

NC HERPS



The North Carolina Herpetological Society Newsletter

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A Nonprofit Organization

THE NORTH CAROLINA HERPETOLOGICAL SOCIETY
N.C. State Museum of Natural Sciences, 11 West Jones St.
Raleigh, North Carolina 27601-1029
www.ncherps.org

NC HERPS

Editor: Jeff Beane

Contributors (this issue): Jeff Beane, Jeff Hall, Kevin Messenger, Harry LeGrand, David Cooper, Ed Corey, Bryan Stuart, Richard Bruce, Will Fields, David Pfennig, Karen Pfennig, Ted Simons, Wendy Stanton, Jerry Reynolds, Tom Thorp, Mark Johns, et al.

Assembly and mailing: Jerry Reynolds et al.

EDITORIAL POLICIES

Views and opinions expressed in *NC Herps* represent those of the author(s) and not necessarily those of the Editor, the Society, its Executive Council, or the NC State Museum of Natural Sciences.

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NC Herps prefers to print **original** articles, notes, cartoons, etc., but will occasionally reprint items from other sources.

Material should be submitted to the editor in any reasonable format. Electronic submissions (e-mail attachments or disks) are very much preferred, but submissions may also consist of typed or handwritten hard copy, fax, crayon on construction paper, oil on canvas, watercolor, charcoal rendering, rude scrawlings in blood on paper napkins, verbal recitation, mental telepathy, etc. (I know what you're thinking: "mental telepathy doesn't work." Well, no, it usually doesn't.)

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COMING EVENTS

5-7 April 2011 – **Joint annual meetings of NCTWS and NC PARC**, Lake Junaluska, NC. For more information, visit www.nctws.org or www.ncparc.org

30 April-1 May 2011 – **NCHS Spring Meeting**, Pocosion Lakes NWR Visitor Center, Columbia, NC. For more information, Contact Bryan Stuart, David Cooper, or any officer.

10 July 2011 – **NCHS Executive Council meeting**, NCSM Research Lab, Raleigh, NC. 10:00 a.m. Contact David Cooper or any Executive Council member.



JULY NEWSLETTER DEADLINE:
May 15th. Submit material to Editor.



Jeff Beane

NCHS EXECUTIVE COUNCIL

ELECTED OFFICERS

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Project Bog Turtle: **Tom Thorp**; Three Lakes Nature Center and Aquarium, 400 Sausiluta Drive, Richmond, VA 23227; H: 804-266-4809, B: 804-261-8230 or -8228; **e-mail:** tho56@co.henrico.va.us **or** tt-threelakes@juno.com

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Website: **Kim Burge**; as above

Nominating Committee: **Jeff Beane**; as above

Auction: **Jeff Beane** and **Jeff Hall**; as above

NC Herpetology Hall of Fame: **Jeff Hall**; as above

Photo Contest: **David Cooper**; as above

FROM THE SNAKE PIT

Guess what? Somehow I ended up as NCHS President. No, seriously. I'm still trying to figure that one out myself. Thanks to all of you who voted in the recent election, especially those of you who voted for Jeff. At any rate, I'm both daunted and excited to step up and assume a larger role in the Society.

Other NCHS members who have recently volunteered to step up and serve the Society are Joanne St. Clair, who has now assumed the role of Education Committee chair since Grover Barfield vacated the position as of January, and Bryan Stuart, who has now fully assumed the role of Vice-President since Melissa Jones vacated that position after her move to Texas. I'd like to thank Grover for his many years of leadership and coordination of the Society's educational events, and Melissa for her willingness to serve as VP during her all-too-brief time in NC. Looking forward, I'd like to welcome Joanne and Bryan to the Executive Council, and thank them for transitioning into these important positions.

The Society and the NC herpetological community in general seem to have a lot going on right now. As of this writing, we are in the midst of gearing up for our involvement in the NC Museum of Natural Sciences' annual Reptile and Amphibian Day on March 12th. Our Herp Shop and Education chairpersons have been doing a great job coordinating with the Museum's Special Events staff in preparation for that event. Several other NCHS members are also getting ready for the joint meeting of NC Partners in Amphibian and Reptile Conservation and the NC chapter of The Wildlife Society in early April. As April blends into May, NCHS will have our annual Spring Meeting, for which our illustrious VP has been diligently pulling together speakers, and our Treasurer and Immediate Past-President have been making arrangements. This fall, our Stewardship Committee members are looking forward to beginning on-site longleaf pine restoration at our Big Shoe Heel Creek Preserve stewardship site. We are also discussing the acquisition of the nearby DOT-owned "Borrow Pit" amphibian breeding site as an additional NCHS stewardship property. On top of all that, the weather's getting warm and herps and herplike critters are starting to move, so the urge to get outdoors is slowly but surely snaking its way into our brains. In a nutshell, there is a lot going on behind the scenes of the NCHS.

You may ask: "But how do I get involved in all this hustle and bustle of amphibian and reptilian activity?" Funny you should ask. If you're interested in participating in any of the Society's many and varied tasks, functions, and services, please do not hesitate to contact an Executive Council member. We are always looking for volunteers and we welcome fresh faces and new ideas. Another way you can become involved with the NCHS is by filling out your membership form and checking the appropriate spaces listed under "Please check any of the following that might interest you." Believe it or not, we do actually keep a record of these, and use them to call for volunteers when we need help. For instance, in January, we held a workday at the Big Shoe Heel tract, using volunteers who had checked "Stewardship" or "Workday help" on their membership forms. So as you are renewing your memberships, please be sure to check these spaces so that we will call on you when you are needed.

I guess I'd better wrap this up. I'm getting a little long-winded and I ought to finish this up so our awesome Newsletter Editor, Mr. Jeffrey C. Beane, can set about putting the newsletter together—another of the many important behind-the-scenes NCHS tasks.

-- David Cooper, President

NC HERP TRIVIA QUIZ

In honor of "The Year of the Turtle," here's a fairly easy turtle ID quiz (not exactly trivia this time by the strictest definition, but still a quiz—the first strictly pictorial ID quiz we've ever had. The "fairly easy" part should apply to those who have access to the color pdf version of the newsletter. For those who only have a black-and-white printed copy, it could be a little more challenging. The object is simple: Identify the five NC turtles species depicted.



