob Hatcher Conservation Award to Lisa Powers, our first THS president. Powers definitely does good work for amphibians and reptiles. She is the TAMP (Tennessee Amphibian Monitoring Program) Coordinator. She created the Tennessee toad and frogs websites for TAMP and TWRA as well as a website on the snakes of Tennessee. She is also active in other amphibian and reptile conservation groups such as PARC (Partners in Amphibian and Reptile Conservation). Lisa creates amphibian and reptile education brochures, posters, and handouts and conducts programs on amphibians and reptiles for schools. Because of her wide range of knowledge of amphibians and reptiles, she is often interviewed by the media on herp-related subjects. To say that Lisa Powers was instrumental in creating the Tennessee Herpetological Society is like saying Noah helped out with the Ark. THS simply would not exist if it were not for her. Keep up the good work Lisa and Congratulations!

The Bob Hatcher Legacy

Pandy English, LEAPS

6228 Les Waggoner Rd., Franklin, TN 37067

The above award honors Bob Hatcher, who retired March 31, 2001 from the Tennessee Wildlife Resources Agency (TWRA). Hatcher worked for the TWRA for 31 years, the last 21 years as the Coordinator of Non-game and Endangered Species. Recently, there was an article by Glenn Himebaugh in the Tennessee Wildlife magazine noting some of the accomplishments of the non-game program under the direction of Bob Hatcher. One area of tremendous success mentioned in the article was the reintroduction of native Tennessee wildlife species. Here are a few examples.

Since 1980 TWRA and its partners have released:

- 37 Golden Eagles
- 44 Peregrine Falcons
- 165 Ospreys
- 257 Mississippi Kites
- 284 Bald Eagles
- 487 River Otters
- 8,000 Ohio River Muskellunge
- Thousands of rare fish (10-11 sp.)
- 250,000 captive-bred, endangered mussels (8 sp.)

Twelve of Tennessee's 76 species of crayfish have been added to the state's rare species list and granted protection.

With Bob Hatcher as a catalyst, non-game animals have a newfound respect in Tennessee. Tennessee was the first state to create Watchable Wildlife Observation Areas. There are now 81 wildlife-viewing sites across the state.

Funding is always a limiting factor when it comes to conservation efforts. Knowing this, one of Hatcher's last battles before retiring was a long, hard fight to ratify the Conservation and Reinvestment Act (CARA). In one of the many handouts that Bob distributed at our herp conferences, he stated "The Conservation and Reinvestment Act could make a greater difference for the nation's non-game wildlife than any law of the last 50 years." CARA could provide funds generated from Outer Continental Shelf oil and gas royalties to Title III (non-game) wildlife programs. This could one day provide millions of dollars for such projects as land purchase, wildlife education programs, and research on species abundance and distribution. The future of CARA is not known. Bob has passed that torch to his replacement, Richard Kirk, and only time will tell.

Most importantly, Tennesseans are once again seeing wildlife species that were extirpated back in the wilds of our state. For example, the late John Netherton saw River Otters return to Radnor Lake. Also, my husband and I recently observed nesting Peregrine Falcons on the Alum Caves Bluff Trail in the Great Smoky Mountains. These things do not just happen. They take years of hard work, dedication, and direction. For that, we have Bob Hatcher to thank.

Funding Opportunities for Students Researching Amphibians and Reptiles

John S. Placyk, Jr.

Department of Ecology & Evolutionary Biology
University of Tennessee, Knoxville
Knoxville, TN 37966-1610

Funding to support studies on amphibians and reptiles is not always that easy to come by, especially for student researchers. Historically, studies focusing on amphibians and reptiles were not as highly esteemed as studies on birds, mammals, and other charismatic megafauna. However, the tides are turning. The scientific community is realizing that reptiles and amphibians make good model systems for studies in the biological sciences, and that the question being asked in the study, not the organism that is being used to answer the question, is of primary importance. As a result, funding opportunities for studying amphibians and reptiles have dramatically increased in recent years. This article is geared towards student researchers that are interested in funding opportunities to support their research projects. Listed below are several of the more popular granting agencies for students conducting research in the field of herpetology, as well as some more obscure funding agencies. Note that all of the funding opportunities listed below are extremely competitive. Students should have their application and proposals thoroughly reviewed by a faculty member or lead scientist familiar with applying for funding before submitting any materials to their respective granting agencies.

