

SOUTHEASTERN BIOLOGY



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Number 1

ASB **ASB 76TH ANNUAL MEETING** *ASB*
APRIL 1-4, 2015

ASB **University of Tennessee at Chattanooga** *ASB*

ASB **Meeting Site: Convention Center at the** *ASB*
Marriott, Chattanooga, Tennessee

ASB

See Page 1 and Consult Website
<http://www.sebiologists.org>

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Downtown Chattanooga Marriott and Convention Center

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PURPOSE

The purpose of this association shall be to promote the advancement of biology as a science by encouraging research, the imparting of knowledge, the application of knowledge to the solution of biological problems, and the preservation of biological resources. The ASB has representation in Section G Committee of the AAAS. Varying types of membership are available to individuals and institutions. See inside back cover.

TIME AND PLACE OF FUTURE MEETINGS

2015 April 1-4: Hosted by the University of Tennessee at Chattanooga and by the Tennessee Aquarium. Meeting site is the Convention Center at the Marriott.

THE CITY OF CHATTANOOGA

History of Chattanooga

Chattanooga is rich in history, from the nation's first and largest military park, the Chickamauga and Chattanooga National Military Park; Ross's Landing on the riverfront, a Cherokee removal site now memorialized by The Passage, an interactive water feature; the Chattanooga Choo Choo Terminal Train Station Complex built in 1909 to museums like the Tennessee Valley Railroad Museum, Bessie Smith Cultural Center and the International Towing & Recovery Museum and Hall of Fame.

The name "Chattanooga" comes from the Creek Indian word for "rock coming to a point." This refers to Lookout Mountain which begins in Chattanooga and stretches 88 miles through Alabama and Georgia. The city itself started out with two different names: Ross's Landing and Lookout City. In 1838, the city officially took the name of "Chattanooga."

Because of Chattanooga's strategic location, river and rail systems, Chattanooga was considered the gateway to the Deep South and an important location for both the Union and the Confederate armies. Rail transportation began in Chattanooga in the 1850s. Connections to other cities were constructed by the Western & Atlantic, Nashville & Chattanooga, Memphis & Charleston, and East Tennessee & Georgia Railroads. The city's population stood at approximately 2,500 people at the beginning of the Civil War. Although Chattanooga supported secession, Hamilton County as a whole voted to remain in the Union. The county became one of the key battlegrounds of the war, as both the Confederate and Union armies attempted to keep possession of this important railway hub. Some of the hardest fought and most complex battles happened during the fall of 1863 on Lookout Mountain and Missionary Ridge.



The Chickamauga Chattanooga National Military Park stands as the oldest and the largest military parks in the nation and was established through the efforts of Civil War veterans who came together from both armies in 1889. This Civil War battleground not only preserves, but also honors heroism, reconciliation and national reunification

Ross's Landing, on the Chattanooga Riverfront, was established in 1816 by John Ross, a Chief of the Cherokee Indians. This area consisted of a ferry, warehouse and landing. With the organization of Hamilton County in 1819, Ross's Landing served not only the Cherokee trade but also as a convenient business center for the county. In 1838, Cherokee parties left from Ross's Landing for the West on what became known as the Trail of Tears.

Ross's Landing Park and Plaza encompasses a four-acre area surrounding the Tennessee Aquarium and overlooking the Tennessee River and scenic landscapes. The park includes green spaces, a playground, a pier and The Passage, an area where people can play in water cascading down steps alongside six-foot clay medallions set into the wall representing specific aspects of the Cherokee tribes' history.

Chattanooga's train history dates back before the Civil War, and with our developed rail lines and river, we were a strategic location for many of the battles. Chattanooga was made famous by the Glenn Miller Orchestra, who recorded the first gold record with the song, "Chattanooga Choo Choo."

Today, you can still be a part of the "Golden Age" and take a ride aboard a train at the Tennessee Valley Railroad or ride up Lookout Mountain on the steepest passenger railway in the world, the Lookout Mountain Incline Railway.

Chattanooga Today

From the late 1960s to the early 1980s, Chattanooga was known as America's dirtiest city. By 1982, city residents and leaders were tired of the bad reputation of the city, and an \$850 million plan was devised to revitalize the city's downtown and riverfront by the year 2000.

In 1986 the River City Company was formed to promote, encourage, and assist local economic development along 22 miles of river frontage and in the central business district. It was succeeded by a new agency formed in 1993 when River City Company merged with Partners for Economic Progress, forming a public-private economic development agency called RiverValley Partners. Also in 1986, the Chattanooga Neighborhood Enterprise Housing Program was founded to make housing affordable for local residents and to eliminate substandard housing.

In the 1990s, Chattanooga Venture, a community think tank, was begun to introduce new programs for local residents. In 1991 the Target '96 Plan, an environmental initiative—the first of its kind in the country—was established to deal with education, business development, and community action in a comprehensive, coordinated manner. At the end of the century, Chattanooga's focus on sustainable development centers and creating an environment that would attract and retain companies that provide good jobs in businesses that would continue to grow in the twenty-first century. Today, Chattanooga is realizing those goals with a new focus enhancing its allure for conventioners, tourists, and Chattanoogaans alike through the completion of several major renovation projects throughout the city.

THE UNIVERSITY OF TENNESSEE at CHATTANOOGA



Mission: Located near downtown Chattanooga, the University of Tennessee at Chattanooga is an engaged, metropolitan university committed to excellence in teaching, research, and service, and dedicated to meeting the diverse needs of the region through strategic partnerships and community involvement.

History: When the Methodist Episcopal Church began to explore the possibilities of developing a central university in the South, Chattanoogaans came forward to work with the church in this effort. Since its founding as Chattanooga University in 1886, The University of Tennessee at Chattanooga has developed an institutional excellence which rests on an unusual blend of the private and public traditions of American education.

For 83 years the University was a private school. Three years after its founding, the University was consolidated with another church-related school, East Tennessee Wesleyan University at Athens, under the name of Grant University. In 1907 the name University of Chattanooga was adopted.

In 1969 the University of Chattanooga and a junior college, Chattanooga City College, merged with the University of Tennessee, one of the oldest land-grant universities in the nation, to form the UTC campus. Pledged to the service of the entire state, the University of Tennessee has emerged as a statewide system consisting of four primary campuses. The new campus was given the mandate to devote the major portion of its resources to the development of excellence in undergraduate education and in selected areas of graduate study.



TENNESSEE AQUARIUM

Mission: The Tennessee Aquarium inspires wonder, appreciation and protection of water and all life that it sustains.

History: Chattanoogaans and visitors by the millions have rediscovered the city's roots by the river, where a transformation began in 1992 with the opening of the world's largest freshwater aquarium, the Tennessee Aquarium. Recognized as a "cathedral of conservation" with its glass peaks gracing Chattanooga's skyline, the Aquarium showcases the city's greatest natural resource, the Tennessee River.



The projects along the riverfront and downtown have made Chattanooga a model for urban revitalization all over the world. To reclaim the river, citizens returned to the site where the city was born in 1816 – where Cherokee Chief John Ross established a trading post on the banks of the Tennessee River. In 1984, Chattanoogaans joined in a community planning process called "Vision 2000." Restoring downtown's vitality was very much at the heart of the meetings. At the same time a publicly appointed citizen group hosted community meetings about how to reclaim the Tennessee River. Those discussions were focused on public access and meaningful development along the riverfront. It was a group of

architectural students from the University of Tennessee at Knoxville who first suggested the idea of an aquarium near the downtown waterfront.

River Journey, the building that opened in May 1992, tells the story of the river – following the path of a raindrop from the streams of an Appalachian Forest to the Gulf of Mexico – from the mountains to the sea. Along their path, Aquarium visitors “take a walk on the wild side” discovering walk-through forests of an Appalachian cove and a bayou, touch tank experiences with endangered Lake Sturgeon, and daily animal encounter programs designed to get guests face-to-face with fascinating animals from around the world.

In the 2005 expansion, Ocean Journey, visitors explore tropical habitats and the saltwater world. From the chilly, sub-Antarctic waters of playful penguins to the warmer sea currents patrolled by toothy sharks, visitors encounter amazing animals above and beneath the waves. Marine creatures like graceful stingrays and a multitude of beautiful fish glide through amazing coral formations in the Aquarium’s Secret Reef exhibit.



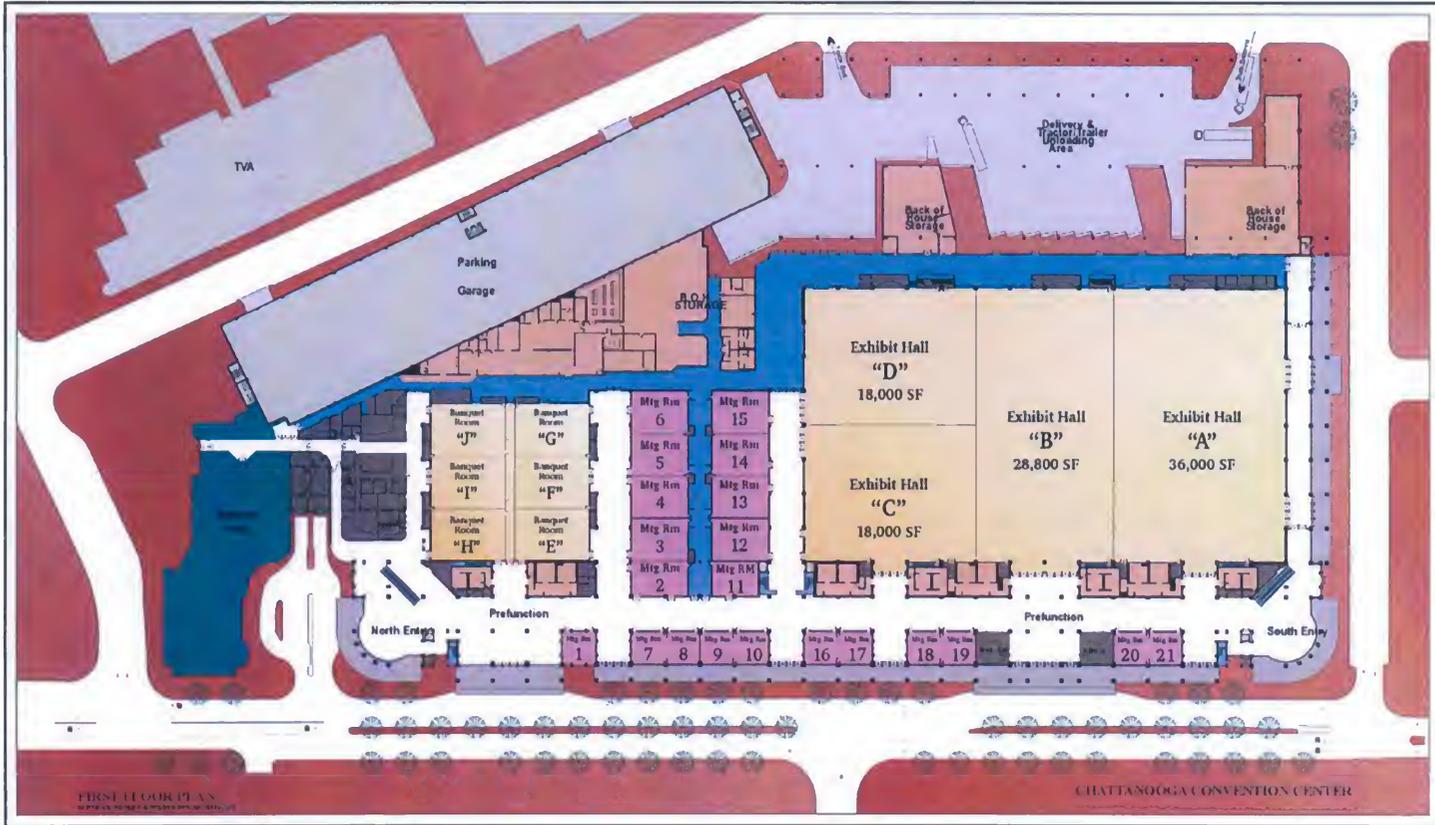
Kathlina Alford, Reintroduction Biologist, works with Southern Appalachian Brook Trout fry reared at TNACI as part of a conservation program.

In addition to the educational exhibits and programs, the nonprofit Tennessee Aquarium fulfills its mission through the work of the Tennessee Aquarium Conservation Institute (TNACI). The seeds of TNACI began in 1996 when the Tennessee Aquarium formed the Southeast Aquatic Research Institute, a collaborative partnership with the University of Tennessee at Chattanooga and the Tennessee River Gorge Trust. The first major project undertaken by the Institute was the publication of *Aquatic Fauna in Peril: The Southeastern Perspective*, edited by George Benz, the first Director, and David Collins, the Curator of Forests at the Aquarium. In 2009, the name changed to emphasize our mission to protect the aquatic species and habitats in our region. Today, TNACI’s five scientists collaborate with state and federal conservation agencies, university scientists, and other non-governmental environmental organizations to help restore the delicate balance of biodiversity throughout the Southeast.

Much like the Tennessee River connects us to the Gulf of Mexico, the Aquarium strives to connect visitors and regional residents to the natural world. Like a favorite fishing spot, people return to Chattanooga to visit the Aquarium to see amazing creatures that swim, fly and crawl in natural habitats, but also to enjoy the entire riverfront experience and the natural mountain attractions that surround it.



High school students celebrate clean water while snorkeling in the Conasauga River as part of the Tennessee Aquarium's summer camp program.



Chattanooga Convention Center First Floor Plan

PAPER AND POSTER ABSTRACTS

You must attend and present your paper/poster in order to have the abstract published in the July issue of *SEB*. Please visit the ASB web site for the latest information on papers and posters for the Chattanooga meeting! www.sebiologists.org.