1



2



3



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(answers on p. 12)

2011 SUMMER COURSES IN FIELD BIOLOGY AT THE HIGHLANDS BIOLOGICAL STATION

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FISHES OF THE SOUTHERN APPALACHIANS

Robert Cashner, University of New Orleans & Mollie Cashner, Southeastern Louisiana University (May 9 – 19)

ECOLOGY OF ROCK OUTCROP COMMUNITIES

Keith Clay, Indiana University (May 23 – June 4)

VASCULAR PLANTS OF THE SOUTHERN APPALACHIANS

Paul Manos, Duke University (June 6 – 18)

EVOLUTION IN THE BLUE RIDGE— FOR SCIENCE EDUCATORS*

Louise Mead, BEACON Center at Michigan State; Jim Costa & Kefyn Catley, Western Carolina University (June 20 – July 2)

PRINCIPLES OF CONSERVATION BIOLOGY IN THE SOUTHERN APPALACHIANS

Peter White, UNC-Chapel Hill (July 4 – 16)

CONSERVATION BIOLOGY OF AMPHIBIANS

Ray Semlitsch, University of Missouri (July 18 – 30)

SOUTHERN APPALACHIAN MAYFLIES, STONEFLIES AND CADDISFLIES

John Morse, Clemson University & C.J. Geraci, National Museum of Natural History (August 1 – 13)

MOLECULAR METHODS IN BIOLOGY

Ron Michaelis, Western Carolina University (May 16 – 21)

NATURE JOURNALING WORKSHOP WITH DRAWING AND PHOTOGRAPHY

Nancy Lowe, Discover Life & John Pickering, University of Georgia (June 6 – 10)

MOUNTAIN BIODIVERSITY WORKSHOP— FOR SCIENCE EDUCATORS*

Karen Kandl, Western Carolina University (June 27 – July 1)

BRYOPHYTE IDENTIFICATION WORKSHOP

Paul Davison, University of North Alabama (July 18 – 22)

Highlands Biological Station 265 N. Sixth St. Highlands, NC 28741 828-526-2602 hbs@email.wcu.edu



Cost and Credit Information

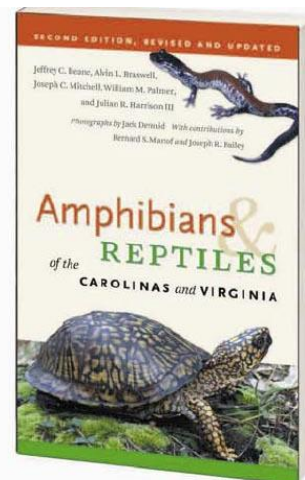
Course fee: \$525 per 2-week course (\$425—students from HBS member institutions)

Workshop fee: \$275 per 1-week workshop (\$225—students from HBS member institutions)

*[*Evolution in the Blue Ridge course & Mountain Biodiversity workshop for science educators have reduced rates—call 828-526-2602 or see website for details.]*

Course credit: Summer courses can be taken for 4 semester hours credit, workshops can be taken for 2 hours credit, through either UNC-Chapel Hill or Western Carolina—\$85

Housing: \$75/week



Amphibians and Reptiles of the Carolinas and Virginia, 2nd Edition is available from the NCHS Herp Shop for \$25.00 (\$20.00 for NCHS members). Contact Sandy Durso: sandydurso@earthlink.net

Reptilefood.com has a herpetological society donation program. If you order from their website through the NCHS link, NCHS will receive 5% of your purchase as a donation. All you have to do is go to **www.reptilefood.com/society** and click on "North Carolina Herpetological Society." Then continue to shop as usual.



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Jeff Beane

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WELCOME NEW MEMBERS!

Lance Paden
8203 Jessup Court
Greensboro, NC 27455

Christopher and A.J. Rowe & family
2878 Kivett Drive
Greensboro, NC 27407

SCANNING THE LITERATURE

This column is intended to inform NCHS members of recent scientific and popular herpetological literature relevant to North Carolina or otherwise of particular potential interest to the Society's membership. Papers and notes published in major scientific journals and articles appearing in popular magazines will be included, and efforts will be made to locate noteworthy items appearing in out-of-the-way places, as well as any new books or other publications that may be of special interest. Should anyone happen across a **recently** published item that seems appropriate, please forward it to the editor. Format will be that of a standard literature citation appearing in a scientific publication.

Ade, C. M., M. D. Boone, and H. J. Puglis. 2010. Effects of an insecticide and potential predators on green frogs and northern cricket frogs. *Journal of Herpetology* 44(4):591-600.

Beane, J. 2010. Portraits of diversity: Amphibians. *Wildlife in North Carolina* 74(12):20-25.

_____. 2011. North Carolina wild notebook: Strange bays indeed. *Wildlife in North Carolina* 75(2):32-35.

Bruce, R. C. 2010. Proximate contributions to adult body size in two species of dusky salamanders (Plethodontidae: *Desmognathus*). *Herpetologica* 66(4):393-402.

Bury, R. B. 2011. Modifications of traps to reduce bycatch of freshwater turtles. *Journal of Wildlife Management* 75(1):3-5.

Camper, J. D., and L. D. Chick. 2010. Seasonal variation in the spatial ecology of the banded watersnake (*Nerodia fasciata fasciata*). *Herpetologica* 66(4):464-475.

Davy, C. M., S. M. Coombes, A. K. Whitear, and A. S. MacKenzie. 2010. Visible implant elastomer: A simple, non-harmful method for marking hatchling turtles. *Herpetological Review* 41(4):442-445.

DeGregorio, B. A., E. J. Nordberg, K. E. Stepanoff, and J. E. Hill. 2010. Patterns of snake road mortality on an isolated barrier island. *Herpetological Conservation and Biology* 5(3):441-448.

Doyle, J. M., J. R. Nolan, and H. H. Whiteman. 2010. Effects of relative size on growth rate and time to metamorphosis in mole salamanders (*Ambystoma talpoideum*). *Journal of Herpetology* 44(4):601-609.