The American Museum of Natural History offers competitive grants and fellowships in areas broadly related to its scientific and educational objectives, which includes the field of vertebrate zoology. Their grants program offers modest, short-term awards to cover research expenses. While these awards are intended principally to assist advanced pre-doctoral candidates and postdoctoral researchers, there are no formal educational restrictions. Interested individuals should explore the Theodore Roosevelt Memorial Grant, which offers financial support to individuals for research on North American fauna in any phase of wildlife conservation or natural history related to the activities of the American Museum.

The deadline for applications is 15 February with awards being announced in early April. For more information, you can explore the American Museum of Natural History website at research.amnh.org/grants.

The American Society of Ichthyologists and Herpetologists (ASIH) offers the Gaige Fund Award, which provides support to young herpetologists for museum or laboratory study, travel, field work, or any other activity that will effectively enhance their professional careers and contributions to the science of herpetology. Applicants should be members of ASIH and should be enrolled for an advanced degree. The application and letters of recommendation should reach the committee chairperson no later than 1 March. It is expected that awards will be made by 1 May. Further information regarding the Gaige Fund Award can be found at the ASIH website www.asih.org.

The Chicago Herpetological Society (CHS) offers a herpetological grant to support herpetological research, education, and conservation. Applicants should be members of the CHS. Undergraduates, graduate students, amateurs and organizations are encouraged to apply. Applications must be received by 31 December with awards being announced by 15 February. For more information on the CHS, explore their website at www.chicagoherp.org.

Discover Life in America (DLIA) offers a mini-grant to support research activities associated with the Great Smoky Mountains National Park's All Taxa Biodiversity Inventory (GSMNP's ATBI). DLIA notes that proposals are most likely to be successful if they are fully integrated with the ATBI Science Plan, which is available on the DLIA website www.discoverlife.org. Proposals must be submitted electronically by 28 February. If awarded, funds will be made available on or around 15 April. For more information on the DLIA mini-grants, explore their website listed above.

The Explorers Club offers grants from their Exploration Fund in support of exploration and field research. Grants are made primarily to graduate students and members of expeditions; however, you do not have to be a member of the Explorers Club to apply. Completed applications must be received no later than 31 January for consideration in that calendar year.

Awards will be announced in April. It should be emphasized that those projects aided will be for scientific purposes in accordance with the Club's stated objectives, "to broaden our knowledge of the universe." Mere travel to remote areas will not be considered. More information on the Explorers Club can be found at their website www.explorers.org.

Sigma Xi offers Grants-in-Aid of Research to support scientific investigation in any field. Deadlines for applications are 15 March and 15 October. If the deadline falls on a weekend or holiday, applications will be accepted on the next business day. Applicants are notified by e-mail of the Award Committee's decisions within twelve weeks after each application deadline. Applicants must be either an undergraduate or graduate student in a degree program. Membership in Sigma Xi is not a requirement for the program as a whole, but the majority of the funds (75%) are designated for use by individuals whose primary advisors are Sigma Xi members or who are Sigma Xi student members themselves. For more information on Sigma Xi's Grants-in-Aid of Research, explore their website at www.sigmaxi.org.

The Society for the Study of Amphibians and Reptiles (SSAR) offers Grants-in-Herpetology Proposals to provide financial support for deserving individuals or organizations involved in herpetological research, education, or conservation.

Herp Resources For Teachers

John Byrd
Clinton High School
Clinton, Tennessee 37716

We had just concluded a discussion of reptilian foraging strategies in one of my high school biology classes by analyzing the feeding behavior of a black kingsnake. As we were leaving the lab, Samantha, a young lady that had scarcely uttered a word all year, meekly requested she be allowed to hold the snake. Upon hearing this, Josh, a "tough" kid that thought, "the only goodun is a deadun", boldly announced, "If Samantha holds that slimy thing, then I will to." The following day Samantha and Josh squared off for the "snake holding" show down. Samantha never hesitated as she gently, but confidently slid her hand

All applicants must be students AND members of the SSAR with the exception of those applying for support of regional herpetological society projects, or those applying in the International category. All proposals must be submitted (post-marked) no later than 28 February to be considered. The awards will be announced on or around 1 April. More information on SSAR funding opportunities can be found at www.ku.edu/~ssar.