The Abstract Deadline is Sunday, February 1, 2015, but has been extended to Sunday, February 8, 2015. ☞

ASB FIELD TRIPS AND OTHER ACTIVITIES

- 1. Ichthyological explorations of South Chickamauga Creek just outside of Chattanooga, TN.** Trip leader: Bernie Kuhajda (brk@tnaqua.org) (423-785-3072) from the Tennessee Aquarium Conservation Institute. Less than a half-hour from downtown Chattanooga, South Chickamauga Creek is home to over 40 species of fishes including Stargazing Minnows, Mountain Madtoms, and Blueside Darters. Historically there were over 60 species of fishes that inhabited this watershed, including the now extinct Harelip Sucker. Fishes will have their best spring-time colors and male minnows and suckers will be all decked out in breeding tubercles. Seines, viewing tanks, and some chest waders will be provided, but please bring your own waders if you have them. We recommend that you bring a drink and light snack. Photos are welcome, but all fishes will be released. Meet at the front of the Chattanooga Convention Center at 9:00 am to depart in a van for the field trip. We will return by 1:00 pm. Transportation cost is \$15.00 per person.
- 2. Sequatchie Cave State Natural Area & Town Creek Tour, Marion County, TN.** Trip Leaders: David Ian Withers (david.withers@tn.gov) (615-532-0441) of the Tennessee Division of Natural Areas and Stephanie Chance (stephanie_chance@fws.gov) of the U.S. Fish & Wildlife Service. Enjoy this in-depth examination of two spring-fed stream systems, home to the only known populations of the federally endangered Royal snail (*Marstonia ogmorhapse*) and including one of only two known locations for the federal candidate Sequatchie caddisfly (*Glyphopsyche sequatchie*). Examine the history of Sequatchie Cave (Owen Spring) and Town Creek (including the Blue Hole) and the life histories of the Royal snail, Sequatchie caddisfly, and other species. Learn simple techniques for diagnosing these taxa in the field. We will start by visiting Sequatchie Cave State Natural Area in Sequatchie, Tennessee. This biologically significant area is located where Owen Spring Branch flows from the mouth of Sequatchie Cave Park – the type of locality for both the snail and the caddisfly. At Sequatchie Cave we will discuss the restoration work that preceded its recognition as a State Natural Area in 2001, more restoration work to come, and then will carefully examine the Royal snail and the caddisfly, their habitat, and sympatric species. Sequatchie Cave (AKA Blowing Cave) was at one time a roadside park operated by the Tennessee Department of Transportation, and remains

a popular attraction for local families & travelers, in part because the area outside the large entrance is naturally air conditioned in the summer. We will break for lunch at this scenic spot, so please bring a bag lunch with you, as well as snacks and water. From Sequatchie we will travel south to the Blue Hole, the head of Town Creek in Jasper, home to the other known population of the royal snail. A recent cave dive expedition has revealed over 10,000 feet of submerged passage feeding the Blue Hole, which provides the majority of the drinking water for the residents of Jasper (<http://nickajack-naturalist.typepad.com/files/jasper-blue-spring-16mar13.pdf>). Wear shoes and clothes you do not mind getting a bit dirty, and bring hand lenses to see Royal snail and Sequatchie caddisfly features up close. Meet in the parking area at Sequatchie Cave State Natural Area, immediately north of Sequatchie on Valley View Highway, approximately 3.8 road miles north of Jasper, TN, via U.S. 41 and Valley View Highway. Turn left onto Park Street to enter.

3. **Lula Lake Land Trust, Lookout Mountain, GA.** Trip Leaders: Austin Prater (Austin-Prater@mocs.utc.edu) (423-667-5424) and Hill Craddock (hill-craddock@utc.edu) (423-290-8924). The Lula Lake Land Trust includes areas of striking natural beauty including high bluffs and steep canyons, waterfalls and deep, cold splash pools that harbor several very interesting and diverse plant communities. We will visit LLLT core property, starting at Rock Creek, hiking up to and along the Cumberland Escarpment (locally known as the East Brow) northbound to Eagle Point (offering spectacular vistas of the Escarpment itself and the adjacent ridges and valleys), then down through the talus slope and rich cove forest to the base of Lula Falls. Exposed sandstone glades along the Brow include *Phemeranthus* and *Gelsemium*, among the rare species. The upland river scour cobble bar community contains *Spirea virginiana*, and recently discovered populations of *Calamovilfa arcuata* and *Solidago arenicola* (new state records). The hike is moderate, along well marked trails with several steep ascents and possible creek crossings. The trip will be Saturday, 4 April 2015 from 9 am to 3 pm. We will pick up at 9:00 am and drop off at 3:00 pm at the Chattanooga Convention Center bus stop on W. 11th Street (near the corner of 11th and Chestnut Street). Transportation provided. Boxed lunches available.
4. **Exploring Ecological Communities of the Cumberland Plateau on the campus of the University of the South in Sewanee, TN.** Trip Leaders: Jon Evans (jevans@sewanee.edu) (931-598-1304) and Kevin Hiers (jkhiers@sewanee.edu) (931-598-1885). This tour will highlight the Cumberland Plateau and Sewanee's campus Domain, a 13,000 acre living laboratory that serves as a hub for biological and conservation-related research and is home to over 1100 species of vascular plants. We will lead at 3-4 hour hike that will visit a variety of communities including: an ephemeral pond, a sandstone rockhouse, a sandstone outcrop, chestnut oak woodlands and an old-growth, cove forest. Please meet at the Bookstore on the Sewanee campus at 8:30 AM central time (note: Chattanooga is on eastern time). After the hike, there will be an optional tour of the Sewanee Herbarium and lunch can be purchased at the self-operating McClurg dining

hall -- serving locally grown produce. The hike will be moderately strenuous, so wear appropriate footwear.

Other things to do in the area:

- ***Tennessee Aquarium** – River Journey and Ocean Journey aquariums located on the Tennessee riverfront, on the free shuttle route.
- ***Tennessee Aquarium IMAX-3D Theatre** – six story screen, IMAX is the largest and most exciting film format in the world, located across from the aquarium, on the free shuttle route.
- ***Creative Discovery Museum** – designed for children two to twelve, this museum is full of hands-on family fun encouraging everyone to create a sculpture, build a robot, dig for dinosaur bones, make wild and crazy music, or pretend to be a riverboat captain in the miniature river exhibit, located one block from the IMAX theatre, on the free shuttle route.
- ***Southern Belle Riverboat** – enjoy a variety of cruises on this 500-passenger climate controlled riverboat departing from Ross's Landing, directly behind the aquarium.
- ***Chattanooga African-American Museum & Bessie Smith Hall** – features exhibits of African-American contributions that have enriched the history of **Chattanooga** and exhibits related to the life and times of Bessie Smith, the "Empress of the Blues".
- ***Rock City Gardens, Ruby Falls and Incline Railway** – high atop historic Lookout Mountain, these three world famous attractions offer thrills, beautiful scenery and breathtaking views.
- ***Tennessee Valley Railroad** – is currently the largest operating railroad museum in the Southeast. Step back in time aboard a steam locomotive as you ride the rails through a pre-Civil War tunnel.
- ***Hunter Museum of Art** – located in the beautiful Bluff View Art District, this museum houses the most complete collection of American art in the Southeast.
- ***Warehouse Row** – Located in an 18th century stone and brick fortress, Warehouse Row is the destination for an eclectic mix of boutique shopping, artisans, and dining. From high-end furniture and home décor accessories to the latest trends in clothing, shoes and jewelry, this up-and-coming downtown beacon is becoming one of the hottest places to play.
- ***Frazier Avenue** – Ask anyone and they'll tell you Frazier Avenue is where you'll find locally owned shops featuring everything from art supplies to clothing and shoes, folk art, books, wind up toys, handmade gifts and poster art, bicycles, jewelry and gifts, house-made beer, donuts, ice cream, hot dogs and more.

ASB 2015 SYMPOSIA

ECOLOGY AND EVOLUTION OF GLADE SYSTEMS OF THE SOUTHEAST

This symposium will highlight research in both plant and animal systems within glade habitats of the Southeast. Organized by Ashley Morris.

BOTANY OF EXTREME HABITATS

On a regional scale, the environment of southeastern North America is often viewed as temperate and mesic. However, on a finer scale there are many examples of climatically or edaphically extreme habitats, including those that are xeric, acidic, hypersaline, nutrient-poor, high-elevation, or found on bare rock. This symposium will include contributions exploring the botany of extreme habitats in the southeast from a variety of perspectives, including physiology, ecology, systematics, and evolution. By looking at a range of habitat types and research approaches, we hope to reveal common themes that transcend traditional specialized disciplinary boundaries. Organized by Katherine Mathews.

COMMERCIAL WORKSHOPS/SPECIAL SESSIONS

Commercial Workshops/Special Sessions will also be available for all registered attendees! These workshops presented by exhibitors will allow you to learn about the latest tips from the experts. The fee for each workshop will be \$10 each, and you may register to attend one or more workshops during the Annual ASB Meeting. To register, and to read about the workshop descriptions, go to <http://www.sebiologists.org> and review the descriptions on the registration pages. Space is limited and you must pre-register for them, so don't delay! All workshops will be held at the Chattanooga Marriott.

SILENT AUCTION

ASB will again hold a silent auction next to the exhibitors. All of the proceeds will go towards supporting student travel to the annual meeting. Come look at the items up for bid and help support our presenting students.

SOCIAL EVENTS

Wednesday Night Mixer

Immediately following the Plenary Session, there will be a social mixer with LIGHT hors d'oeuvres, a cash bar, and live music. The mixer is a long tradition at ASB meetings and is a great time to renew old acquaintances and make new ones. Be sure to sign up for this FREE event on the registration form. To be held at the Chattanooga Marriott. You must have a ticket to attend.

Thursday Night Social

Thursday evening begins with a barbeque dinner at the Downtown Chattanooga Marriott Convention Center, and then transitions to an evening of music and festivities at the Tennessee Aquarium. More details in the April, 2015 issue of *SEB*.

Friday Night Awards Banquet

The culmination of the annual meeting is the ASB Awards Banquet, where we honor the accomplishments of attendees. Delicious beef, chicken and vegetarian options are available. Following dinner, awards will be presented. Remember that long speeches are no longer a part of the banquet. (A reminder: those competing for ASB awards must register for and be present at the banquet in order to receive the award.)

Activities for Guests

Attendees and family members will find many interesting places to visit in the Chattanooga area. Visit the Chattanooga Website <http://www.visitchattanooga.com/>

CONFERENCE BADGES

You will receive your meeting badges when you arrive in Chattanooga. Simply proceed to the Registration Area at the Chattanooga Marriott to receive your badge. Guests of conference participants should ask for guest conference badges at the registration desk. **YOU MUST WEAR YOUR BADGE TO ALL FUNCTIONS, INCLUDING SOCIAL EVENTS!**

Plenary Speaker

Dr. Kenneth C. Catania

**Stevenson Professor of Biological Sciences
Vanderbilt University, Nashville, TN**

Stars, whiskers, and brains – The neurobiology and behavior of some specialized southeastern predators

Wednesday, April 1, 2015 - 7:30 PM

Location TBA

Ken Catania has built a career around understanding the neurobiology and behavior of unusual organisms. His work has been featured in Science News, National Geographic, the New York Times, ABC News, and BBC News, among other popular outlets. He is both a MacArthur (2006) and Guggenheim (2014) Fellow, as well as having received an NSF CAREER Award (2003). Ken and his colleagues have published more than 80 peer-reviewed articles and five book chapters, as well as continuous funding from external agencies for nearly 20 years. We are delighted to welcome Ken as Plenary Speaker for ASB 2015.



Dr. Kenneth C. Catania

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ASB 2015 REGISTRATION INFORMATION

Chattanooga, Tennessee, April 1-4, 2015
Marriott Chattanooga at the Convention Center
2 Carter Plaza, Chattanooga, TN 37402
(423) 756-0002

Please complete the registration form whether paying by credit card or check. Early registration ends March 29. **Please note: the events section of this registration has multiple parts. Please scroll through the entire page and make all selections prior to continuing through to payment.**

Member Cost:

ASB Regular Member (Early/On Site) - \$225/\$295
ASB Student Member (Early/On Site) - \$115/\$160
ASB Patron Member - \$0
ASB Emeritus Member (Early/On Site) - \$225/\$295
ASB Lifetime Member - \$225

General Registration:

Non-member Regular (Early/On Site) - \$300/\$370
Non-member Student (Early/On Site) - \$160/\$205
Day Guest - Register On Site only

Note: To register for the meeting as an ASB Member and receive the discounted registration rate, your membership dues must be up-to-date. You will be able to join or renew as part of the registration process. You can check your current membership status at the following link: <http://goo.gl/dSEJHI>.

If paying by check, please mail a copy of your registration confirmation and payment to: 2015 ASB Conference Office of Conference & Camp Services ASU Box 32042 Appalachian State University Boone, NC 28608-2042.

For Registration Information and Questions: Meredith Linden 828-262-8718 or lindenma@appstate.edu or Debbie Langley at 828-262-2902 or langleydc@appstate.edu

Early registration ends March 29.

Personal Information

First Name : *

Last Name : *

Name for Nametag :

Institution/Organization : *

Address 1 : *

Address 2 :

City : *

State : *

Zip : *

Work Phone : *

Fax :

Country : - US

Home Phone :

Cell Phone :

Email : *

Status :

- Faculty
- Graduate
- Undergraduate
- Other

Please be sure your membership is up to date if you are registering as a Member. You will have the opportunity to join or renew your membership on the following screen. Non-members should register as either "Regular" or "Student."

Note: If you are planning on joining or renewing your membership online, please select the appropriate ASB member option

- ASB Regular Member
- ASB Student Member
- ASB Patron Member
- ASB Emeritus Member
- ASB Lifetime Member
- Non-Member Regular
- Non-Member Student

* Required Field

Please review all the options. You can join or renew your membership as well as register for social events, workshops, field trips, and bag lunches online or here (circle your choices in each category).

Additional Online Items.

T-Shirts:

Select the number of t-shirts you'd like to purchase. Indicate your size (S, M, L, XL) in the box.

Short Sleeve T-Shirt
Price Per Person \$12.00

Long Sleeve T-Shirt
Price Per Person \$15.00

Affiliations: *(Check all that apply)*

Association of Southeastern Biologists
Ecological Society of America
Tri-Beta Honor Society
Southern Appalachian Botanical Society
Southern Appalachian Botanical Society
Botanical Society of America
Society of Herbarium Curators Southeastern Society of Parasitologists
National Association of Biology Teachers

Membership Options

If you are not a member, or if you need to renew your membership, please select from the following options. You can check your current membership status at the following link <http://goo.gl/dSEJHI>.

Regular Annual Membership
Price Per Person \$50.00

Regular Annual Membership w/SE Naturalist Sub.
Price Per Person \$70.00
(SAVE \$30 with this option!)

Student Annual Membership
Price Per Person \$20.00

Student Annual Membership w/SE Naturalist Sub.
Price Per Person \$40.00
(SAVE \$18 with this option!)

Emeritus Annual Membership
Price Per Person \$20.00

Any member who has been a regular member of the Association for 10 or more consecutive years and who has retired from professional duties may request Emeritus membership.