Houck, L. D., E. A. Vaccaro, and K. M. Kiemnec-Tyburczy. 2010. Consistency of male courtship behavior in a plethodontid salamander. *Journal of Herpetology* 44(4):645-648.

Lee, D. 2011. Ray E. Ashton, our favorite gadfly: 1945-2010. *Turtle and Tortoise Newsletter* 15:10-12.

Lee, D. S. 2011. Turtles with attitudes. *Wildlife in North Carolina* 75(3):4-9.

Neuman-Lee, L. A., and F. J. Janzen. 2011. Atrazine exposure impacts behavior and survivorship of neonatal turtles. *Herpetologica* 67(1):23-31.

Palmatier, B. 2011. The mating dance of the spotted salamander. *Wildlife in North Carolina* 75(2):20-25.

Patrick, D. A., C. M. Schalk, J. P. Gibbs, and H. W. Woltz. 2010. Effective culvert placement and design to facilitate passage of amphibians across roads. *Journal of Herpetology* 44(4):618-626.

Price, S. J., K. K. Cecala, R. A. Browne, and M. E. Dorcas. 2010. Effects of urbanization on occupancy of stream salamanders. *Conservation Biology*. DOI 10.1111/j.1523-1739.2010.01627.x.

Reinert, H. K., W. F. Munroe, C. E. Brennan, M. N. Rach, S. Pelesky, and L. M. Bushar. 2011. Response of timber rattlesnakes to commercial logging operations. *Journal of Wildlife Management* 75(1):19-29.

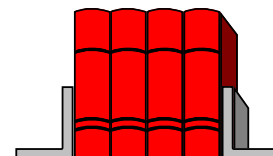
Rowe, J. W., and C. L. Grace. 2010. A comparison of carapace-mounted and body cavity implanted, thermally-sensitive radio transmitters with implications for thermoregulation in free-ranging midland painted turtles (*Chrysemys picta marginata*). *Herpetological Review* 41(4):423-427.

Schaffer, C., R. Schaffer, et al. 2011. Ray Ashton (March 30, 1945-March 11, 2010)—The Great Gopher Tortoise dies at 64. *Turtle and Tortoise Newsletter* 15:7-9.

Sorenson, C. 2010. Nature's ways: How do aquatic salamanders respire? *Wildlife in North Carolina* 74(12):39.

_____. 2011. Nature's ways: How do slow snapping turtles catch swift fish? *Wildlife in North Carolina* 75(3):39.

Stanback, M. 2010. *Gambusia holbrooki* predation on *Pseudacris feriarum* tadpoles. *Herpetological Conservation and Biology* 5(3):486-489.



- Stevenson, D. J., K. R. Ravenscroft, R. T. Zappalorti, and M. D. Ravenscroft, S. W. Weigley, C. L. Jenkins. 2010. Using a wildlife detector dog for locating eastern indigo snakes (*Drymarchon couperi*). *Herpetological Review* 41(4):437-442.
- Tornick, J. K. 2010. Factors affecting aggression during nest guarding in the eastern red-backed salamander (*Plethodon cinereus*). *Herpetologica* 66(4):385-392.
- Williams, L. A., A. D. Cameron, and S. K. O'Neil. 2010. Geographic distribution: *Ambystoma talpoideum*. *Herpetological Review* 41(4):504.
- Willson, J. D., C. T. Winne, and B. D. Todd. 2011. Ecological and methodological factors affecting detectability and population estimation in elusive species. *Journal of Wildlife Management* 75(1):36-45.
- Wyneken, J., S. P. Epperly, B. Higgins, E. McMichael, C. Merigo, and J. P. Flanagan. 2010. PIT tag migration in seaturtle flippers. *Herpetological Review* 41(4):448-454.

Compilers: Jeff Beane, Tom Thorp, Mark Johns

TREASURER'S REPORT

Treasury balances as of 28 Feb. 2011

General Fund (includes grant funds)	\$12,694.86
Aubrey Shaw Memorial Stewardship Fund	\$3,162.33
Project Bog Turtle	\$10,061.70
Project Simus	\$2,847.12
Total of all funds (except savings account)	\$28,766.01
Savings Account Total:	\$285.05
GoodSearch (Year-to-Date): \$3.14 (\$72.26 since inception)	
GoodShop (Year-to-Date): \$15.94 (\$63.50 since inception)	
Totals (including \$6 bonus from toolbar downloads): \$141.76	
Money Market – year-to-date earnings: \$3.04	
Checking Account – year-to-date earnings: \$21.18	



Respectfully Submitted,
Ed Corey, Treasurer



Jeff Beane



Jeff Beane

EXECUTIVE COUNCIL MINUTES



Minutes of the NCHS Executive Council meeting

Date: 9 January 2011

Location: NC State Museum of Natural Sciences Research Lab, Raleigh, NC

Attendees: Jeff Beane, Alvin Braswell, Kim Burge, David Cooper, Ed Corey, Sandy Durso, Jeff Hall, Jerry Reynolds, Dave Stephan, Bryan Stuart, Dennis Herman and Steve Mitchell (NCDOT)