The Tennessee Herpetological Society (THS) will begin offering the Chadwick Lewis Scholarship in the near future. While specific guidelines and deadlines have not yet been established for this award, all proposals are expected to fit the mission of the THS by furthering the field of herpetology through education, conservation, and research.

This article does not cover all of the possible funding opportunities available to students studying amphibians and reptiles; however, it does provide a stepping stone for those students interested in supporting their research via external sources. While student researchers are encouraged to submit as many proposals and applications that they are qualified to submit, caution is also warranted, as these funding opportunities are typically extremely competitive. Be sure that your proposals and applications are well thought out and reviewed by at least one or more experienced biologists. If you do submit proposals or applications to any of the above granting agencies, good luck.

under the body of the snake and lifted it out of the cage. After a few moments she offered the smooth, shiny serpent to Josh. Josh had already lost much of his normal color, but when Samantha approached him, all 5 liters of his blood was thrust into vital organs (it was "fight or flight" time). As Samantha placed the snake over his trembling hands, the only thing in the room that was slimy was Josh's skin. He danced back a few steps and exclaimed "God, this is awesome! If only my Mom could see me. I can't wait to get home to tell her." I snapped a digital picture of Josh and the snake and he took the picture home to show her (there was no Dad at home). Josh later confessed to me he had killed a lot of snakes in his 17 years and it wasn't something he was now proud of. I hired Josh that summer to help me conduct coverboard surveys. He did a great job. Education does work, and for the world of amphibians and reptiles it has never been more important.

Amphibians and Reptiles (herps) have always been an exciting and high interest topic for students at all levels. Studying herps in today's world no longer holds "a just for fun status." Because of copious human insults that have been directly or indirectly inflicted on amphibians and reptiles, there is now a sense of urgency to protect this unique group of critters. The goal of this article is to provide educators with a few suggestions for books and web sites that will help teachers and students build a knowledge base about herps and some of the adversities they face. There is a recently published National Science Teachers Association (NSTA) book entitled Hands-On Herpetology (145 pp) by **R. Schneider, M. Krasny, and S. Morreale** I would recommend as a starting point. The book is divided into five major sections that cover the following:

1. Getting Started
2. Biology: Up Close and In Hand
3. Herps: A Role in the Bigger Ecosystem
4. Conservation and Management
5. Herp Malformations and Declines: A Scientific Inquiry

Each chapter starts with a list of National Science Standards covered by that chapter. There are a total of 29 activities, 13 of them having an outdoor component. A terrific feature of the book is the SCLINKS. This is a relatively new NSTA project that links specific science content with related Internet resources. All you have to do is type in www.scilinks.org, sign in (its free), type the code word from the book chapter, and you will receive a list of selected sites that target the chapter topics. The sites have undergone a careful screening process and the number of sites is not overwhelming. In chapter 21 the authors have listed 8 websites that are specific to amphibians. There is also an activity that has students use websites to research amphibian natural history, identification, and conservation. I have listed the names of some sites, plus several sites specific for Tennessee, at the end of this article. You can order Hands-On Herpetology by going to www.nsta.org. Look for teacher resources and go to journals and books, click on NSTA Press and look for new publications. The cost is \$19.95 for non-members and \$17.96 for members.

Recently there has been a steady increase in the number of herp books, including some great children's books, but I am restricting my suggestions

to general resource books and books that are useful for Tennessee and the surrounding states.