Emeritus Annual Membership w/SE Naturalist Sub.
Price Per Person \$40.00
(SAVE \$18 with this option!)

Life Membership
Price Per Person \$500.00

Life Membership is a one-time payment. All other membership categories are on an annual basis unless otherwise indicated.

Southeastern Naturalist does not offer a Life Subscription option. Life Members who wish to receive SENA must pay \$32 per year for SENA subscription, an \$18 per year discount for ASB Life Members.

Patron Annual Membership
Price Per Person \$1,000.00

Patron Annual Membership w/SE Naturalist Sub.
Price Per Person \$1,020.00
(SAVE \$20 with this option!)

Life & Patron Membership (New)
Price Per Person \$1,500.00
Requires a \$500 initial, one-time Life Membership payment, and \$1,000 per year for Patron Membership.

Life & Patron Membership (Annual Renewal)
Price Per Person \$1,000.00

Social Events

(Please check all events you plan to attend; see Program for details) Students must have student ID at check-in. If you purchase tickets for a guest, please register your guest's name onsite.

Wednesday Night Plenary & Social - April 1, 2015

Wednesday evening post-plenary reception; heavy hors d'oeuvres with cash bar.
You must have a ticket to attend.

Wednesday Night Plenary & Social

Price Per Person \$0.00

Thursday's Events - April 2, 2015

Past Presidents' Breakfast

Price Per Person \$20.00

Human Diversity Committee Luncheon - Lunch provided for registrants; please make your selection below.

Human Diversity Committee: A candid discussion about the committee, its future, and the relationship with ASB

Croissant Turkey Club

Deli Beef

Deli Turkey

Deli Ham

Chicken Wrap

Vegetarian Salad

Vegetarian Wrap

NSF Information Luncheon - purchase your choice of box lunch for \$18

Croissant Turkey Club

Deli Beef

Deli Turkey

Deli Ham

Chicken Wrap

Vegetarian Salad

Vegetarian Wrap

Society of Herbarium Curators Southeast Chapter Luncheon - purchase your choice of box lunch for \$18

Croissant Turkey Club

Deli Beef

Deli Turkey

Deli Ham

Chicken Wrap

Vegetarian Salad

Vegetarian Wrap

Thursday Night Social

Thursday Night Social Regular – Price Per Person \$35.00

Thursday Night Social Student – Price Per Person \$20.00

Thursday Night Social Guest – Price Per Person \$35.00

Please enter your guest's first name, last name, and affiliation (if applicable) for name tag purposes: _____

Friday's Events - April 3, 2015**SABS/SEBSA Chapter Breakfast**

SABS/SEBSA Chapter Breakfast

Price Per Person \$20.00

Education Committee Luncheon and Discussion - Lunch provided for registrants; please make your selection below

Croissant Turkey Club	Chicken Wrap
Deli Beef	Vegetarian Salad
Deli Turkey	Vegetarian Wrap
Deli Ham	

Ecological Society of America Southeast Chapter Luncheon - purchase your choice of box lunch for \$18

Croissant Turkey Club	Chicken Wrap
Deli Beef	Vegetarian Salad
Deli Turkey	Vegetarian Wrap
Deli Ham	

PULSE Luncheon - By invitation only; lunch is provided; please make your selection below

Croissant Turkey Club	Chicken Wrap
Deli Beef	Vegetarian Salad
Deli Turkey	Vegetarian Wrap
Deli Ham	

Friday Night Awards Social

No charge for the social; cash bar will be available.

Friday Night Pre-Banquet Social

Friday Night Awards Banquet

Reminder: You must purchase a ticket and attend the banquet to be eligible for an ASB Award.

You have your choice of dinner for the banquet. Please select the appropriate choice box below: regular, student, or guest; vegetarian, chicken, or beef.

Vegetarian option: Butternut Squash Ravioli in sage butter, assorted grilled vegetables, toasted pine nuts

Chicken option: Athenian Chicken - chicken breast rubbed with Mediterranean spices and olive oil topped with a tapenade of olives, tomatoes and goat cheese; served with roasted potato spears and lemon vinaigrette, and chef's choice of seasonal vegetable

Beef option: Prime Rib of Beef - garlic studded and sliced prime rib of beef and rosemary demi au jus horseradish, chive infused potatoes, and chef's seasonal vegetable selection

Friday Night Banquet Regular - Vegetarian
Price Per Person \$35.00

Friday Night Banquet Regular - Chicken
Price Per Person \$35.00

Friday Night Banquet Regular - Beef
Price Per Person \$35.00

Friday Night Banquet Student - Vegetarian
Friday Night Banquet Student - Chicken
Friday Night Banquet Student - Beef
Price Per Person \$15.00

Friday Night Banquet Guest - Vegetarian
Price Per Person \$35.00
Please enter your guest's first name, last name, and affiliation (if applicable) for name tag purposes: _____

Friday Night Banquet Guest - Chicken
Friday Night Banquet Guest - Beef
Price Per Person \$35.00
Please enter your guest's first name, last name, and affiliation (if applicable) for name tag purposes: _____

Field Trips - April 4, 2015

\$15 per regular member, non-member, or guest
\$10 per student

Box lunches may be purchased separately for \$18.
Make box lunch selection below.

Croissant Turkey Club	Chicken Wrap
Deli Beef	Vegetarian Salad
Deli Turkey	Vegetarian Wrap
Deli Ham	

Thursday Field Trip Tri-Beta Field Trip. Thursday afternoon April 2nd from 1:00-5:00 PM. Visit Rock City and the Incline Railroad, Chattanooga, TN

THURSDAY Tri-Beta - Regular Member
Date : 4/2/2015 Price Per Person \$15.00

THURSDAY Tri-Beta - Student Member
Date : 4/2/2015

Trip leader: Lee Sutton (suttonle@ecu.edu) 804-519-0174

Rock City will amaze you! Located atop Lookout Mountain, just 6 miles from downtown Chattanooga, Rock City is a true marvel of nature featuring massive

ancient rock formations, gardens with over 400 native plant species, and breathtaking "See 7 States" panoramic views. Take an unforgettable journey along the Enchanted Trail where each step reveals natural beauty and wonders along the woodland path.

The Incline's trolley-style cars climb through the natural beauty surrounding historic Lookout Mountain at a breathtaking 72.7% grade – straight up! Sit back, and enjoy the scenic views of the mountains and valleys from the observation windows on the train as well as the panoramic views from the observation tower at the Incline's top station.

Meet at the Chattanooga Convention Center bus stop on W. 11th Street (near the corner of 11th and Chestnut Street) at 1:00 PM. We will return by 5:00 pm. Transportation provided.

Saturday Field Trips

Ichthyological explorations of South Chickamauga Creek

Ichthyological Explorations - Regular Member
Price Per Person \$15.00

Ichthyological Explorations - Student Member
Price Per Person \$10.00

Ichthyological explorations of South Chickamauga Creek just outside of Chattanooga, TN

Trip leader: Bernie Kuhajda (brk@tnaqua.org) (423-785-3072) from the Tennessee Aquarium Conservation Institute.

Less than a half-hour from downtown Chattanooga, South Chickamauga Creek is home to over 40 species of fishes including Stargazing Minnows, Mountain Madtoms, and Blueside Darters. Historically there were over 60 species of fishes that inhabited this watershed, including the now extinct Harelip Sucker. Fishes will have their best spring-time colors and male minnows and suckers will be all decked out in breeding tubercles. Seines, viewing tanks, and some chest waders will be provided, but please bring your own waders if you have them. Please purchase a box lunch or bring a lunch, snacks and water. Photos are welcome, but all fishes will be released.

Meet at the front of the Chattanooga Convention Center at 9:00 am. We will return by 1:00 pm. Transportation provided.

Sequatchie Cave State Natural Area & Town Creek Tour

Sequatchie Cave - Regular Member
Price Per Person \$15.00
Sequatchie Cave - Student Member
Price Per Person \$10.00

Sequatchie Cave State Natural Area & Town Creek Tour, Marion County, TN

Trip Leaders: David Ian Withers (david.withers@tn.gov) (615-532-0441) of the Tennessee Division of Natural Areas and Stephanie Chance (stephanie_chance@fws.gov) of the U.S. Fish & Wildlife Service.

Enjoy this in-depth examination of two spring-fed stream systems, home to the only known populations of the federally endangered Royal snail (*Marstonia ogmorhappe*) and including one of only two known locations for the federal candidate Sequatchie caddisfly (*Glyphopsyche sequatchie*). Examine the history of Sequatchie Cave (Owen Spring) and Town Creek (including the Blue Hole) and the life histories of the Royal snail, Sequatchie caddisfly, and other species. Learn simple techniques for diagnosing these taxa in the field. We will start by visiting Sequatchie Cave State Natural Area in Sequatchie, Tennessee. This biologically significant area is located where Owen Spring Branch flows from the mouth of Sequatchie Cave Park – the type of locality for both the snail and the caddisfly. At Sequatchie Cave we will discuss the restoration work that preceded its recognition as a State Natural Area in 2001, more restoration work to come, and then we will carefully examine the Royal snail and the caddisfly, their habitat, and sympatric species. We will break for lunch at Sequatchie Cave, so please purchase a box lunch or bring a bag lunch with you, as well as snacks and water. From Sequatchie we will travel south to the Blue Hole, the head of Town Creek in Jasper, home to the other known population of the royal snail. A recent cave dive expedition has revealed over 10,000 feet of submerged passage feeding the Blue Hole, which provides the majority of the drinking water for the residents of Jasper (<http://nickajack-naturalist.typepad.com/files/jasper-blue-spring-16mar13.pdf>). Wear shoes and clothes you do not mind getting a bit dirty, and bring hand lenses to see Royal snail and Sequatchie caddisfly features up close. Please purchase a box lunch or bring a lunch, snacks and water.

Meet in the parking area at Sequatchie Cave State Natural Area, immediately north of Sequatchie on Valley View Highway, approximately 3.8 road miles north of Jasper, TN, via U.S. 41 and Valley View Highway. Turn left onto Park Street to enter.

Lula Lake Land Trust

Lula Lanke Land Trust - Regular Member

Price Per Person \$15.00

Lula Lake Land Trust - Student Member

Price Per Person \$10.00

Lula Lake Land Trust, Lookout Mountain, GA

Trip Leaders: Austin Prater (Austin-Prater@mocs.utc.edu) (423-667-5424) and Hill Craddock (hill-craddock@utc.edu) (423290-8924).

The Lula Lake Land Trust includes areas of striking natural beauty including high bluffs and steep canyons, waterfalls and deep, cold splash pools that harbor

several very interesting and diverse plant communities. We will visit LLLT core property, starting at Rock Creek, hiking up to and along the Cumberland Escarpment (locally known as the East Brow) northbound to Eagle Point (offering spectacular vistas of the Escarpment itself and the adjacent ridges and valleys), then down through the talus slope and rich cove forest to the base of Lula Falls. Exposed sandstone glades along the Brow include *Phemeranthus* and *Gelsemium*, among the rare species. The upland river scour cobble bar community contains *Spirea virginiana*, and recently discovered populations of *Calamovilfa arcuata* and *Solidago arenicola* (new state records). The hike is moderate, along well marked trails with several steep ascents and possible creek crossings. Please purchase a box lunch or bring a lunch, snacks and water.

Meet at the Chattanooga Convention Center bus stop on W. 11th Street (near the corner of 11th and Chestnut Street) at 9:00 AM. Return to Convention Center at 3:00 PM. Transportation provided.

Exploring Ecological Communities of the Cumberland Plateau

Exploring Ecological Communities - Regular Member
Price Per Person \$15.00

Exploring Ecological Communities - Student Member
Price Per Person \$10.00

Exploring Ecological Communities of the Cumberland Plateau on the campus of the University of the South in Sewanee, TN

Trip Leaders: Jon Evans (jevans@sewanee.edu) (931-598-1304) and Kevin Hiers (jkhiers@sewanee.edu) (931-598-1885).

This tour will highlight the Cumberland Plateau and Sewanee's campus Domain, a 13,000 acre living laboratory that serves as a hub for biological and conservation-related research and is home to over 1100 species of vascular plants. We will lead a 3-4 hour hike that will visit a variety of communities including: an ephemeral pond, a sandstone rockhouse, a sandstone outcrop, chestnut oak woodlands and an old-growth, cove forest. After the hike, there will be an optional tour of the Sewanee Herbarium and lunch can be purchased at the self-operating McClurg dining hall -- serving locally grown produce. The hike will be moderately strenuous, so wear appropriate footwear.

Please meet at the Bookstore on the Sewanee campus at 8:30 AM central time (note: Chattanooga is on eastern time).

Hotel Information

Our official conference hotel is the:

Marriott Chattanooga at the Convention Center.
(The room rate for a Single or Double is \$139.)
 2 Carter Plaza
 Chattanooga, TN 37402
 423-756-0002

The Executive Committee has worked hard to reduce costs for students. Student hotel accommodations are \$99 per night at the Sheraton Read House. Non-students or professional are strongly encouraged to stay at the Marriott at the Convention Center because ASB is financially obligated to fill all of the rooms there; if meeting attendees don't fill the Marriott, ASB is obligated to pay for them. Book your room at the Marriott using the ASB group rate now.

The student hotel is the:

Sheraton Read House Hotel Chattanooga
(The room rate is \$99)
 827 Broad Street
 Chattanooga, TN 37402
 423-266-4121 or 886-837-4193 for reservations

CS

THE TREASURER'S REPORT

EDGAR LICKEY

4 DECEMBER 2014

ASB remains in great financial shape with total assets of \$168,067.82 divided among four accounts as of 4 December 2014. Forms for reinstatement of tax exempt status will be sent to IRS by next week.

CURRENT BALANCE

(as of 4 December 2014)

Wells Fargo Checking	\$127,355.29
PayPal	\$4,650.47
Wells Fargo Savings	\$13,167.33
Wells Fargo CD	\$10,058.75
PNC Checking	\$12,835.98
Total	\$168,067.82

CS



Please donate to the Silent Auction!!

The silent auction was a huge success the past two years in Charleston and Spartanburg. With YOUR HELP, we raised over \$8,500 for the Student Travel Fund in the past two years. This fund was established in 2006 to help defer travel cost for Graduate Student members presenting papers or posters during the ASB Annual Meeting. Since the fund was created, many students have benefited from these travel grants.