PRESIDENT: Newly-elected President David Cooper opened the meeting at around 10:15-ish. He thanked everyone who voted for Beane in the recent election, and lamented the fact that he ended up as President in spite of their efforts. Cooper noted that the Education chair position is still vacant, and that he has begun to target individual NCHS members who checked Education and Event Planning on their membership forms, as the previous general calls for someone to step up into that position were unsuccessful. Cooper noted that he had purchased some 1-inch binders to pass out to the Executive Council members to serve as “continuity folders.” He will put important Society documents in each, depending on the position, and Council members are encouraged to add to these folders as they see fit. These folders will be passed along as new folks transition into NCHS positions so that we keep our knowledge base. The meeting then turned to discussion about NCDOT projects on “Big Shoe Heel Creek Preserve”—this discussion was moved to the front of the meeting to allow the DOT folks to leave early. Cooper introduced Dennis Herman and Steve Mitchell from the NCDOT and noted that we had two issues pertinent to DOT to discuss. These were increasing the size of the Michaux's sumac plot at the Big Shoe Heel site and the acquisition by NCHS of the DOT “Wagram Borrow Pit” site. Cooper noted that the Michaux's sumac plot on our property is consistent with our conservation goals and with the Recovery Plan for that species, and that DOT does not receive mitigation credit for the plot. Steve Mitchell discussed the wish to more intensely manage the existing plot by raking reindeer lichen, which has been shown to be allelopathic (I think that's the word he used), and to augment the number of plants within the existing plot. He does not want to increase the size of the plot into other areas of the site, but does want to remove the loblolly pines from the existing plot area. DOT would like to increase intensity of management within this plot to try and increase survival and potentially reproduction. Cooper added that we have planned a timber thinning operation and that NCHS will take care of removal of those trees. Additional discussion was centered around transfer of DOT borrow pits to NCHS. Dennis mentioned that there is a possibility of a hang-up that someone will want DOT to sell property rather than donate, but there is a precedent with another group. A management and conservation plan will need to be written as part of the plan for transfer. Dennis has a template and will begin work on it and allow input from NCHS. Essentially NCHS will just need to state NCHS's intent to keep the condition of the ponds “as is” and not cause deleterious effects to the site.

VICE-PRESIDENT: Cooper thanked Bryan Stuart for agreeing to step in as Vice-President following Melissa Jones' move out-of-state. Stuart began discussion about the Spring Meeting—suggestions for where and when to hold it, as well as suggestions for talks. Suggestions for sites included Merchants Millpond State Park, Columbia 4-H Center, and Pocosin Lakes National Wildlife Refuge Visitor Center. Hall agreed to check with USFWS folks about availability of the Pocosin Lakes site in Columbia (and internet availability), and will also check with the 4-H Center for housing rates. Tentative dates chosen were April 30-May 1. Next, the group came up with recommendations for speakers (some suggestions were also made for the Fall Meeting).

SECRETARY: Lori Williams was absent. Cooper had put together a letter of support urging USFWS to allocate funds for the purchase of the Headwaters Tract by NCWRC. Williams had asked NCHS for such a letter. The Council agreed to send the letter.

TREASURER: Ed Corey gave a PayPal update—we are still awaiting confirmation as to whether we can reduce transaction fees due to our 501c3 status. This has been asked for by folks wanting to pay on-line and to use this feature to pay at meetings. Corey and Burge will continue to look into this. Sandy Durso will also consider using this for on-line orders/transactions related to Herp Shop.

NEWSLETTER/NOMINATING COMMITTEE: Jeff Beane announced February 15 as the deadline for the April newsletter. Stuart asked a question about the pdf version of the newsletter and whether to continue a printed version. Current numbers of members requesting pdf only are low. Consensus is to continue printing some newsletters for now and reevaluate in a year or so. Reynolds agreed to do a cost/benefit analysis by the July Executive Council meeting. Beane mentioned nominations for Vice-President and Secretary this fall. Stuart agreed to run again for VP. Beane will ask Lori Williams whether she might be willing to run again for Secretary.

ADVISOR: In advisory capacity, Alvin Braswell brought up the NC State Museum's Nature Research Center and hope for NCHS to partner in as many ways as possible. Corey noted the potential for holding meetings in the new facility. Stuart mentioned that we should seek this as a meeting site for fall 2012.

(contd.)

STEWARDSHIP: Cooper led a stewardship discussion. A site visit to Big Shoe Heel Creek Preserve is planned for Jan. 23 to post boundaries, look at the created pond on site, etc. Corey has looked into possibilities for management opportunities on Big Shoe Heel. Corey has met with USFWS, NCWRC, and private consultants to discuss options. One strongly recommended option would be to do a timber sale of as much loblolly pine as possible from the property. Estimates of the value of this could be as much as \$40,000 total. Using a roughly constructed map, Corey detailed thinning and clear-cutting activities that would occur in stages. Terry Sharpe (private consultant) has gone over the property and come up with multiple recommendations for the site. Sharpe has also offered to write a forest stewardship plan for the site. Corey asked for the Council to vote approval to move forward with this general plan of restoration of Big Shoe Heel. Hall brought up landscape scale aspect and possibility of potential future land acquisition. Corey suggested we might be able to do some work on adjacent landowners' sites to help with invasive species. Beane moved that NCHS move forward with timber projects. Stephan seconded. Cooper asked for discussion. Braswell noted that timber contracts need to be written carefully. Corey noted that with addition of the borrow pit properties, we will need to pay federal taxes for at least one year based on the assessment of the borrow pit property. Motion to proceed with timber sales and management on Big Shoe Heel passed unanimously.

Cooper mentioned the need to reestablish contact with the hunting lease folks for the Donnelley Hardpan Bog Preserve. Stephan added additional information. Discussion ensued about activities of the lease group, including road maintenance.

CONSERVATION: Stephan plans to contact TNC about Carolina bay restoration work as well as potential land acquisition projects, including Tunstall Bay. Stephan also brought up the need to renew dues to NC Conservation Network. Discussion centered around whether to renew for multiple years. The Council agreed to pay for two years. The group discussed other annual contributions, including TNC, Project Simus, and Project Bog Turtle. Hall brought up a problem of multiple renewals from TNC. He agreed to contact TNC and ask for fewer renewals (preferably one) and perhaps change to email notification. He will also notify them of the Society's change in President.

WEBSITE AND LIBRARY-ARCHIVES: Kim Burge suggested the possibility of adding a stewardship page on the website, due to so many active things going on. As far as the state amphibian project, Dave Beamer had given Burge the name of a teacher who might be willing to champion this, so she will follow up. Phil Bradley (through Cooper) suggested that we digitize the archives and make them available to the Society as a whole. Cooper suggested a Library-Archives subcommittee be formed to discuss this further. Hall and Beane agreed to serve if needed. Reynolds suggested we encourage reciprocal members to archive their newsletters and then link to these sites through the NCHS website.

PROJECT BOG TURTLE: Beane gave short account of the annual meeting, held at the NC Zoo in December.