I. **Books:** Key - AG= All grades (5th and up)
UG=upper grades (9th and up)

- 1) A Natural History of Amphibians / Robert C. Stebbins and Nathan W. Cohen (1995) UG
- 2) Amphibians and Reptiles of the Carolinas and Virginia / Bernard S. Martof, William M. Palmer, Joseph R. Bailey, and Julian R. Harrison (1980) AG - Great photographs by Jack Dermid.
- 3) Atlas of Amphibians in Tennessee / William H. Redmond and A. Floyd Scott (1996) UG - The atlas uses distribution maps to document county records for 21 species of frogs and 45 species of salamanders found in Tennessee (no photos). The atlas can be found on the web by typing in the URL listed in the web resources below.
- 5) Reptiles and Amphibians - Eastern/Central North America / Roger Conant and Joseph T. Collins (last updated in 1998) AG - This is a Peterson Field Guide and probably should be the first book in your herp library.
- 6) Reptiles & Amphibians of the Smokies / Stephen G. Tilley and James E. Huheey (2001) AG
- 7) Salamanders of the United States And Canada / James W. Petranka (1998) UG
- 8) Snakes of Eastern North America / Carl H. Ernst and Roger W. Barbour (1989) UG
- 9) Snakes In Question - The Smithsonian Answer Book / Carl H. Ernst and George R. Zug (1996) AG
- 10) Stokes Nature Guides - A Guide To Amphibians and Reptiles / Thomas F. Tynning (1990) AG - Every school and environmental center should have an entire set of the Stokes guides.
- 11) The Reptiles of Virginia / Joseph C. Mitchell (1994) UG
- 12) Turtles of the United States and Canada / Carl H. Ernst, Roger W. Barbour, and Jeffrey E. Lovich (1994) UG

In Preparation:

-A Field Guide to the Amphibians and Reptiles of Tennessee / T. S. Campbell and G.A. Sievert
-Handbook of the Frogs and Toads of Tennessee / Pandy English and Robert English There will be a companion CD that will include recordings of each species along with selected mixed choruses from different regions of the state.

II. Herp Websites:

A. Tennessee Herp Sites:

- 1) Atlas of Amphibians in Tennessee
www.apsu.edu/amatlas/title.htm
- 2) Leaps Frog Identification
www.leaps.ms Includes natural history information, vocalizations, and pictures of the frogs in Tennessee. A great site for frog lovers.
- 3) Snakes of Tennessee
www.frogsandsnakes.homestead.com/snakes.html If you live in Tennessee this is the place to start or improve your snake identification skills. Has nice photographs and range maps. Natural history information is being added.
- 4) Tennessee Amphibian Monitoring Project (TAMP)
www.state.tn.us/twra/tamp.html This is the Tennessee Wildlife Resources Agency site that informs members of the public on how they can become volunteer frog loggers. Has excellent links – e.g. Frogs of Tennessee, Kentucky, Georgia, Missouri, Amphibians and Reptiles of North Carolina, Virginia, and Snakes of Tennessee. You can obtain information on nongame species by going to the TWRA site.

B. General Herp Sites:

- 1) **Partners for Amphibian and Reptile Conservation (PARC)**
www.parcplace.org A good place to start if you are interested in amphibians and conservation issues. The PARC mission focuses on habitat protection and education. Has some excellent links, including A Thousand Friends of Frogs.

John Netherton: A Herpetological Tribute

David Badger

Department of Journalism
Middle Tennessee State University

The herpetofauna of Tennessee lost a true friend on 15 March 2001 when nature photographer John Netherton died of a heart attack at his home in Nashville at the age of 52.

In a photographic career that spanned some three decades, John found himself drawn more and more to the natural world around him, from the insects,

2) Declining Amphibian Population Task Force (DAPTF)

www.open.ac.uk/daptf/index.htm Links to FROGLOG, a newsletter that features articles on various aspects of amphibian declines.

3) Frogwatch USA

www.mp2-pwrc.usgs.gov/frogwatch Encourages volunteers to collect information on frogs in wetlands. Provides monitoring protocols.

4) Minnesota New Country School Frog Project

www.mncs.k12.mn.us/html/projects/frog/frog.html This is the group that brought national attention to frog malformations. This site is about their continued activities.

5) Minnesota Pollution Control Agency

www.pca.state.min.us/hot/frogs.html Includes photos and facts sheets on malformed frogs.