In order to surpass the amount we raised in Charleston and Spartanburg, we need Your Help again this year in Chattanooga, TN, the site of the Annual ASB Meeting, April 1-4, 2015. The donated items can be books, to handcrafts, to memorabilia, to nature photography, to t-shirts or anything else you think appropriate. Some examples of the recent bestselling items are gift baskets, gift cards, nature books, jewelry, wine or any adult beverage and unique gifts.

- If you have an item you would like to donate to the Silent Auction, please contact Patricia Cox at pcox@utk.edu so we can add your item to our list.
- If you are unable to attend, please mail (via US Postal Service) your item to Patricia B. Cox before Friday March 28th at:

**Patricia B. Cox
3601 Garden Dr.
Knoxville, TN 37918**

- If you are attending the meeting, please bring your item to the Silent Auction Area in the Exhibit Hall before 10:00 AM on Thursday, April 2 and one of the committee members will be available to receive it.

We want to thank you in advance for participating in this worthwhile event. If you have any questions, please feel free to contact one of the Committee Members below:

Patricia Cox -- pcox@utk.edu
Kim Marie Tolson -- tolson@ulm.edu
Pat Parr -- parrpd@ornl.gov
Eloise Carter -- ecarter@learnlink.emory.edu
Bonnie Kelley -- bonnie.kelley@uncp.edu
Diane Nelson -- jandnelson@yahoo.com



Silent Auction

Yes, I would like to contribute to the Silent Auction to help with student travel to the Annual Meeting.
 (100% of all proceeds to benefit student travel).

Examples of Previous Submitted Items

- Dissection Set
- Corporate Gift Certificates
- Frog Model
- Dinner for Two
- Two Nights Hotel Accommodations
- Books
- Charts
- Wine Gift Basket
- Educational Charts
- Microscope
- Books

Description of item(s) to be donated:

Please check appropriate option:

- Please contact me at the convention to pick up donation.
 I will mail donation to Patricia B. Cox, 3601 Garden Drive, Knoxville, TN 37918; 865-632-3609; pcox@utk.edu.

Signature	Date	phone
-----------	------	-------

Title	e-mail
-------	--------

Return Silent Auction form Patricia B. Cox, 3601 Garden Drive, Knoxville, TN 37918; 865-632-3609; pcox@utk.edu. ☞



Exhibitor Booth Registration Form

2015 Association of Southeastern Biologists
 April 1-4, 2015, Chattanooga, Tennessee
 Chattanooga Marriott and Convention Center

Exhibitor Package: Each \$975 booth consists of (1) 8' X 5' booth, (1) 6' X 24" white covered table with skirting, 2 folding chairs and 1 wastebasket, security services, hot link from ASB Web Site, 2 Tickets to Thurs Night Social-The Fantasy Band "Beer & BBQ", AM & PM breaks, Exhibitor Pizza Party during installation, exhibit hall signage, booth identification sign, recognition announcements and one 50-minute commercial workshop with full payment of booth only (workshop form must be submitted by February 28, 2015), 2 complimentary badges for employees only (additional badges are \$175/person), 25 word description will appear in the final show program (The exhibit hall is carpeted).

Company/Organization _____
 (Please list company name as you wish it to appear on printed materials)

Representative (The person who will receive the Exhibitor Service Kit):

If you need additional Service Kits, please e-mail: joey-shaw@utc.edu

Email Address: _____

Contact Address: _____

Telephone: _____ Fax: _____

Web Site: (Hot Link from ASB Web Site) _____

25 Word Workshop Description: Please submit description via e-mail to joey-shaw@utc.edu _____

 (Description will appear in Final Show Program of *Southeastern Biology*)

Qty	Item	Amount
_____	Patron Member Booth	included
_____	1 st Booth	\$975
_____	Each Additional Booth	\$500
_____	Publishers Book Exhibit	\$250/title

_____ Yes I would like an AD in Southeastern Biology, Final On-Site Program
(circle choice)

¼ page=\$250, ½ page=\$375, full page=\$500

(The On-Site Program Ad is included at no charge for Patron Members)

Total Amount Enclosed \$ _____

Requested Booth Number (see Floor Plans #1 & # 2):

1st choice _____ 2nd choice _____ 3rd choice _____

Hold Harmless Clause: The Exhibitor assumes all responsibility and liability for losses, damages and claims arising out of injury to the exhibitor's display, equipment and other property brought upon the premises of the convention facilities and shall indemnify and hold harmless the association agents, servants and employees as well as the ASB organization from any losses, damages and claims.

Upon acceptance by ASB, this signed application and Exhibitor Contract form becomes the contract for booth rental for the 2014 ASB Annual Convention. Exhibitors will be notified of their acceptance no later than 1 March 2015. Refund Policy: 50% on or before 1 March 2015, 0% on or after 2 March 2015.

Signature Date

Title e-mail

Return Exhibitor Registration Form with Check or Credit card info to Joey Shaw,
Dept. of Biological and Environmental Sciences, University of Tennessee,
Chattanooga, TN 37403; joey-shaw@utc.edu.



*Exhibitor Service Kits to be e-mailed by 30 March 2015



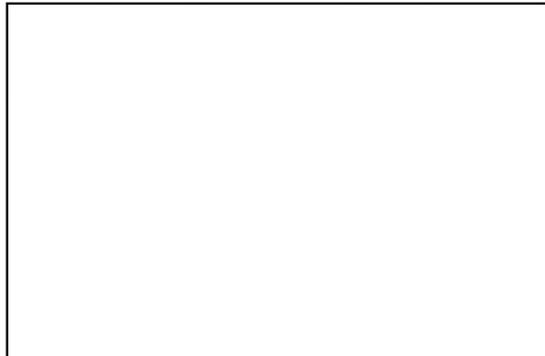
**Advertising
with the
Association of Southeastern Biologists**

Reach Your Target Audience and
Promote your Products and Services Throughout the Year!!
Advertise in Southeastern Biology.

Advertise in Southeastern Biology and reach about 1,000 members from 42 states and 13 countries. ASB publishes 4 issues of Southeastern Biology per year and an On-Site Program for the Annual Meeting. Choose one or both opportunities to increase your marketing exposure. Promote your products and services throughout the year!



¼ Page 1½" X 1"



½ Page 3" X 2"



Full Page 7½" (↓) X 4 ¾"

**Advertising with the Association of Southeastern Biologists
(cont.)**

_____ Yes, I would like an AD in all 4 (Full Color)
4 issues of Southeastern Biology, (circle choice)

¼ page=\$200, ½ page=\$325, full page=\$425

_____ AD in Final On-Site Program (circle choice) (Black & White Only)

¼ page=\$175, ½ page=\$225, full page=\$275

*All must be submitted in pdf.

Return Form with Check or Credit Card Information to Edgar Lickey, Department of Biology, 402 East College Street, Box 125, Bridgewater College, Bridgewater, VA 22811, elickey@bridgewater.edu. ☞

Industry Partners Form

2015 Association of Southeastern Biologists
 April 1-4, 2015, Chattanooga, Tennessee

 Yes I Would Like to Partner with ASB and Participate
 In the Industry Partners Program!!

Send no money now, please complete form and return to address shown below

Company/Organization _____
(Please list company name as you wish it to appear on printed materials)
 Representative: _____ Email _____
 Address: _____
 City, State, Zip: _____
 Telephone: _____ Fax: _____

*Special Recognition at the Thursday Night Social, Friday Night Awards Banquet, signage at the Convention Center and a listing in Final Program of *Southeastern Biology*!

Qty	Item	Amount
_____	Wed. Night Cash Bar (4 Opportunities)	\$500/opportunity
_____	Coffee Breaks (8 Opportunities)	\$500/opportunity
_____	Cyber Café & Marketing Survey	\$750/opportunity
_____	Thurs. Night Social (4 Opportunities)	\$900/opportunity
_____	Friday Night Banquet Cash Bar	\$850
_____	Yes, I wish to present a workshop	See Workshop Form
_____	24-Hour Exhibit Hall Security	\$1,000
_____	ASB Executive Committee Breakfast	\$350
_____	Yes, I would like to Donate an Item to the Silent Auction to help with Student Travel	See Silent Auction Form
_____	ASB Web Site Hot Link to Your Company (12 months)	\$375
_____	Yes, I would like an AD in all 4 2015 issues of <i>Southeastern Biology</i> (circle choice) ¼ page=\$200, ½ page=\$325, full page=\$425	See Advertising Form
_____	AD in Final On-Site Program (circle choice) ¼ page=\$175, ½ page=\$225, full page=\$275	See Advertising Form

Signature _____ Date _____

Title _____ e-mail _____

Return Form with Check or Credit Card Information by **January 1, 2015** to: Zack Murrell, Dept. of Biology, Appalachian State University, Boone, NC 28608; 828-262-2674; murrellze@appstate.edu.





Re-Cap & Payment Information

<u>Description</u>	<u>Amount</u>
Exhibiting Full Booth	\$ _____
Publishers Book Exhibit	\$ _____
Advertising	\$ _____
Industry Partners	\$ _____
Total	\$ _____

Mail or Fax Your Forms

Fax or mail your completed registration form along with your credit card information or check to Joey Shaw, Dept. of Biological & Environmental Sciences, University of Tennessee, Chattanooga, TN 37403; joey-shaw@utc.edu

Visa
 MasterCard
 Discover
 AMEX

CC#

Exp. Date __/__/__

3 digit security code on back of card

Name As It Appears On Card _____

Credit Card Billing Address

*Last Name _____ *First Name _____

*Institution/Organization _____

*Address _____

*Line 2 _____

*City _____ *State _____ *Postal Code _____

*Phone _____

Affiliate Organizations Meeting with ASB in 2015

**Beta Beta Beta (β β β)
Southeastern District I**
Dr. Lee Sutton
Advising Center, Department of
Biology
S119 Howell Science Complex
East Carolina University
Greenville, North Carolina 27858
Tel: 252-328-5745;
Fax: 252-328-4178
Email: suttonle@ecu.edu

**Beta Beta Beta (β β β)
Southeastern District II**
Dr. Christi Magrath
Dept. of Biological & Env. Sci.
Troy University
Troy, AL 36082
Tel: 334-670-3622
Email: cmagrath@troy.edu

**Botanical Society of America
Southeastern Section**
Dr. Zack Murrell
Department of Biology
Appalachian State University
Boone, NC 28608
Tel: 828-262-2674;
Fax: 828-262-2127
Email: murrellze@appstate.edu

**Ecological Society of America
Southeastern Chapter**
Dr. David Vandermast
Department of Biology
Elon University
Elon, NC
Tel: 336-278-6171
Email: dvandermast@elon.edu

Society of Herbarium Curators
Alexander Krings, Ph.D., F.L.S.
Assistant Professor & Director of the
Vascular Plant Herbarium
(<http://herbarium.ncsu.edu>)
Department of Plant & Microbial
Biology
North Carolina State University
Raleigh, NC 27695-7612
Tel: 919-515-2700;
Fax: 919-515-3436
Email: alexander.krings@ncsu.edu

**Southern Appalachian Botanical
Society**
Dr. Katherine Mathews
President of SABS
Director of the Herbarium
Department of Biology
Western Carolina University
Cullowhee, NC 28723
Tel: 828-227-3659
Email: kmathews@email.wcu.edu

SPECIAL REMINDERS FROM THE JOURNAL EDITOR

ASB BANQUET ATTENDANCE

Please keep in mind that recipients of ASB awards must be present at the annual ASB banquet to receive the award. Therefore, all applicants for ASB awards must attend the banquet to insure the presence of the winners.

MEMBERSHIP AND REGISTRATION UPDATE

All applicants for ASB research awards must be ASB members in good standing, and be duly registered for the annual meeting. If necessary, check with the Treasurer for verification before you apply.

Please make sure your membership status is up-to-date apply before the deadline for abstract submission and for annual meeting registration. Please be aware that mailing a check or money order for membership renewal to the treasurer and then trying to register online or by mail for the annual meeting on the same day does not work. Moreover, trying to pay for membership renewal online in tandem with registering for the annual meeting online does not work well either.

EXTRA ABSTRACT SUBMISSION

Besides sending abstracts of papers and posters to the Program Committee by February 8, 2015, anyone wishing to be considered for an award must send an abstract to the respective award committee chairperson in order to be considered. An abstract must be sent to the chairperson by February 8, 2015.

Preliminary Presentation Instructions

- **Oral presentations** are allotted 15 minutes (12 for talk, 3 for questions) and slides must be in PowerPoint format on a USB memory drive.
- **Posters** should fit into a 46" x 46" space and will be displayed for an entire day (Thursday or Friday). Poster presenters should be prepared to stand by their posters for a designated one hour period.

Presenters will be notified of the day and time of their presentation in mid-March and will be scheduled according to topic preferences and date of abstract submission. If you must have a specific time or day for your presentation, please indicate so in the comment section of the abstract submission program.

If you have any questions, please contact the Program Chair, **Dr. Howard Neufeld** at: neufeldhs@appstate.edu; tel: 828-262-2683. ☞

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ASB Constitution and Bylaws Changes Accepted by the Executive Committee on September 20, 21, 2014

Constitution

Present:

Article III - Officers

- Section 1. The Officers of the Association shall be the President, Vice President, President-Elect, Past President, Secretary, and Treasurer.
- Section 2. The term of office is 3 years for the Secretary and Treasurer, 2 years for the President and Past President and 1 year for the other offices.

Proposed:

Article III - Officers

- Section 1. The Officers of the Association shall be the President, Vice President, President-Elect, Past President, Secretary, ~~and~~ Treasurer, **and Associate Treasurer.**
- Section 2. The term of office is 3 years for the Secretary ~~and~~ Treasurer, **and Associate Treasurer**, 2 years for the President and Past President and 1 year for the other offices.

Present:

Article IV - Executive Committee

- Section 1. The officers of the Association, six (6) Members-at-Large elected by the membership, the Journal Editor of *Southeastern Biology*, the Membership Officer, the Web Editor of ASB, and the Archivist of the Association shall constitute the Executive Committee. The Journal Editor, Web Editor, Membership Officer, and Archivist shall be ex officio, nonvoting members with the right to discuss all issues and to propose motions. Members-at-Large shall serve terms of 3 years with two members elected each year.

Proposed:

Article IV - Executive Committee

- Section 1. The officers of the Association, six ~~(6)~~ Members-at-Large elected by the membership, the Journal Editor of *Southeastern Biology*, the Membership Officer, the Web Editor of ASB, ~~and the Archivist of the Association~~ **Members of the Archives Office** shall constitute the Executive Committee. The Journal Editor, Web Editor, Membership Officer, **Associate Treasurer**, and **Members of the Archives Office** shall be ex officio, nonvoting members with the right to discuss all issues and to propose motions. Members-

at-Large shall serve terms of 3 years with two members elected each year.