EDUCATION: Cooper is actively seeking a committee chair. Sandy Durso brought up Reptile and Amphibian Day, to be held March 12, 2011. The theme may be threatened and endangered species; NCHS could perhaps put together a power point that could be run continuously at the NCHS booth. Sandy agreed to coordinate the NCHS booths for the event.

MEMBERSHIP: Reynolds gave a membership report, noting memberships expiring. Additional discussion about newsletters being mailed vs. emailed ensued. Estimated costs for producing four newsletters, including printing, envelopes, and mailing is around \$1,000. Reynolds would like to increase cooperation with Treasurer to help meetings run more smoothly.

HUSBANDRY: Nathan Shepard (through Cooper) asked for suggestions for this committee. Several suggestions were to have an adoption board on the website and/or in the newsletter, as well as a column in the newsletter (Husbandry Hints). Another suggestion was to have more information available on invasive species (e.g., red-eared slider).

HERP SHOP: Sandy Durso plans to check on merchandise in stock for Reptile and Amphibian Day and will get with Corey to see what is needed. She will also continue to check on printing tiles for "Find the Copperhead" game.

GRANTS: Andrew Durso (through Sandy) reported that we had received 10 applications received for 2011 grants. Andrew has added the ability to email applications electronically (rather than only accepting mail applications).

OTHER BUSINESS: The NCHS Bylaws still need to be reviewed to make certain that no discrepancies exist. An ad hoc committee was formed in the past and will continue. Members include Beane, Cooper, Williams, Hall, and Stephan. Hall will look over his documents to see if he can find comments that Beane sent to the committee earlier.

The meeting was adjourned.

Respectfully Submitted,
Jeff Hall (acting in Secretary's absence)

ETYMOLOGY . . . WHAT DOES THAT WORD MEAN?

by Kevin Messenger

Maybe I am just weird (that is a joke—of course I am not), but I have always had an interest in the scientific names of herps. As a kid, one of my favorites was “*rhombomaculata*”—I would always use that one in elementary school when we would play hangman. Eventually they made a rule that I couldn’t use scientific names (my second-favorite word to play was “Schwarzenegger”). I recall that, in 6th grade, I would lull myself to sleep each night by reciting 10 scientific names repeatedly. Each night I would pick a different set of snakes from somewhere else in the world and memorize those. During this time in my development, I was content with memorization. I had no interest in, nor did I know any better than, the fact that there was more behind a name.

One day, dad and I found a ringneck and I asked him about the scientific name, *Diadophis punctatus*. He told me that it is called *punctatus* because the belly is lined with periods (also known as punctuation marks)—this, of course, aided my ability in memorizing the scientific name. When I came across my first DeKay’s snake (now more often referred to as brown snake), dad told me the scientific name, *Storeria dekayi*, named after James DeKay. He explained the ending, “*i*,” as being named after someone (more specifically, a masculine possessive ending).

My interest in herpetology (and veterinary medicine) grew as the years progressed. When I started high school, one of the foreign languages offered was Latin. Seeing as how I was either planning a career in biology or medicine, I knew that Latin would be very beneficial to me down the line. I also knew it would help me prepare for such things as the SAT when it came time to apply for college. I wouldn’t be bilingual, since no one speaks Latin officially anymore, but the language would help me out in several other aspects of my life.

I took four years of Latin in high school and absolutely loved it. I would pore through my internal database of scientific names and try to figure out why a certain species was given the name it was given. The book, *Composition of Scientific Words* by Brown was an incredible resource. For words I couldn’t figure out, which usually turned out to be Greek, this book would help fill in the blanks.

So back to the title, “what is etymology?” Etymology is the study of the origin of words. Whenever a species is described, it is assigned a scientific name. The scientific name could incorporate a physical description of the animal, a geographic description, or a patronym in honor of someone. Some names are given in consideration of a specific attribute or behavior of an animal. Take the mangrove snake of the genus *Dendrophilia* for example. *Dendro-* means “tree” and *-philia* means “loving,” in reference for this species’ high fidelity for trees and an arboreal lifestyle. The western diamondback rattlesnake, which can be quick-tempered, is named *Crotalus atrox*; *Crotalus* is Greek for “rattle” and *atrox* is Latin for “fierce.” The eastern diamondback rattlesnake, the largest rattlesnake in the world, is named *C. adamanteus*. *Adamanteus* means “unyielding, bold, strong”—an apt name for this impressive animal. If a person is adamant about something, it means they hold their position strongly. The marvel comic character Wolverine has a skeleton made of a fake mineral called “adamanteum,” which, as anyone who follows comics knows, is unbreakable. Some names have hidden humor to them. Dr. Harold Heatwole named a species of frog he discovered after the agency that funded the research, NSF (National Science Foundation); that species is *Physalaemus enesfae* (if a group is being honored, the name is ended not with an *-i* but an *-ae*). When a name ends in the suffix *-ensis*, it means “coming from.” For example, *Anolis carolinensis* (from Carolina), *Alligator mississippiensis* (from Mississippi), *Lycodon laoensis* (from Laos). This doesn’t imply that all individuals are going to be limited to said area—just likely that the original specimen was found there.

In a foreign country, one which may lack in resources, the knowledge of scientific names and having the ability to break down those names can be very helpful in identifying a species. I ran into a similar situation when I was in China. I did not have access to field guides, but did have access to a list of some of the herps found in the area. I found a new frog I hadn’t seen before, and based on drawings of other species in the genus I could tell that it looked like it belonged in the genus *Amolops*. One of the species listed in the area was *A. granulosus*. *Granulosus* means “granulated,” i.e. (which stands for *id est*, which translates to “that is”), it is covered in bumps, as was my specimen.