6) North American Amphibian Monitoring Program (NAAMP)

www.mp1-pwrc.usgs.gov/amphibs.html A great field techniques information site which should be explored in detail before conducting amphibian field studies. The site has project suggestions for teachers.

7) North American Reporting Center for Amphibian Malformations (NARCAM)

www.npwrc.usgs.gov/narcam/ Compiles information from public and scientific sources on amphibian malformations.

8) **HerpDigest** – A free online publication that provides news updates on the latest happenings in the world of herp conservation. You can request HerpDigest by contacting Allen Salzberg at “asalzberg@herpdigest.org”

wildflowers and songbirds in his backyard to the reptiles and amphibians of the Everglades, Great Smoky Mountains and American Southwest. (Humans, as subjects, were of virtually no photographic interest to him at all.) John didn't just admire frogs and snakes and lizards and salamanders from afar—he liked to jump right in (well, wade right in) and photograph them in their natural habitats. He also sheltered transient specimens in a greenhouse adjoining his studio long enough to study their behavior and shoot their portraits before releasing them back into the wild.

John had already written and photographed numerous books (about Radnor Lake, the Great Smoky Mountains, Florida, North American wading birds, Big South Fork and other subjects) before he

approached Voyageur Press about publishing a book about frogs. Voyageur was excited until they learned John had no intention of writing the book himself. Instead, he wanted me to write it.

The fact that I knew absolutely nothing about frogs didn't deter him a bit. I had previously edited most of John's books, magazine articles and columns—and now, he insisted, he wanted to have *fun...* by which he meant only shoot the photos. Voyageur eventually agreed, after I wrote a trial chapter on dart-poison frogs to demonstrate my basic literacy.

From the very start, John recognized the potential offered by the striking colors and patterns of native and non-native frogs and toads. And, as he set about photographing them, John really did have fun—whether he was standing hip-deep in the fetid waters of a Tennessee slough, crouching beneath a glass tank to shoot the underside of an Oriental fire-bellied toad, perching precariously on a stool in his greenhouse to shoot the eggs of his red-eyed tree frogs, or hovering over an African reed frog detained momentarily on his kitchen table.

One night, when he heard it was going to rain, John invited me to his West Nashville studio, where we hatched an ingenious scheme: I would play Lang Elliott's recording of the songs of North American frogs and toads on a portable tape player beside a creek bed where American toads and several species of frogs were known to lurk. This would, of course, inspire them all to sing lustily while John took their photographs. Or so we thought.

Actually, what happened was this: Once it began to rain, I had to balance the tape recorder, an umbrella and a flashlight while John sloshed through the shallow creek, sheltering his Nikon equipment under his umbrella while gamely attempting to illuminate the surroundings with a miner's headlamp. Unfortunately, as the rain fell harder, I began to lose track of *which* species' advertisement calls I was playing.

That's when John erupted into gales of laughter. It dawned on him that some of the frog calls were *warning* calls—scaring the hell out of every self-respecting frog and toad in West Nashville and making us feel pretty dam silly in the process.

A few weeks later, John reported an unusual event at his studio. Although his apartment was up at least two flights of stairs, he opened his door one morning to find a large toad waiting patiently outside in the hallway. How very odd, he thought; even

stranger was the appearance of a black rat snake outside the same door after we began a subsequent book collaboration on snakes.

This project resulted after our publisher saw John's gorgeous frog photographs and suggested a companion volume on snakes. I couldn't see the point in it, however, since there were already innumerable volumes about snakes, but John snuck off to Florida, took some dazzling photos of tree boas and pythons, and convinced me to sign on.

For this book, John did more traveling—driving to Arizona and New Mexico to shoot rattlesnakes in the desert. While there, he experimented with some novel contraptions concocted by his friends at Nikon—to keep him out of harm's way—and he later had a grand old time back in Florida, visiting herpetologist friends at the Jacksonville Zoo and St. Augustine Alligator Farm, and even the fabled Bill Haast, who nimbly milked mambas while John snapped away.