Bylaws

Present:

Article III - Duties of Officers

Section 1. The President shall be the executive officer of the Association and chair of the Corporation Board of Directors, for a 2-year term, and shall perform the duties usual to the office. He/she shall appoint, with the advice of the Executive Committee, regular committees, special committees authorized by the Executive Committee, and where appropriate, Association Representatives to other organizations. The President shall approve and sign the external audit at the annual meeting. The President shall notify Emeritus members of their election.

Proposed:

Article III - Duties of Officers

Section 1. The President shall be the executive officer of the Association and chair of the Corporation Board of Directors, for a 2-year term, and shall perform the duties usual to the office. He/she shall appoint, with the advice of the Executive Committee, regular committees, special committees authorized by the Executive Committee, and where appropriate, Association Representatives to other organizations. The President shall approve and sign the **internal and external audits** at the annual meeting. The President shall notify Emeritus members of their election. ***The President shall co-chair the Annual Meetings Arrangements Committee with either the President-Elect or with the Past-President.***

Present:

Article VI - Executive Committee

Section 5. The Executive Committee shall appoint a Membership Officer who shall work closely with the Treasurer and be in charge of all membership-related duties and records including maintaining a membership database. The Membership Officer shall serve a term of 3 years corresponding with the Treasurer's term and shall be eligible for reappointment for successive 3-year terms.)

Proposed:

Article VI - Executive Committee

Section 5. The Executive Committee shall appoint a Membership Officer who shall work closely with the ~~Treasurer~~ **Treasury Office** and be in charge of all membership-related duties and records including maintaining a membership database. The Membership Officer

shall serve a term of 3 years ~~corresponding with the Treasurer's term~~ and shall be eligible for reappointment for successive 3-year terms.

Present:

Article VII - Standing Committees

Section 2. Committee members, except for those who serve ex officio, shall be appointed by the President upon the approval of the Executive Committee. The composition and duties of the standing committees shall be as follows:

- D. The Education Committee shall explore ways and means by which the Association might contribute to improve biological education at all levels. Where feasible, the committee shall organize symposia and workshops for the Annual Meeting designed to acquaint the membership with new pedagogy and critical issues in biological education. The committee shall consist of six members appointed for terms of 3 years, with two members appointed annually and serving as Co-Chairs in the third year.
- G. The Annual Meeting Arrangements Committee shall assist the Meetings Coordinator in meeting audiovisual needs, arranging field trips, and managing the silent auction. The committee shall consist of the Meetings Coordinator as permanent chair, two members from the host institution, and three members appointed by the President for terms of 3 years, with one member appointed or reappointed annually.

Proposed:

Article VII - Standing Committees

Section 2. Committee members, except for those who serve ex officio, shall be appointed by the President upon the approval of the Executive Committee. The composition and duties of the standing committees shall be as follows:

- D. The Education Committee shall explore ways and means by which the Association might contribute to improve biological education at all levels. Where feasible, the committee shall organize symposia and workshops for the Annual Meeting designed to acquaint the membership with new pedagogy and critical issues in biological education. ***The committee shall have the responsibility for identifying an outstanding teacher to receive the Lucrecia Herr Outstanding Biology Teacher Award.*** The committee shall consist of six members appointed for terms of 3 years, with two members appointed annually and serving as Co-Chairs in the third year.

- G. The Annual Meeting Arrangements Committee *in consultation with the Executive Committee* shall *propose to the Executive Committee the site and venue for the annual meeting, provide for meeting space needs in consultation with the Program Committee, and negotiate the costs for space, food, and services. The Committee will engage* ~~assist the Meetings Coordinator~~ in meeting audiovisual needs, arranging field trips, and managing the silent auction. The committee shall consist of the **President, all six Members-at-Large, and the President-Elect or the Past-President.**

Article VII – Standing Committees

Section 1. The following standing committees shall serve the Association.

U. Affiliate Societies Committee

V. John Herr Lifetime Achievement Award

Section 2. Committee members, except for those who serve ex officio, shall be appointed by the President upon the approval of the Executive Committee. The composition and duties of the standing committees shall be as follows:

U. The Affiliate Societies Committee shall bring all proposals, problems, and concerns of the Affiliate Societies to the Executive Committee for action. The committee shall consist of three members appointed for terms of 3 years, with a member appointed annually and serving as Chair in the third year. The member appointed annually shall be selected from a new affiliate society, one that has not currently furnished a member for the committee.

V. The John Herr Lifetime Achievement Award Committee shall consider proposed recipients of the award and shall notify the Executive Committee of their selections. The committee shall consist of Three Past Presidents appointed for terms of 3 years, with a member appointed annually and serving as Chair in the third year.

Archivist's Note: Committees U. and V. not previously listed as Standing Committees

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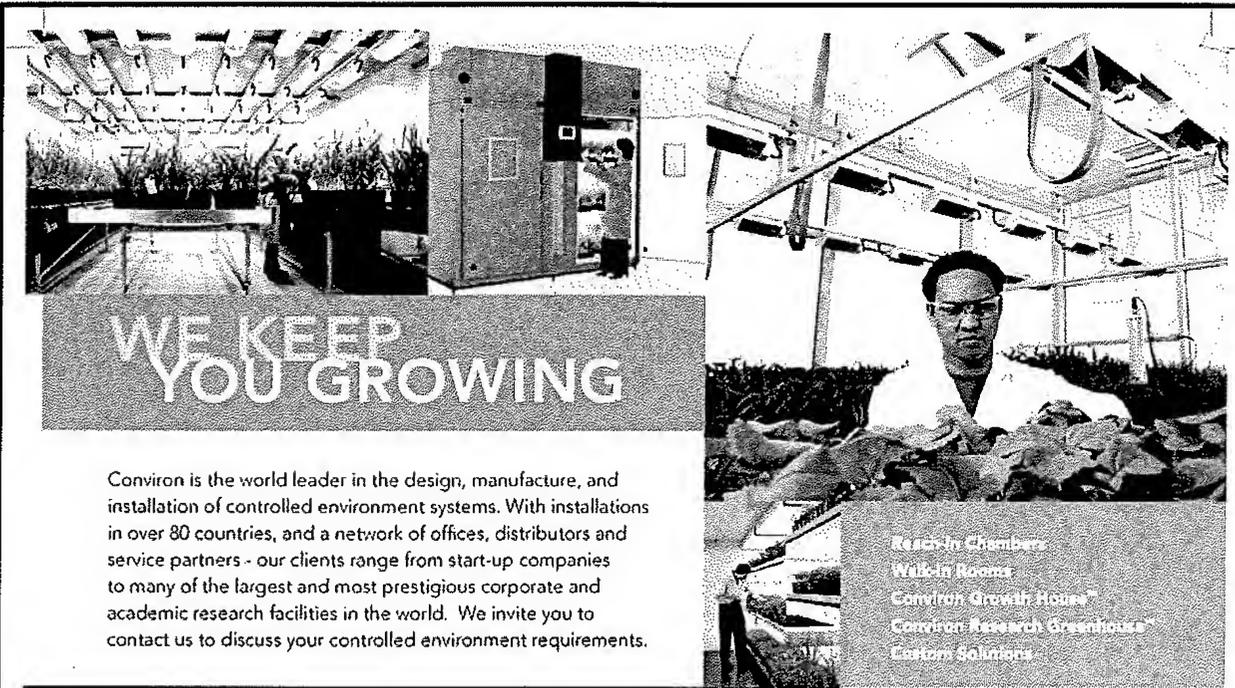


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INVITED RESEARCH PAPER

Tardigrada in Tennessee and Beyond The Inside Story of My Life with the Bears

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"We will skip tardigrades because no one has been able to find them around here." That was my introduction to tardigrades (water bears) in 1969, when I took the first course in my PhD program at the University of Tennessee-Knoxville. Always one to love a challenge, I responded, "I know a man who saw one once" and tardigrades became my special project (and later the focus of my dissertation). "The man" was Clifford Morefield, the director of the Erwin National Fish Hatchery, who had brought a slide with a tardigrade mounted in a drop of water to the Biology Department at East Tennessee State University where I was teaching. By the time I looked under the microscope, the water had dried and I saw nothing but a blob. Once I found out where he lived at the fishery in Erwin, TN, I knocked on his front door and said, "Excuse me, I'm looking for tardigrades." Mr. Morefield tore a hunk of moss off a huge oak tree on the hatchery grounds and took me into his lab. He said, "If it moves like an inchworm, it's a rotifer; if it wiggles back and forth, it's a nematode; if it walks, it's a water bear." When a water bear looked up at me in the microscope, it was love at first sight, and I've been hunting them ever since then, long before Neil deGrasse Tyson made them popular on the television program *Cosmos: A Spacetime Odyssey* in 2014.

For my dissertation, tardigrades were the perfect subject. I was teaching full time (5 classes per quarter) at ETSU while working on my PhD. (The university would not give me a leave of absence or guarantee my job if I left, although I was required to have a PhD to get tenure.) I needed a project that I could do locally that didn't cost anything. My dissertation, "Distribution of Tardigrades on Roan Mountain, Tennessee-North Carolina," involved the collection, identification, and comparison of water bear species (Figure 1) in epiphytic mosses on the bark of live American beech trees (*Fagus grandifolia* Ehrh.) at three different elevations on the north-facing slope (TN) and the south-facing slope (NC). My samples were collected in the beech-maple climax community at approximately 4000 ft (1219 m), 5000 (1524 m), and 6000 ft (1829 m), but not in the spruce-fir forest at the summit. (For details on the history and natural history of Roan Mountain, see Laughlin 1991, 1999.) The only previous report of tardigrades from Tennessee was by Riggan (1962), in which three species were reported from Roan Mountain



Fig. 1. SEM of the heterotardigrade, *Hypechiniscus gladiator* (Murray, 1905), from Roan Mountain, Tennessee/North Carolina.

(6200 ft/1890 m), Carter County, TN and three species from Indian Gap (5300 ft/1615 m), Sevier-Swain County, Tennessee-North Carolina. Thanks to the mentoring of Robert O. Schuster (Figure 2) and A.A. Grigarick, Bohart Museum, University of California-Davis, I learned to identify tardigrade species (21 species in over 5000 specimens from 84 samples) and to use the UCD scanning electron microscope (SEM). Based on non-parametric statistical tests using species-presence data, four species were significantly more frequent on the north slope, and six species were significantly more frequent at breast height (76-152 cm above ground) than in samples near the base of the tree. Tardigrade species diversity was greater on the north slope, which received more moisture and had greater moss diversity and coverage. The distribution of seven species were associated with elevation, with seven species only found at the higher elevations, but there was no correlation between moss species and tardigrade diversity. Roan Mountain has remained one of my favorite places on the planet, but "I see tardigrades" wherever I roam. Graduate school was an eye-opening experience in many ways. Commuting weekly from Johnson City to Knoxville led to other adventures, including my car breaking down on the road and coasting into a bar in Mosheim. To call someone to come rescue me (before cell phones), I had to drink a beer at the bar with the local guys. I don't think a female had ever been in there. Fortunately, my friend arrived in time to extract me from a situation that was about to escalate into a bar fight! Overcoming numerous obstacles, I completed my PhD in 1973, in spite of the prediction of the UTK Zoology chairman who said I would never finish because I was a woman and not "in residence."



Fig. 2. My friend, colleague, and mentor Robert O. Schuster, Bohart Museum, University of California-Davis.

Upon completion of my PhD, and based on Schuster's recommendation, I was one of only four Americans invited to present my dissertation research at the 1st International Symposium on Tardigrades, held at the Istituto Italiano di Idrobiologia in Pallanza, Italy, June 1974, hosted by Dr. Livia Tonolli to honor the "father of tardigradology," Professor Giuseppe Ramazzotti (Figure 3), on the occasion of his 75th birthday. My first tardigrade article (Nelson, 1975a), based on my dissertation, was published in the symposium proceedings, edited by Dr. Robert Higgins at the National Museum of Natural History, Smithsonian Institution, who became a longtime colleague as well. At the symposium, Dr. Ramazzotti personally congratulated me on my work, and we corresponded until his death in 1986 when his wife wrote me of his passing and kindly sent me a beautiful scarf. In Dr. Ramazzotti's second book on pipes (*La Pipa*), he proudly described the antique Tennessee corn-cob pipe that I gave him at the symposium for his birthday. Pipes (the kind you smoke) were another one of his varied avocations although professionally he was trained as a hydroelectrical engineer. His final book on tardigrades (Ramazzotti and Maucci 1983) was translated into English by Dr. Clark Beasley (deceased) with the assistance of others, and the translation can now be obtained through me upon request. Before I began my study of tardigrades, I had never been west of the Mississippi River; now I was an international traveler with a passport, beginning my lifetime journey of bear hunting.



Fig. 3. Dr. Livia Tonolli, Director of the Italian Institute for Hydrobiology, Pallanza, Italy, with Dr. Guiseppe Ramazzotti, noted authority on Tardigrada and pipe aficionado. Dr. Tonolli hosted the first symposium on tardigrades in Pallanza to honor Dr. Ramazzotti.

In 1975, I published an article in *Natural History* entitled “The Hundred-Year Hibernation of the Water Bear,” illustrated with several SEMS of tardigrades taken from my Roan Mountain study (Nelson 1975b). This prominent science magazine increased the popularity of tardigrades (and scanning electron micrographs) but also perpetuated the myth that tardigrades could remain in the cryptobiotic state (dried or frozen) for 100 years. This legend, still immortalized in popular literature, was based on the single observation by Franceschi (1948) that one leg of a tardigrade, extracted from a moss stored dry for 120 years in a museum herbarium, appeared to move upon hydration. Recent experimental evidence has shown that different species of tardigrades can remain viable in the anhydrobiotic state for as long as a decade, but not 100 years (Jönsson and Bertolani 2005, Rebecchi et al. 2006)! Recovery after about 10 years in anhydrobiosis is now considered long-term survival in tardigrades (Rebecchi et al. 2007, Rebecchi 2013). In the anhydrobiotic state (dehydrated), tardigrades are highly resistant to environmental extremes such as low and high temperatures (from -273°C to $+151^{\circ}\text{C}$), high pressure (600 Mpa), vacuum (5×10^{-4} Pa), high radiation (X-rays, gamma rays, UV radiation), chemicals (ethanol, H_2S , OsO_4 , CH_3Br), and even conditions in space in a low earth orbit (altitude 250-290 km). Long-term survival of desiccated organisms increases if stored in a vacuum and very low temperatures (-20°C to -80°C) (Rebecchi et al. 2011).