Some names use Latin superlatives. A superlative is the greatest form of an adverb or adjective. Examples would be “good, better, best,” or “fast, faster, fastest.” A Latin superlative is characterized by having *-issimus* at the end of it. For example, from the common name of the broadhead skink (*Eumeces laticeps*), we can deduce that the skink bears a broad or wide head (*lati-* means “wide” and *-iceps* means “head”). We have a muscle in our back called the *latissimus dorsi* muscle. This literally translates to “widest (*lati-* + the superlative *-issimus*) muscle of the back.” *Dorsi* comes from *dorsum*, which means “back,” and, as in the example of DeKay’s snake (*Storeria dekayi*), anything named after something is given an *-i* ending, making that word possessive. So “back” becomes “of the back.” A few herp species with Latin superlatives would be *Elaphe longissimus*, which is one of the longest rat snakes in its range. The marine iguana, *Amblyrhynchus cristatus venustissimus*, is named after Venus, the goddess of love and beauty, in reference to this particular subspecies being the most beautiful of the marine iguanas.

(contd.)

Many sources don't even mention the etymology of scientific names these days. I always found it very interesting. One such herp book that does a very good job at explaining and addressing the etymology of each species is *The Amphibians and Reptiles of the Yucatan Peninsula* by Julian C. Lee. The source of each genus is addressed at the beginning, and the specific epithet is addressed for each individual species thereafter.

An interest in Latin unfortunately results in frequent arguments over the pronunciation of some scientific names. Most people are not familiar with pronunciation rules since Latin is a dead language and not commonly studied these days. One of the most common mispronunciations that I hear is *Cemophora*. The pronunciation of "c" in Classical Latin (as opposed to Ecclesiastical Latin, which is what the Roman Catholic Church practices) is always a hard c (i.e., "k"), not soft ("s"). So names like Caesar would be pronounced more like "Kaiser." *Cemophora* would be pronounced "kem-off-oura." After all, the etymology of the genus comes from the Greek word *Kemos*, meaning "muzzle," and *phoreus*, meaning "bearer." That snake's specific epithet, *coccinea*, is also often mispronounced with soft c's. Most of us are familiar with coccus bacteria (pronounced kok-kus, from the Greek *kokkos*) from introductory cell biology classes. Coccinea means "scarlet" or "crimson." Another common argument is the genus *Crotalus*. Most people pronounce it "kro-talus," but a few pronounce it "krot-ah-lus." In the book *Rattlesnakes of the United States and Canada* by Manny Rubio (2010), the author includes pronunciations in which he provides the following recommendation: "krow-tal-us."

Pronunciation of scientific names will likely never reach any sort of uniformity, as there are so many rules and so many types of Latin (Modern, Classical, and Ecclesiastical). Rules and pronunciations change depending on how the individual intended for the word to be pronounced. For example, if a new species of snake were discovered in the country of Cyprus, and consequently had a hypothetical specific epithet "*cypriensis*," the pronunciation of "c" in this case would be soft. If a species was named after someone named "Celena," the retention of the soft c would be used as well.

Etymology is a very fascinating and useful aspect of herpetology that I fear is too often overlooked. For any readers who haven't given much thought to the meaning behind scientific names, but are curious, I highly recommend the book, *Composition of Scientific Words* by Brown. It has been invaluable to me on many occasions.

If you still haven't filed your 2010 state income tax return, remember line 30—the **Nongame and Endangered Wildlife Fund checkoff**. By checking the box provided, you can indicate that you would like to contribute all or part of your refund to this fund, which is used to benefit "nongame" species such as herps. A grant from this fund helped produce our "Turtles of North Carolina" poster, and several NCHS members have in the past received grants for herp-related research with such species as the bog turtle, pine snake, Carolina salt marsh snake, timber rattlesnake, Carolina gopher frog, and river frog. Purchasing a wildlife license plate is another way to contribute to this fund. Direct, tax-deductible donations may also be sent to: NC Wildlife Resources Commission, Nongame & Endangered Wildlife Program, Division of Wildlife Management, 1722 Mail Service Center, Raleigh, NC 27699-1722. To learn more about the variety of programs supported by this fund, visit www.ncwildlife.org



Jeff Beane



Jeff Beane

AUDIO REPORTS OF *HYLA VERSICOLOR* IN NORTH CAROLINA

by Harry LeGrand

I have been fortunate to explore quite a few counties in the central sections of North Carolina, getting paid to identify natural areas and rare species habitats for county inventories. In my job at the N.C. Natural Heritage Program, I have done inventories for Wake, Johnston, Moore, Robeson, Scotland, Person, and now Caswell. I have also hit many other Piedmont counties in a "mafic" soil inventory, as well as a number of counties from Granville to the coast for several Albemarle-Pamlico Estuarine Studies.

During my explorations of Person County in 2005-06, I had the pleasure of hearing both the widespread and common Cope's gray treefrog (*Hyla chrysoscelis*) and the poorly-known (in North Carolina) eastern gray treefrog (*H. versicolor*). This experience was repeated in 2009-10 with my inventory of Caswell County. Below are my reports of *Hyla versicolor* for the two counties:

PERSON

1. General vicinity of the Marlowe Creek floodplain, immediately north of Edwin Robertson Road (SR 1322), 36°29'03"N, 78°58'44"W. LeGrand heard 2-3 songs/calls, in midday on July 13, 2005.
2. About 0.6 mi. NE of After Bay Reservoir dam, south of Hyco River, 36°31'48"N, 78°59'27"W. LeGrand heard one calling on several occasions, on March 30, 2006. Weather was mild for the date.
3. Lower portion of the Castle Creek floodplain, about 0.1 mi. SW of where the creek goes under a RR trestle, 36°31'56"N, 78°57'16"W. LeGrand heard one calling several times on April 7, 2006; day was quite warm.