Several times we joined MTSU Biology Professor Brian Miller for field trips to Cedars of Lebanon State Forest, where his students collected a wonderful array of specimens...and where I learned that juvenile black racers aren't black, but they *do* have astonishingly sharp teeth.

The shooting on *Snakes* was interrupted several weeks later when John suffered a minor heart attack and underwent an emergency angioplasty procedure. This slowed him down a bit, though not enough to keep him from an all-day photo shoot at the Nashville Zoo, where Curator of Reptiles Dale McGinnity obligingly produced snake after snake—virtually all of them venomous—for John to photograph. The night before, a raccoon somehow managed to knock out the air-conditioning system in the Reptile House, so it was incredibly hot. I joined John and Dale for their high-spirited adventure and hovered somewhat anxiously in the background, especially when an eyelash viper slipped off a vine and began descending a tripod stand. Dale's king cobra was surprisingly tolerant of our shenanigans, and even declined to flare or hiss until John's flash startled it just as Dale was returning it to its glass cage.

A few weeks later, John had to undergo bypass surgery—which irked him to no end, as his cardiologist announced he could not lift any objects weighing more than 5 pounds after the surgery. Since his equipment weighed considerably more

than that, he sulked for a while—until Brian Miller caught some easygoing worm snakes and ring-necked snakes for John to photograph without straining” himself.

There was also an incident involving Miller. He caught a rough green snake, which was transported by taxi to John’s studio at midnight. After his recovery, John was eager for more—and when Voyageur proposed yet *another* coffee-table herp book—this one about lizards—he cajoled me once again into agreeing to write the text.

John had already been to the Galapagos Islands some years earlier, and now he went to Washington with former Senator Howard Baker to photograph at the National Zoo (Komodo dragons for the lizards book; mammals and birds for a planned book collaboration with Sen. Baker about the zoo itself). After a grueling month on the road, John returned to Nashville with more than 100 rolls of slides, but, just two weeks later, he suffered his second heart attack and died.

Species Profile: Eastern Narrowmouth Toads

Pandy English, LEAPS

6228 Les Waggoner Rd., Franklin, TN 37067

It’s late summer and you can still hear frogs calling, especially the warm season breeders such as Bullfrogs and Green Frogs. This is also the time of year to listen for frogs that breed following heavy summer rains such as the Eastern Spadefoot and the Eastern Narrowmouth Toad. Usually in August or September there is at least one heavy rainfall. If this rain is more than 2 inches it creates ideal conditions for the Spadefoots and Narrowmouths to congregate, call and breed. In this species spotlight we are going to focus on one of these deluge inspired breeders, the Eastern Narrowmouth Toad.

The call of the Narrowmouth Toad is a long, nasal, insect-like “beeeeeeeeeee.” Many people say that this call sounds like the bleating of a lamb. The species that folks most often confuse with the Narrowmouth is the Fowler’s Toad* which sounds like the “waaaaaaah” of a baby cry. The call of the Narrowmouth Toad is higher pitched and more nasal than the Fowler’s Toad but they can sound similar. Since the Fowler’s Toad and Eastern Narrowmouth Toads’ breeding seasons can overlap,

That weekend, John’s friends and admirers flocked to Radnor Lake to hear Sen. Baker, Radnor

Lake Manager Mike Carlton and John’s son Jason delivered tributes in a memorial service at the Netherton Overlook on the shore of the Lake. The service was interrupted by the singing of one particularly vocal songbird—and by a flyover of Canada geese, winging their way overhead in their own ceremonial farewell. If the temperature had been a little warmer, Radnor’s turtles probably would have crawled ashore to bid farewell to John too, joined by choruses of spring peepers and gray tree frogs.

Fortunately, John’s art continues to live on—in books, posters, museum prints, calendars, postcards, even license plates—and his vivid portraits of wildlife will be cherished by future generations of admirers...some of whom, he would have been pleased to learn, will now carry on his crusade for environmental preservation for many years to come.

it is important to compare these two species’ calls by listening to the TAMP training cassette.