As a recipient of a NATO Senior Fellowship in Science in 1975, I journeyed to New Zealand for six weeks to conduct research at the University of Canterbury, Christchurch, with Dr. Don Horning. Based on a recommendation by Schuster and Grigarick, who were working on a survey of tardigrades from samples Horning had collected in New Zealand, I contacted Don (by land-to-sea radio) while he was on a ship in Antarctica and asked if I could come work with him in New Zealand. Thus began another adventure as I shared an apartment with some graduate students and slept on their enclosed front porch in a sleeping bag wearing my ski suit, during the coldest winter in Christchurch in 50 years. Don and I collected five replicates of 42 tardigrade habitats, including fungi, lichens, mosses, ferns, dicots, monocots, soil and rocks in the Kowhai Bush (kanuka-broadleaf forest with lush ground cover) near Kaikoura on the South Island (NZ). The samples were processed and preserved in the laboratory at the University of Canterbury and then sent to my lab at ETSU where I extracted the tardigrades and mounted the specimens on individual slides. (Schuster had taught me the importance of mounting a single tardigrade instead of putting several of them on a slide.) In two years, 2700 specimens were mounted in Hoyer's and 3500 were examined with the SEM at UC-Davis and 180 photographs were made; 21 species were identified, based primarily on the publications of Ramazzotti (1972) and Horning et al. (1978). With the changes that have occurred in tardigrade taxonomy in recent years, we know now that many of the identifications, based originally on descriptions of European species, need to be re-evaluated in light of our knowledge of biogeography, the re-descriptions and taxonomic revisions of species, and the discovery of species groups and cryptic species.

At the 2nd International Symposium on Tardigrades, at the Jagiellońian University in Kraków, Poland, July 1977, I presented the research undertaken during my NATO Fellowship in New Zealand, and the results were published in the symposium proceedings (Nelson and Horning 1979), edited by our hostess, Dr. Barbara Węglarska (www.tardigrada.net/symposia_02.htm). Visiting Poland in 1977, when it was under the control of the Communist Party, before the "Solidarity" movement, was an intriguing experience and a number of symposium participants were limited by travel restrictions. We were required to have an official government guide wherever we went, and everything had to be prepaid in Polish money. However the people of Poland were warm and friendly even if they did not speak much English and I only had a small Berlitz book, "Polish for Travelers" as we adventured in Poland from the seaside town Sopot on the Baltic Sea (the Myrtle Beach of Poland) to Zakopane at the base of the Tatra Mountains (the Gatlinburg of Poland). On the 6-hour train ride, with no dining car, the people in our train car shared their food with us knowing that we had not brought anything with us. Touring the concentration camp at Auschwitz on a cold gray day with a guide who had escaped (and showed us his tattoo) was emotionally overwhelming, as was driving through a historic Jewish ghetto.

Our 3rd International Symposium on the Tardigrada was held in August 1980, at my university, East Tennessee State University, in Johnson City, Tennessee. As organizer, hostess, and editor, I quickly realized why it "takes a village" to

arrange an international gathering, especially before computers and email were widely available. Many helped to transport the participants to and from the airport and to my new home for the opening of the conference. Manuscripts had to be typed (on a typewriter), and correspondence went by snail mail. Forty participants registered, representing five European countries and twelve states. This was the first symposium attended by Dr. Reinhardt Kristensen, University of Copenhagen, Denmark, shortly after completing his PhD, and he is now the leading authority on tardigrades in Greenland and worldwide marine habitats. I was honored that Reinhardt named a new species after me, *Macrobiotus dianeae* (Kristensen 1982), later transferred to the new genus *Murrayon*. One of the obstacles we faced was the lack of international banking in Johnson City—no ATMs and no way to exchange foreign money! The National Science Foundation fortunately partially funded the symposium, and my university agreed to fund the proceedings of the conference (Nelson 1982a). Difficulties with participants emerged. Unfortunately Bob Higgins encouraged me to reject some papers that I felt should have been included. One of the scientists refused to retype her paper after the corrections were made, so I had to do it. No wonder it took two years to get the symposium volume published after the long review and proofreading process. After the conference, I led a field trip to Roan Mountain, where I had collected samples for my dissertation, and we finished with a dinner at the Boone Inn in Boone, NC. When the waitress asked what we wanted to drink, one man said “beer” (not available), “wine” (not available), then “Vat do you drink?????” Boone did not allow beer, wine, or liquor to be sold in restaurants at that time. The European tardigradologists were shocked!

We (Schuster et al. 1980) published a major paper on the taxonomy of eutardigrades that created a stir among tardigradologists, proposing two orders Apochela and Parachela, which are still valid today. Using characters visible with SEM, we presented an arrangement of genera derived from a multicharacter analysis with emphasis on the structures of the feeding apparatus to distinguish families of Eutardigrada. In this paper Schuster described two new genera (*Dactylobiotus* and *Minibiotus*) and I described a third (*Pseudobiotus*). *Pseudobiotus* was later re-described and the new type species *Pseudobiotus kathmanae* was designated (Nelson et al. 1999, Marley et al. 2008) as part of our re-description of the genus *Thulinia* and designation of the type species as *Thulinia augusti* (Bertolani et al. 1999), later amended as the genus *Thulinus* (Bertolani 2003). With David Strayer and his student, I published the first record of the genus *Thulinus* in North America (Strayer et al. 1994). During this time frame Nigel Marley and I published a paper on the biology and ecology of lotic tardigrades (Nelson and Marley 2000). Nigel has been a dear friend for ages, visiting my home and lab for many years, in spite of his having to overcome numerous heart surgeries and brain surgery. He is the only legally blind person I know who figured out how to use a microscope! His limitations however do not prevent him from following his dreams.

Previously Pilato (1969a,b) had proposed a revision of eutardigrade systematics based on claw structure that differed from the accepted classification of

Ramazzotti, and much debate ensued. I vividly remember Ramazzotti and Pilato arguing vigorously at a symposium, all in Italian of course, but their emotions were easily understood! Pilato (1982) strongly objected to systematics based on the buccalpharyngeal apparatus (Schuster et al. 1980) and reiterated his view that claw structure was the primary evolutionary character for delineating families, which is widely accepted today. However we remained dear friends and colleagues, and I was greatly honored when Pilato et al. (2005) named a new species in my honor, *Diphascon nelsonae*. Later Pilato and Binda (2010) published a new definition of families, subfamilies, genera, and subgenera of the Eutardigrada and keys to their identification based on characteristics of the claws and buccalpharyngeal apparatus as well as other characters previously overlooked. Marley et al. (2011) combined recent molecular and previous morphological evidence to define new taxa, including new superfamilies, which are currently included in eutardigrade systematics. Although the systematic arrangement of genera presented by Schuster et al. (1980) was not accepted as new evidence was presented, many of the taxonomic characters, beautifully illustrated with SEM, are still valid today. Our paper offered a new way of observing these micrometazoans with their small number of morphological characters that show subtle variations.

My work with Schuster also led to other publications. Nelson and Schuster (1981) and Nelson (1982b) reviewed the tardigrades of South America, Mexico, Central America, and the West Indies. Of 14 species of Heterotardigrada collected by Schuster in NW Venezuela, five were new species which we described in Grigarick et al. (1983), including a key to all 14 species. Al Grigarick and Don Horning also encouraged me to become certified as a scuba diver, which led to many underwater adventures in marine and freshwater habitats (and a second career as a marine biologist, working with the notable Dr. Eugenie Clark, currently Senior Research Scientist at Mote Marine Laboratory, Sarasota, FL; see Clark and Nelson 1997, Clark et al. 2006, Clark et al. 2011). With scuba gear, Al and I collected aquatic tardigrades in the sandy bottom of Lake Tahoe, CA, in very cold, clear water, while Schuster remained in the boat collecting the buckets of sand we brought to the surface for their research and subsequent publication (Schuster et al. 1978). I was a very cold volunteer that March, with snow on the ground surrounding Lake Tahoe. Schuster and I remained great friends until his death in August 1989 due to brain cancer.

State, regional, national, and international conferences have always been important to me, not only for presenting my research and having my students present their work, but also for networking with others at different universities. Lifelong friendships have resulted from these meetings. Since 1973, through annual meetings of the Tennessee Academy of Science, the Association of Southeastern Biologists, the American Microscopical Society and American Society of Zoologists, I have had the opportunity to work with other scientists and their students in addition to my own M.S. students at ETSU. Dr. Clay Chandler at Middle Tennessee State University asked me to assist his graduate student, Jim Barnes, with identifying the tardigrades of Rutherford County, TN (Barnes, 1974).

Recently Jim showed up at a talk I was giving at the Discovery Center at Murfree Springs in Murfreesboro, TN, the first time I had seen him in 40 years, and he thanked me again for helping him with his thesis. I was also pleased to work with Martha Hunter (1977) at Austin Peay State University on her M.S. thesis on tardigrades on a farm in Montgomery County, TN, but unfortunately Martha passed away from complications after a car wreck. A graduate student at Tennessee Technological University, R. Deedee Kathman, contacted me about her research on aquatic tardigrades in the Ocoee River, and she presented her work (Kathman and Nelson, 1987) at the 4th International Symposium on Tardigrada at the University of Modena in Modena, Italy, September 1985. Deedee went on to complete her PhD on tardigrades at the University of Victoria, and we published the description of a new species from Vancouver Island (Kathman and Nelson, 1989). We have remained friends over all these years. My student Connie Howard studied the tardigrades of Rattlesnake Springs, Bradley County, Tennessee, for her M.S. thesis (Howard 1980) and recently retired from the Tennessee Bureau of Investigation crime lab in Nashville.

Two of my other graduate students at ETSU, Chris Williams and Cindy Kincer investigated the aquatic tardigrade populations in a small stream that runs through the campus of our university. The original 12-month study by Williams (1982) was conducted to determine the dominant tardigrade species and seasonal changes in the populations, but we ran into problems when the university landscapers decided to "beautify" the open "ditch" upstream. Meeting with the university president, I pleaded my case to stop the beautification project so my graduate student, who was a veteran, could complete his research, and the tardigrades could successfully reproduce. Save the bears! The president relented, and after the research was finished, the stream channelization continued with the installation of rock and concrete walls. This presented us with an opportunity for Kincer to do a follow-up study in 1983-1984 and determine the effect of habitat disturbance on tardigrade species composition, relative frequency and population trends. The comparison of the two studies was presented at the 4th Symposium and published in the proceedings (Nelson et al. 1987), and later Cindy finished her thesis (Kincer 1989) and is still teaching biology at Wytheville Community College, VA. Chris became a cytogenetic technologist for the U.S. Air Force Department of Medical Genetics in Ocean Springs, Mississippi.

After the 4th International Symposium on Tardigrada, hosted by my friend and colleague, Dr. Roberto Bertolani, a long gap ensued when no one volunteered to host a meeting. So I did, organizing a one-day session on tardigrades, which we called the 5th International Symposium, in conjunction with the 8th International Meiofauna Conference in College Park, MD, in August 1992. To my delight, several international colleagues attended and we enjoyed active discussions with our other meiofaunal colleagues. Unfortunately, funds were not available for a publication of the proceedings, so the manuscripts were submitted to various journals.

I worked with another one of Dr. Chandler's students, Karen Kendall-Fite, with identifying the tardigrades of Short Mountain, Cannon County, TN (Kendall-Fite 1993), which she presented at the 6th International Symposium on Tardigrada at Cambridge, England in August 1994, and we published in the symposium proceedings (Kendall-Fite and Nelson 1996). Karen teaches at Columbia State Community College and we talk tardigrades whenever possible. At the 6th Symposium, hosted by my friend Dr. Sandra McInnes of the British Antarctic Survey, I presented another paper with one of my graduate students, Dr. Karen McGlothlin, who earned her PhD at Clemson University and then became a well-loved veterinarian. Her thesis (McGlothlin 1990), a follow-up of my dissertation, resulted in the publication of two new species from Roan Mountain, *Hypsibius roanensis* (Nelson and McGlothlin 1993) and *Calohypsibius schusteri* (Nelson and McGlothlin 1996), the former named for Roan Mountain and the latter named for my long-term friend and colleague Robert O. Schuster. The University of Cambridge is steeped in history, with notable alumni such as Isaac Newton, Charles Darwin, Frances Crick, Rosalind Franklin, David Attenborough, and Steven Hawking. This symposium also included the first data on genome size and signaled a new approach to tardigrade phylogeny. Although tardigrade t-shirts were first offered at the 3rd Symposium, the new version (drawn by one of my undergraduates) was introduced at the 6th symposium and remains popular today, with new colors available at each symposium. The banquet cake topped with the symposium logo (www.tardigrada.net/symposia_06.htm) became a new tradition as well. Boating through the campus down the River Cam under the historic bridges was a highlight of our field day. Being a tardigradologist is often frustrating but also fun!

After another five years, the 7th International Symposium hosted by Dr. Hartmut Greven was held in Dusseldorf, Germany, at the historic Schloss Benrath, in September 1997 (www.tardigrada.net/symposia_07.htm). A walking tour through the historic areas and of course the German beer gardens added to our feeling of camaraderie as we shared our latest research. By this time I had started working with Dr. Jim Garey (Garey et al. 1996) and we had published our results on molecular analysis that supported a tardigrade-arthropod association. The phylogenetic position of tardigrades had been debated for years, but we showed that tardigrades were a sister group to the arthropods. Our paper at the symposium (Garey et al. 1999) generated significant discussion among the participants about the congruency of morphological and molecular evidence. This was followed by another paper that showed robust support for tardigrade clades (Regier et al. 2004). Now I was learning molecular biology—a far cry from my initial taxonomic and ecological interests!