CASWELL

1. Two sites: 1) about 0.8 mi. SW of Longs Mill Road (SR 1565) bridge over Country Line Creek; 2) about 1.1 mile SW of this same bridge; both sites close to logging roads/jeep trails, 36°27'23"N, 79°13'28"W [not sure to which of the two sites these coordinates refer]. LeGrand heard multiple calls of a single frog from each of the two locations, on June 10, 2009. No *H. chrysoscelis* were heard in the vicinity for comparison.
2. About 0.7 mi. ESE of the intersection of Stephentown Road (SR 1564) and High Rock School Road (SR 1597), alongside a jeep trail/logging road leading south from SR 1564, north of Reedy Fork Creek, 36°25'44"N, 79°13'01"W. LeGrand heard one calling on June 10, 2009. No *H. chrysoscelis* heard for comparison, but that species has been heard earlier in 2009 at other sites farther south on Caswell Game Land.
3. About 0.2-0.25 mi. NW of the NC 86 bridge over Hogans Creek, in a broad floodplain area, 36°30'21"N, 79°23'33"W. LeGrand heard one calling in mid-morning on a warm day, on June 4, 2010.
4. Two sites just south of River Bend Road (SR 1530), from about 1/2-mi. west of the intersection with NC/VA 62, and also about 1.5 mi. from this intersection, 36°32'16"N, 79°13'43"W [not sure to which of the two sites these coordinates refer]. LeGrand heard one calling on the NCDOT site, perhaps 0.5 mi. west of NC 62, on April 1, 2010; and he heard one calling about a mile to the west, on private property, on June 15, 2010.
5. Cane Creek Slopes, located about 0.3 airmi. SSW of where River Bend Road (SR 1530) crosses Cane Creek (at the VA line), 36°32'12"N, 79°15'52"W. LeGrand heard one calling, essentially overhead in a tree, on April 8.
6. On the east side of the floodplain of an unnamed creek, just SE of the Mary Jane Bigelow Road (SR 1730) bridge over the creek, 36°20'42"N, 79°16'59"W. LeGrand heard one calling repeatedly in early afternoon, on June 4, 2010; LeGrand heard a gray treefrog (sp.) in this same area, which he thought was *H. versicolor*, on July 28, 2009.
7. About 0.15 mi. NNE of St. James Church, on the east side of Solomon Lea Road (SR 1561), 36°24'41"N, 79°09'21"W. LeGrand heard one calling on two occasions around midday (temps around 85°F), on July 13, 2010.

In the data presented above, I essentially transcribed the material as entered in the Biotics database at the Natural Heritage Program. I added in a few of the road numbers (e.g., SR 1561) or English names for the roads. The coordinates above are in degrees, minutes, and seconds; these were automatically generated by ArcView from the data points that I mapped, based on the verbal directions.

There is one previous confirmed record of the eastern gray treefrog from Caswell County: "ca. 1.0 mi. NNW Frogsboro, off W side SR 1702 (Ridgeville Rd.), Caswell Game Lands" (NCSM database). "An adult male calling 10-12 feet up in a cedar along a vernal pool; captured on June 14 [2005]; kept alive until preserved on Dec. 15, 2005; karyotyped by J.E. Wiley. Photos in NCSM files. Specimen #NCSM 69506." (NCSM database). Record sent to me by Jeff Beane in 2009. There are also two confirmed records for northwestern Warren County, by Wiley, in 1982. In addition, Tobey (1985) indicated that *H. versicolor* was the gray treefrog species occurring over nearly all of that state's Piedmont, with *H. chrysoscelis* mainly in the Coastal Plain and Mountains. Beane et al. (2010) include a range map that essentially represents correctly these Virginia and North Carolina specimen records—shaded range throughout the Virginia Piedmont, with fingers

(contd.)

barely extending into North Carolina in Warren and Caswell counties (presumably). Thus, it was clear to me that *Hyla versicolor* was an important target animal species to survey for in both Person and Caswell counties.

The great majority of my audio reports (I call them “reports” as opposed to “records,” as I did not have any devices to save the recordings for documentation) are located within five miles of the Virginia line. Several were within a mile of the line. The farthest from the line appear to be report # 6, which I measured at 13.5 miles south of the state line. I never heard any Cope’s gray treefrogs within a few miles of the state line, but farther south, on the bulk of the Caswell Game Land, south and east of Yanceyville, I heard essentially only Cope’s. There were a few areas slightly north of that town where I heard Cope’s. I never heard both Cope’s and eastern at the same site, and there seemed to be only a narrow zone of overlap, about at the Yanceyville level. So, in summary, nearly all gray treefrogs I heard north of Yanceyville were easterns, and south of the town almost solely Cope’s.

I heard the species on perhaps one out of four days I was in the field in Caswell County, and maybe only once out of 15 days in Person County. However, most of these days were spent in areas in the central and southern parts of both counties, where I heard only Cope’s (I hear this species commonly in most other counties in the state, and thus am very familiar with its call). The calls I heard from what I consider to be easterns were relatively “slow” trills or rattles, somewhat lower-pitched than those of Cope’s. These trills were a bit musical, and I could clearly hear individual notes, though they were too quick to count. The calls to my ears sounded quite a bit like the rattle “call” of the red-headed woodpecker (*Melanerpes erythrocephalus*), but the woodpecker’s call is not really musical, and is rougher to my ear. The woodpecker usually calls from open swamps or beaver ponds, where there are dead trees, or in very open woods. The woodpecker is uncommon in the region, though it is present in northern Caswell and Person counties. In contrast, to my ears, the Cope’s call is a somewhat musical “qurrrrrrrrrrr”, somewhat shorter in length than that of the eastern, and is so rapidly given that individual notes cannot be detected. It sounds to me somewhat like one of the calls of the red-bellied woodpecker (*M. carolinus*). I heard some of the *Hyla versicolor* calls as early as March and April. I have been warned by a few herpetologists that cold weather can cause frogs to call at a slower rate, and that a slower trill heard in late winter or spring could be Cope’s. However, this low and musical trill that I heard in spring was the same trill that I heard in summer, and I heard the rapid trill of Cope’s in the spring, as well. Thus, I feel confident in my calls.

The habitats where I heard easterns were highly varied. Some were in wooded floodplains, where one would expect to hear both species, but a few were heard in mature upland hardwood forests. Several were heard in regenerating clearcuts in floodplains. I don’t think the habitat selection between calling easterns and Cope’s in these two counties differs at all.

Clearly, there is much to learn about the eastern gray treefrog in North Carolina. First, it would be desirable for herpetologists to capture such treefrogs in Caswell and Person counties, for electrophoresis work to identify a frog in the hand, and there is certainly the need to obtain audio recordings of easterns. Whether or not eastern gray treefrogs are expanding their range southward into the northern tier of Piedmont counties is unknown, but most likely, they have been in these counties all along. Nonetheless, eastern gray treefrogs appear to be well established in the northern third of Caswell and Person counties, and undoubtedly eastward through Granville and Vance counties to at least Warren County on the east. The range likely extends westward in the Piedmont, and maybe to the northern Mountains.