When listening for Narrowmouth Toads, be sure to listen all along your survey route. Narrowmouths breed in temporary, shallow waters. You might not have selected the kid’s soccer field as a listening point on your road route but if it puddles after a heavy rain it’s a perfect mating ground for this flash flood breeder. After the heavy rainfall, breeding is typically completed within a day or two. The Narrowmouth Toad’s egg mass is a surface film consisting of 10-150 eggs patterned into a fine, geometric mosaic. Numerous tiny air bubbles often cover the eggs. Like most frogs that breed in temporary waters, Narrowmouth Toads metamorphose quickly. The eggs hatch in as little as one day and the tadpoles transform into froglets in 20-70 days.

Eastern Narrowmouth Toads are not true toads even though the name of their genus, *Gastrophryne*, literally means stomach toad (gastro - stomach, phryne - toad). True toads are in the genus *Bufo*. Narrowmouths are called toads because they have a plump body with very short legs that force them to hop versus leap. They are often described as potbellied or toad-bellied and although toadlike in some ways they are very untoad-like in others. For example, their skin is smooth and they have a sharply pointed, turtle-like snout. This is very different from true toads that are wide mouthed and

warty. Narrowmouths also lack the signature parotoid glands of true toads.

Eastern Narrowmouths are small, measuring 2.2 - 3.8 centimeters. They occur in a variety of earth tones ranging from ash to clay. They are usually the same color as the bottom of their breeding pool with a broad, band of a lighter shade down the center of the back. Their belly is strongly mottled. Males have dark throats during the breeding season.

A very distinguishing characteristic of Narrowmouth Toads is a fold of skin across the back of their heads. Some researchers speculate that this fold can be pulled over the frog’s eyes to protect them from their favorite food, ants. Narrowmouth Toads have been found sitting, unmolested, in the center of active ant nests. In captivity Narrowmouths eat ants readily. They also eat termites and small beetles.

Narrowmouth Toads are found in a variety of habitats including cedar glades.

Their main habitat requirements are shelter and moisture. They are secretive and spend most of their time in underground burrows and under decaying logs, boards and leaf litter. Outside of the breeding season, they are usually found by turning over old boards and rocks.

Eastern Narrowmouth Toads are widespread in Tennessee but are apparently absent from high elevations of the Blue Ridge Mountains according to the *Atlas of Amphibians in Tennessee* by William Redmond and Floyd Scott. There are many Tennessee counties lacking records of Narrowmouth Toads. Therefore, there is plenty of opportunity for frog loggers to document new county records and to fill in distribution gaps for this species. Following or during a heavy summer rain get out and listen for the high pitched, buzzy “beeeeeee” of the Eastern Narrowmouth Toad and add this frog to your route’s species list and possibly increase its known range in Tennessee.

HERPETOLOGICAL UPDATES

- Woodhouse’s Toad (*Bufo woodhousii fowleri*) has been separated into two species, *Bufo woodhousii* and *Bufo fowleri*. The species in Tennessee is *B. fowleri*, the Fowler’s Toad.
- The Eastern Rat Snake (*Elaphe obsoleta*) subspecies in Tennessee has been *E. o. obsoleta* (Black Rat Snake) in central and east Tennessee and *E. o. lindheimeri* (Texas Rat Snake) in west Tennessee. Recent systematic research on this species complex has recommended raising the seven different subspecies to the level of three species. The result is the Central Rat Snake (*E. spiloides*) for the state of Tennessee.

NOMINATIONS

- The THS is now accepting nominations for the Bob Hatcher Conservation Award. Please send any nominations to our President, Pete Wyatt, at the address given on page one.

UPCOMING FALL NEWSLETTER

Plans for the fall newsletter include the addition of the following topics:

Tennessee Research Updates – information on current projects in Tennessee
Notes from the Field – short natural history observations of interest
Herpetologist Profile – biographical article on a herpetologist in Tennessee

Please send all newsletter contributions to Vincent Cobb - Publications Secretary, Department of Biology, Box 60, Middle Tennessee State University, Murfreesboro, TN 37132; email: vcobb@mtsu.edu

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**Pete Wyatt, President
Tennessee Herpetological Society
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