In August 2000, Dr. Reinhardt Kristensen hosted the 8th International Symposium on Tardigrades (www.tardigrada.net/symposia_08.htm) in Copenhagen, Denmark, followed by a workshop at the Danish Arctic Station on Disko Island in Greenland. Reinhardt told us there was good news and bad news about going to the Arctic for the workshop. The good news was the ice had not frozen between

Disko Island and the mainland so we wouldn't have to carry rifles to shoot polar bears on our field trips. The bad news was that the mosquitoes were very large and numerous that summer, and indeed they were, even biting my leg through my blue jeans. In the symposium volume, published in the prestigious journal *Zoologischer Anzeiger*, I was co-author on four papers. My graduate student, Rebecca Adkins, examined the distribution of tardigrades within the layers of a cushion of moss and determined that none of the five species migrated in response to changing moisture conditions (Adkins 1997, Nelson and Adkins 2001). (Shortly afterwards, I had another encounter with saving the bears at ETSU! One day I discovered that the physical plant was cleaning the concrete caps on the tops of brick fence posts behind the science building. Covered with moss, these posts harbor large populations of tardigrades in the *Echiniscus viridissimus* species complex, which were the subject of Rebecca's thesis and the source of tardigrades I use for tardigrade workshops. Needless to say, the moss and the tardigrades are still there!) In addition to the paper with Adkins, Dr. Frank Romano and I published the results of the M.S. thesis of two of his students at Jacksonville State University (Romano et al. 2001, Nichols et al. 2001) on the distribution of terrestrial tardigrades in Alabama. The fourth paper I co-authored with a remarkable young woman named Amber Hohl, a high school student in Iowa who had come to the conference and joined us for the workshop in Greenland (Hohl et al. 2001). That was the beginning of our long-term relationship as friends and colleagues as she visited my home and lab several times and we met at other professional science meetings. She continued her education earning B.S. from Iowa State University, M.A. from Harvard University, and PhD in genetics from the University of Iowa, however tardigrades have always been her first love.

Three years later the conference came back to the USA for our 9th International Symposium on Tardigrada (www.tardigrada.net/symposia_09.htm), meeting at St. Pete Beach, FL, where we enjoyed the famous Florida sunshine, sand, heat, and humidity in August 2003. We were hosted by Dr. Jim Garey and his PhD student Brent Nichols (former M.S. student of Frank Romano) at the University of South Florida. Jim, Brent, and I edited the symposium papers for the highly selective journal *Hydrobiologia* (Garey et al. 2006), dedicated to our friend and colleague Nigel Marley for his courage and persistence in pursuing research on tardigrades despite ongoing medical challenges. (Nigel has just completed his PhD at the University of Plymouth!) We also co-authored a paper on an analysis of tardigrade phylogeny at the family level (Nichols et al. 2006). Brent is one of my "adopted sons" and now is Fisheries Program Manager for the Spokane Tribe in Washington State, but we are going to be working on tardigrades again soon! I presented the opening lecture: "Tardigrade research: Where have we been? Where are we going?" This was the first symposium attended by Dr. Paul Bartels, Warren Wilson College, with whom I have worked for the past 14 years on a multihabitat inventory of tardigrades in the Great Smoky Mountains National Park, Tennessee/North Carolina (Bartels and Nelson 2006, Nelson and Bartels 2007). This ongoing project is part of an All Taxa Biodiversity Inventory (ATBI) sponsored by Discover Life in America (www.discoverlifeinamerica.org). (If it had

not been for Paul, I might have retired from tardigrades when I “officially” retired from the university. Thank you, Paul, for your enthusiasm, patience, perseverance, and collaboration with me and international colleagues.) The tardigrade stuffed animals (Figure 4) (“beanie babies”) from the Natural History Museum of Chicago were a big hit with the symposium participants, along with the coffee mugs with the symposium logo, tardigrades crawling on DNA strands.



Fig. 4. Tardigrade stuffed animal, developed for the Chicago Field Museum of Natural History, and loved by tardigradologists everywhere.

Sicily was the home of our 10th International Symposium on Tardigrada, hosted by Dr. Giovanni Pilato and his wife and co-author Maria Grazia Binda at the University of Catania in June 2006. The co-organizers were my Italian colleagues, Drs. Roberto Bertolani, Roberto Guidetti, and Lorena Rebecchi from Modena, and the symposium proceedings were published by the *Journal of Limnology*, which included another paper with Paul on using species richness estimators with our data from the Great Smoky Mountains National Park (Bartels and Nelson 2007). Many new tardigradologists from several countries participated in the poster and lecture sessions, and many social gatherings extended our conversations about tardigrades. With temperatures reaching 112°F (44°C) during the day, evening activities were very popular! Italians know how to put on a symposium and a feast, and we honored Giovanni and Maria (Graziella) for their hospitality and long friendship. Roberto Bertolani had said, “If Pilato does not go to the Symposium, the Symposium goes to Pilato!” Our field day (www.tardigrada.net/symposia_10.htm) was a trip to Mount Etna, Europe’s largest and most active volcano, which erupted at the summit after our excursion

and has continued to erupt almost continuously with lava flows and strombolian (explosive) eruptions for more than 2000 years. What a way to end a conference!

Paul and I have published several other papers on GSMNP tardigrades, including Nelson and Bartels (2007, 2013) and descriptions of new species with our Polish co-authors (Łukasz and Łukasz) and Italian colleagues: Bartels et al. 2007 (*Doryphoribius smokiensis*, named after the Smoky Mountains), 2008 (three more species of *Doryphoribius*, 2009 (two new species of *Macrobotus*, including one named after Bob Martin, Martin Microscope Company, for his support of tardigrades), 2011a (*Ramazzottius belubellus*, a beautiful tardigrade, Figure 5), and 2014 (*Milnesium bohleberi*, named after Steve Bohleber, a strong supporter of ATBI, DLIA, and the Great Smoky Mountains National Park.) In addition we have published on aquatic tardigrades in the park (Bertolani et al. 2014) including a description of a new species, *Thulinus romanoi* (Figure 6), named after Dr. Frank Romano. We also produced an online key and field guide to the tardigrades of the park (Bartels and Nelson 2012). Paul keeps saying we are almost finished with GSMNP papers, but I think we are just beginning. Stay tuned for more to come!

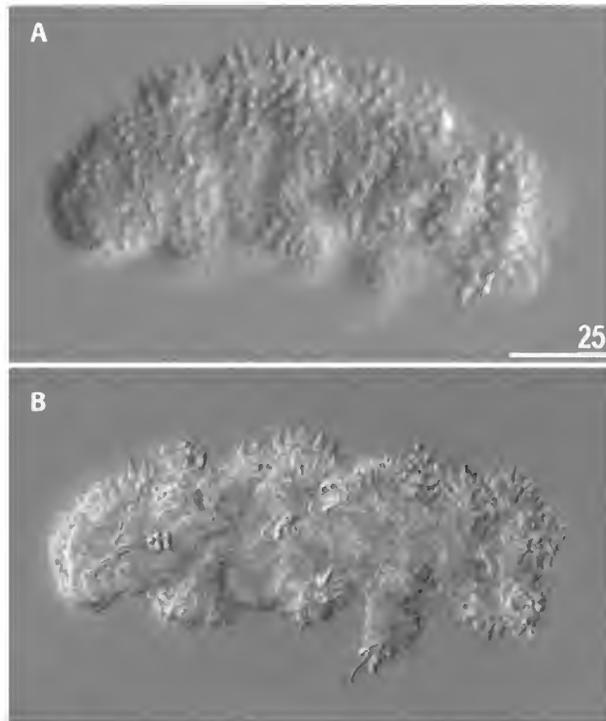


Fig. 5. The limnoterrestrial eutardigrade *Ramazzottius belubellus* we described from the Great Smoky Mountains National Park.

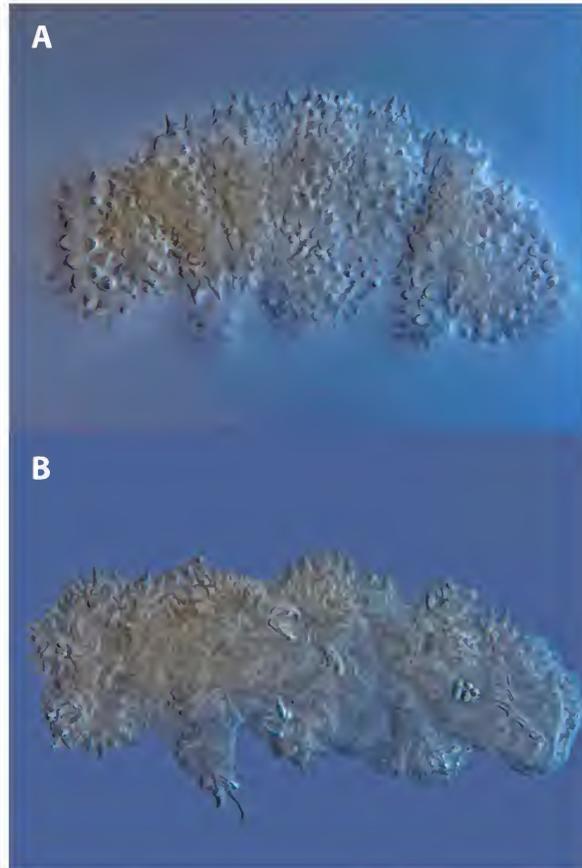


Fig. 6. The aquatic eutardigrade *Thulinus romanoi* from the streams in the Great Smoky Mountains National Park.

Off to Germany we went in August 2009 for the 11th International Symposium on Tardigrada, (www.tardigrada.symposia_11.htm.) hosted by Dr. Ralph Schill, in the historic city of Tübingen, the home of the university founded in 1477. We wandered the streets of the scenic “old town,” sampling the various restaurants in the evenings and experiencing a trip down the Neckar River in small boats propelled with a wooden pole as we enjoyed the scenic view of the picturesque Neckar waterfront. In a full program of posters and oral presentations we celebrated the old (the 80th anniversary of the discovery of Heterotardigrada and the 55th anniversary of the definition of the term cryptobiosis) and the new (combined molecular and morphological studies, DNA barcoding and cryptic species, methods of culturing massive numbers of tardigrades as animal models, and revolutionary new studies on cryptobiosis and even tardigrades in space) (Bertolani and Nelson 2011, Rebecchi et al. 2011). For the first time, Young Scientist Awards were given for oral and poster presentations. Paul and I (with his student Ryan Exline, deceased) published a paper on allometry and presented a new method of using Thorp’s size normalization to eliminate the

effects of body size in morphometric analysis (Bartels et al. 2011b). Another outstanding young woman at the symposium was Ana Lyons, whom I first met in February of 2006, when she flew from Michigan to Tennessee to work in my lab on her high school science fair project on tardigrades. Ana presented a poster at the symposium on our research in the Great Smoky Mountains National Park (Figure 7), examining the effect of an insecticide on tardigrade populations in the soil. She was also a co-author with me on the paper by Meyer et al. (2011) on tardigrades of Michigan. After graduating from MIT, Ana received a DAAD Study Scholarship to work in Dr. Ralph Schill's laboratory in Stuttgart. Currently she is participating in Teach for America, teaching 7th grade science in the Bronx, NY, and applying for PhD programs in genomics.



Fig. 7. Ana Lyons, Diane Nelson (me), and Paul Bartels on our collecting trip for Ana's research in the Great Smokies National Park. Ana and I are wearing our Tardigrada t-shirts. (If you see someone wearing one of these, ask them how they know me!)

The largest symposium so far (77 tardigradologists from 21 countries and 5 continents) was the 12th International Symposium on Tardigrada (www.tardigrada.net/symposia_12.htm.) held in July 2012 at the Parque Biologico in Vila Nova de Gaia, Portugal, hosted by Dr. Paulo Fontoura from the University of Porto. Our excursions included a tour of the city of Porto and the port wine cellars where we sampled their finest products, as well as a boat cruise up the Douro River into the wine country where the grapes for port wine are exclusively grown. The 36 oral and 40 poster presentations were packed into three days, covering a wide variety of topics on taxonomy, phylogeny, biogeography, ecology, morphology, physiology, and molecular biology. Invited to give the closing lecture, I presented a rousing summary of the symposium, complete with an imitation of a tardigrade undergoing cryptobiosis. It was one of

those things that defies description; you had to be there. In the symposium volume, Paul and I published our study on species richness of soil and leaf litter tardigrades in the Park (Nelson and Bartels 2013). Dedicated to the memory of Dr. Frank Romano and Dr. Clark Beasley, the proceedings were published a special volume of the *Journal of Limnology*, for which I served as one of the four editors (Rebecchi et al. 2013).

Plans for the 13th International Symposium, to be held in Modena, Italy, in June 2015, are well underway. We will honor our colleague Dr. Roberto Bertolani (the only other person besides myself to attend all 13 of the symposia) on the occasion of his 70th birthday and his retirement from the university (but not from tardigrades). The 14th will be in Denmark in 2018 to honor Dr. Reinhardt Kristensen, and the 15th is tentatively planned for 2021 in Poland. I plan to participate these symposia as well!

Networking at scientific meetings also led to invitations to write chapters on tardigrades. The first was on developmental biology of tardigrades (Nelson 1982c), then one emphasizing tardigrades and soil biology (Nelson and Higgins 1990), and the first edition of Thorp and Covich's *Ecology and Classification of North American Freshwater Invertebrates* (Nelson 1991a) and the second edition in 2001. For the third edition (2010) and the fourth edition (2015a, pdf available now, and 2015b, in press) of the book, I added two of my Italian colleagues from the University of Modena, Dr. Roberto Guidetti and Dr. Lorena Rebecchi. Their knowledge and willingness to collaborate have made this the most accurate and inclusive chapter available. Roberto previously spent a year working in my lab at ETSU collecting tardigrades from Roan Mountain and returned later for another month for morphological and molecular studies. He named a new species from Roan Mountain in appreciation of my hospitality and assistance, *Macrobiotus nelsonae* (Guidetti 1998), and we co-authored another paper on leaf litter tardigrades in beech forests (Guidetti et al. 1999) and aquatic tardigrades (Bertolani et al. 2014). Lorena and I also co-authored another paper on tardigrade secondary sex characters (Rebecchi and Nelson 1998). I invited other Italian experts Dr. Roberto Bertolani and Dr. Tiziana Altiero to join me in writing another chapter on tardigrades for the *Encyclopedia of Inland Waters* (Bertolani et al. 2009). My dear friend Dr. Sandra McInnes (British Antarctic Survey, Cambridge, UK) became my co-author for a tardigrade chapter in *Freshwater Meiofauna: Biology and Ecology* (Nelson and McInnes 2002). Other colleagues, Drs. Bill and Ruth Dewel from Appalachian State University, Boone NC, were my co-authors in a chapter on tardigrades (Dewel, Nelson, and Dewel 1993) for the series of volumes entitled *Microanatomy of Invertebrates*, and they invited me to work with their graduate students on fungal infections in *Milnesium tardigradum* and transmission electron microscopy of the brain of *Echiniscus viridissimus*. I was sad to see them retire and move out west since ASU was only an hour's drive across the mountain and it was intellectually stimulating to discuss tardigrades with them. Two other publications include a description of a new species of *Diphyscon* (Nelson 1991b) and a report of an aquatic tardigrade collected in the plankton (Winklemann et al. 2004).

Another opportunity was an invitation to present an address at the symposium on “Lesser-Known Protostome Taxa: Evolution, Development, and Ecology” at the annual meeting for the Society for Integrative and Comparative Biology in Chicago (Nelson 2002). This also enabled me to visit the Field Museum of Natural History in Chicago, which was hosting a special exhibit, “Underground Adventure,” featuring tardigrades and a gift shop full of tardigrade t-shirts, key chains and the first ever tardigrade stuffed animal (Figure 4), which was featured at the 9th Symposium. I was a consultant for the project and was pleased to see “bigger-than-life” soil tardigrades competing for attention with the well-known, and much larger, *Tyrannosaurus rex*! However, February was not the ideal time to visit Chicago.

Annual meetings of ASB, the Association of Southeastern Biologists, led to opportunities to work with Dr. Don Tarter and his students at Marshall University (Tarter et al. 1992), Dr. Rudy Prins at Western Kentucky University, and Dr. Frank Romano and his students at Jacksonville State University (AL). These faculty and their students presented numerous papers at ASB, which can be found in the published abstracts. Frank Romano was especially successful at recruiting students for undergraduate and graduate research projects and theses and participating in our international tardigrades symposia (Nichols et al. 2001, Romano et al. 2001, Nichols et al. 2006). His enthusiasm for life continued until his untimely death in 2012 from an extended battle with esophageal cancer. ASB is more than a place to present papers and posters. Friendships are forged that last a lifetime, too many for me to name but you know who you are. I am especially thankful for my ASB Sisters (Figure 8), Pat Cox, Pat Parr, Kim Marie Tolson, Eloise Carter, and Bonnie Kelley, who are my family of choice and are always there for me regardless of the distance between us.



Fig. 8. My beloved ASB Sisters (left to right): Pat Parr, Kim Marie Tolson, me, Bonnie Kelley, Pat Cox, and Eloise Carter. We are at The Mucky Duck at Captiva Island, FL, on one of our annual ASB Sisters retreats!

There are so many tardigradologists who have become friends as well as colleagues over the years. For many, I know their families, have visited in their homes, and watched their children grow up. They are always welcome in my home and my lab. We have shared much more than tardigrades, we have shared life.

Acknowledgments

Thank you, Dr. Jim Caponetti and ASB, for the invitation to write this article. ASB has been such a significant aspect of my life since my graduate school days, and Jim and I served together on the Executive Committee of the Tennessee Academy of Science for many years. I am grateful to my colleague Dr. Paul Bartels for so much during the past 15 years, but most recently for preparing the figures for this publication and his patience when I get overwhelmed. To my husband, Jack, the first 30 years were the hardest, but I'm thankful we are together now and for the future!

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Joseph S. Nelson Lifetime Achievement Award in Ichthyology

Presented for an outstanding body of work in any area of ichthyology. Consideration is also given to educational and service impacts of the individual's career. In August 2014 at the annual meeting of the ASIH in Chattanooga, Tennessee, the award was presented to **Bruce B. Collette**, Senior Systematic Zoologist, NMFS Systematic Laboratory, Smithsonian Institution, Washington, DC. He conducts systematic, taxonomic, and life history research on marine fishes.

Meritorious Teaching Award in Ichthyology

The ASIH and the American Elasmobranch Society announces the inaugural Meritorious Teaching Award in Ichthyology which will be awarded at each year's Joint Meetings of Ichthyology and Herpetology. This award is to recognize superior teaching effectiveness and mentoring of students in the area of Ichthyology, and provides members of ASIH and AES with the opportunity to honor individuals who have made significant contributions to ichthyology education in either the classroom or mentoring student research endeavors. In August 2014 at the annual meeting of the ASIH in Chattanooga, Tennessee, the award was presented to **Gene Helfman**, Professor Emeritus of the Graduate Faculty, Odum School of Ecology, the University of Georgia, Athens, Georgia. His teaching and research are concerned with conservation of fishes, effect of land use on fishes, invasive species, behavioral and ecological interactions and their impact on fish conservation.

Meritorious Teaching Award in Herpetology

Sponsored by ASIH, The Herpetologists' League, and the Society for the Study of Amphibians and Reptiles, the award is given at the annual Joint Meeting of Ichthyologists and Herpetologists to recognize superior teaching effectiveness and mentoring of students in the area of herpetology. In August 2014 at the annual meeting of the ASIH in Chattanooga, Tennessee, the award was presented to **Alan M. Richmond**, Senior Lecturer/Curator, Biology Department, University of Massachusetts, Amherst, Massachusetts. His teaching and research provide an overview of the anatomy, evaluation, systematics, behavior, natural history, and phylogeography of the major living lineages of amphibians and reptiles of Eastern North America and New England in particular.

Robert H. Gibbs, Jr., Memorial Award

Presented for excellence in systematic ichthyology. In August 2014 at the annual meeting of the ASIH in Chattanooga, Tennessee, the award was presented to **Naercio A. Menezes**, Museum of Zoology, University of Sao Paulo, Sao Paulo,

Brazil. His research involves the biogeography, systematics, conservation, and phylogenetic analysis of marine and freshwater fishes.

Henry S. Fitch Award

Presented for excellence in herpetology. In August 2014 at the annual meeting of the ASIH in Chattanooga, Tennessee, the award was presented to **Marvalee H. Wake**, Professor of the Graduate School, Department of Integrative Biology, University of California, Berkeley, California. Her research is concerned with morphology, development, and reproductive biology with the goal of understanding evolutionary patterns and processes in amphibians and reptiles. The comparative method is applied to ontogenetic and adult studies of various organ systems and their integration.

Robert K. Johnson Award

Presented for excellence in service. In August 2014 at the annual meeting of the ASIH in Chattanooga, Tennessee, the award was presented to **Lawrence M. Page**, Curator of Fishes in the Florida Museum of Natural History, and Affiliate Professor in the Department of Zoology and the School of Natural Resources and Environment, University of Florida, Gainesville, Florida, for his many years of service to the ASIH and the field of ichthyology. He has conducted research in systematics, evolution, and ecology of freshwater fishes with emphasis on biological diversity, phylogenetic relationships, evolution of reproductive behaviors, and speciation processes.

Raney Fund Awards

Awards of \$908.00 and \$758.00 were made to each of the following six young ichthyologists in 2014. They are listed alphabetically by surname.

**Julien Butler
Justa Heinen-Kag
Zachary Wolf**

**Melissa Graham
Claire Hemingway
Natalie Willard**

Gaige Fund Awards

Awards of \$500.00 were made to each of the following 10 young herpetologists in 2014. They are listed alphabetically by surname.

**Michael Britton
Danielle H. Drabeck
Meredith Fox
Leah Jacobs
Sandy Kawano**

**Melissa A. Miller
Ryan Seddon
Jessica Thomas
Denita M. Weeks
Kristin M. Winchell**

Stoye Awards

Awards for best oral presentations were made to each of the following six students in 2014. Each winner received a cash award of \$250.00, a certificate, and all available back issues of *Copeia*. They are listed by name and category.

Stephanie Chavey, Conservation
Bonnie Ahr, Ecology and Ethology
Pascal Title, General Herpetology
Andrea Thomaz, General Ichthyology
Ian Macdonald, Genetics, Development, and Morphology
Corey Cates, Physiology and Physiological Ecology

Storer Awards

Awards for best poster presentations were made to each of the following two students in 2014. Each winner received a cash award of \$250.00, a certificate, and all available back issues of *Copeia*. They are listed by name and category.

Lynn Wetmore, Ichthyology
Katherine O'Donnell, Herpetology



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OBITUARIES

**Wade Thomas Batson, Jr.
1912 - 2015**

Dr. Wade Thomas Batson, Jr. of Marietta, South Carolina, husband of the late Josephine Elizabeth McDaniel Batson, died Saturday, February 14, 2015 in Greenville, South Carolina.

Born on May 7, 1912 in Marietta, South Carolina, he was the son of the late William Thomas and Mary Lenora Hendricks Batson of Marietta. He was educated at Mars Hill College, the University of Tennessee, and Furman University. Dr. Batson entered the U.S. Navy during World War II as First Lieutenant and served in the North Atlantic fleet second in command on the USS Irwin Russell. At the end of the war, he was commissioned as Lieutenant Commander and served as a Naval Separations Officer at Lido Beach in Long Island, New York; New London, Connecticut; and Seattle, Washington.

In 1948 he entered Duke University, receiving both a M.S. and Ph.D. degrees in Botany. Dr. Batson taught botany and other biology courses at the University of South Carolina for thirty years beginning in 1952.. He authored twelve books featuring flowering plant taxonomy to include *Wildflowers in South Carolina*, *Genera of Southeastern Plants*, *Genera of the Eastern Plants*, *Genera of the Western Plants*, *Landscape Plants for the Southeast*, and *Wildflowers in the Carolinas* and he wrote over forty articles in popular magazines and scientific journals.

A respected and beloved professor, Dr. Batson, known by his students as "Dr. B.," received many awards and honors during his lifetime: 1966, voted one of three Outstanding Professors by University of South Carolina students; 1968, Meritorious Teaching Award by the Association of Southeastern Biologists; 1968, Michael J. Mungo Distinguished Professor of the Year Award; 1976, Education Conservationist of the Year by South Carolina Wildlife Federation; 1982, Order of the Palmetto Award presented by Governor Richard Riley who hosted his Retirement Party at the Governor's Mansion; 1994, Inducted into the South Carolina Hall of Fame; 1995, inducted into the South Carolina Hall of Science and Technology; 1995, Honorary Doctor of Science Award by the Medical University of South Carolina; 2004 Honorary Life Member of the University of South Carolina Alumni Association; 2011 Legends of Conservation Award by the South Carolina Wildlife Federation. Three endowments have been made in his honor at the University of South Carolina: 2000, The Wade T. Batson Professorship Endowment; 2000, W.T.B. Fellowship in Botany Endowment; and the W.T.B. Endowment for the A. C. Moore Herbarium.

At the celebration of his 100th birthday at his home Gray Gables, Senator Mike Fair presented a Resolution from the South Carolina General Assembly to honor the distinguished career of this great South Carolinian. Furman University established a wildflower garden on the Swamp Rabbit Trail in his honor. The South Carolina Department of Parks, Recreation and Tourism presented him the State Park Award, one of three ever presented.

Dr. Batson is survived by his daughter, Marietta Lenora Moore, and his son, Wade Thomas Batson, III, nine grandchildren and eleven great grandchildren.

The Preceding obituary was prepared by John M. Herr, Jr. (friend and colleague for 56 years) Department of Biological Sciences, University of South Carolina with some information taken from a resolution by the South Carolina General Assembly, 2011-2012 Bill 1507; May 3, 2012.

Mary Ursula Connell
1942 – 2014

Dr. Mary Ursula Connell, age 72, of Boone, passed away Wednesday, December 31, 2014 of natural causes.

Born November 30, 1942, in Huntington, WV, Mary was the only child of the late Gilbert (Gill) and Ursula Connell. Raised in the Huntington area, Mary completed both her AB (1964) and MS (1966) at Marshall University before receiving her Ph.D. at Kent State University in 1974 and joining the Biology Department at Appalachian State University. Mary was one of the first female members of the biology department with a research profile, her early research focused on the aquatic ecology of algae, with her discoveries eventually leading to explorations of the molecular mechanisms controlling light sensitivity in aquatic algae. Mary was a highly respected educator who taught and inspired many undergraduate and Master's students to understand the scientific process with thought and experimentation. She was rewarded for her dedication to the students by receiving the University of North Carolina Board of Governors' excellence in teaching award in 1995. After more than 40 years of dedicated service to the Biology Department and the University, she retired in December of 2014. She and her students presented their research many times at ASB annual meetings. She was elected as an ASB Executive Committee Member-at- Large in 1994 and served in that capacity for three years.

Mary has no known surviving family members, but is survived by her many undergraduate and graduate students with whom she was very close. She was truly loved by her students and will be sorely missed by them and her colleagues.

*J. Kenneth Shull, Jr.
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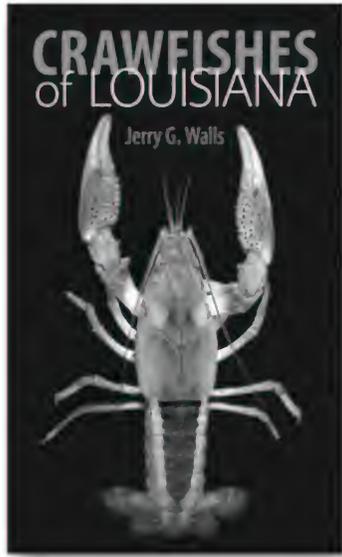
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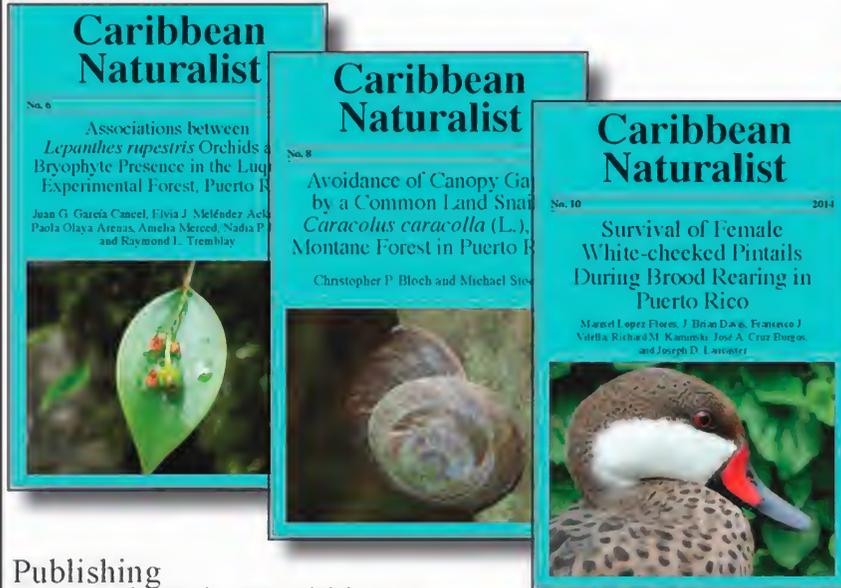
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