So, eastern gray treefrog is a species that might not yet be on many herp enthusiasts’ life lists or state lists. But, if you are willing to count “heard only” frogs on your lists, like birders often do with rails and owls, this ought not be a difficult “tick” if you drive around a little bit in northern Caswell County!

Literature Cited

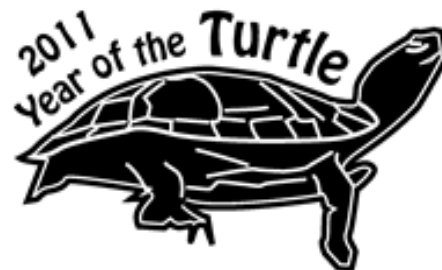
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- Tobey, F. J. 1985. Virginia's Amphibians and Reptiles: A Distributional Survey. Virginia Herpetological Society, Richmond and Purcellville. 114 pp.

ANSWERS TO “NC HERP TRIVIA QUIZ”

(pg. 3)

- 1) Bog turtle, *Clemmys* [*Glyptemys*] *muhlenbergii* (adult from Wilkes Co.).
- 2) Green sea turtle, *Chelonia mydas* (juv. from Carteret Co.).
- 3) Diamondback terrapin, *Malaclemys terrapin* (adult from Carteret Co.).
- 4) Eastern chicken turtle, *Deirochelys r. reticularia* (juv. from Scotland Co.).
- 5) Yellow-bellied slider, *Trachemys s. scripta* (juv. from Richmond Co.).

Quiz and photos by Jeff Beane



NCHS HERPETOLOGICAL GRANTS PROGRAM

The North Carolina Herpetological Society (NCHS) presents a small grants program to support herpetological research, conservation, and education projects by members of NCHS. Grants ranging up to \$1,000 will be awarded on an annual basis, as funding is available. All applicants must be current NCHS members. Proposals submitted in proper format will be evaluated by the NCHS Grant Review Committee and forwarded with recommendations to the Executive Council for approval. An effort will be made to select the best projects, while trying to support the efforts of the broadest range of members. If suitable proposals are lacking, less than the total available funds will be awarded. Unused funds will revert to the NCHS Treasury.

Research and conservation projects concerned with Endangered, Threatened, Special Concern, or declining species are encouraged, but other projects will be considered.

Educational projects should address a recognized area of need, and should identify the principal audience to be reached.

Applications will be accepted from individuals only, and only one application per year per member will be accepted. Projects demonstrating good success and a need for continuation may receive additional funding for a maximum project duration of three years. However, alternative funding for project continuations is encouraged. Applications, submitted in triplicate, should include:

- a. Objectives of the project.
- b. Proposed methodology.
- c. Budget for use of requested funds.
- d. Timetable for project activities.
- e. Project location information.
- f. Brief résumé of applicant including address and phone number.
- g. Any cost share involved with the project.
- h. A statement indicating intent to comply with all state and federal laws that may apply to activities or species associated with the project, and intent to follow the guidelines for conducting field research on amphibians and reptiles published jointly by SSAR, HL, and ASIH (copy available on request).

Up to 80% of requested funding can be paid prior to completion of a project at the discretion of the Executive Council. Final payment will be made upon receipt of the final report. If a grantee is unable to complete a project for any reason, unexpended funds must be returned to the NCHS with an explanatory statement. At the discretion of the Executive Council, equipment purchased with grant monies may be retained by the NCHS after completion of project activities.

Project results should be presented to the membership of the NCHS either in the newsletter *NC Herps* or as a program at a Society meeting.

Grant applications should be sent electronically to:

nchsgrants@gmail.com

Applications may also be mailed to:

**NCHS Grant Review Committee
N.C. State Museum of Natural Sciences
11 West Jones St.
Raleigh, North Carolina 27601-1029**

Electronic submissions are encouraged. Applications must be received by **15 September 2011**. Applications received after the deadline may not be considered for funding. Notification to applicants will be made during the first week of November and successful applicants will be announced at the NCHS Fall Meeting. Grant awards will normally be available on 15 January. An interim grant report is due on 15 August, and the final report is due on 15 March of the following year.

The final written report should include a title page, abstract, introduction, materials and methods, results, discussion, acknowledgments, and literature cited, in that order. The report should be no more than 13 pages unless special circumstances dictate otherwise.

Funding to support this grants program will be set at 30% of the balance of funds in the NCHS Treasury over \$5,000, exclusive of special fund balances, and shall not exceed \$3,000 annually. Monies available for a grant cycle will be determined by July, prior to review of proposals by the Grant Review Committee. Funding level for the NCHS Grant Program is subject to annual review and adjustment at the discretion of the Executive Council.

The Grant Review Committee is appointed by the President of NCHS. All members of that committee should be members of NCHS, and may not apply for a grant while serving on the committee. Any Executive Council members applying for a grant should abstain from discussions about and voting on the approval of said grant(s) when reviewing the recommendations of the Grant Review Committee.

Current Grant Review Committee: Andrew Durso (chair), Dave Stephan, Lori Williams.

[NOTE: These initial guidelines for the NCHS grants program were accepted by the Executive Council on 20 February 1994; amended 8 Jan. 2006.]

NCTWS & NC PARC 2011 Joint Annual Meeting

Date: 4/5/11—4/7/11
Lake Junaluska, NC

Southern Appalachia: Managing Flora and Fauna in the Modern Age



Join us this year at Lake Junaluska Conference & Retreat Center in beautiful Haywood Co., NC. The NCTWS Executive Board and the NC PARC Steering Committee joined forces and put together what is sure to be the most informational, fun filled and exciting meeting of 2011!

In this challenging economic climate, we aim to provide a quality experience at a nominal price. For as low as \$138, you'll enjoy 3 days/ 2 nights of accommodations at the picturesque Lake Junaluska, complete with 6 meals, choice of field tours, a renowned keynote speaker, many talks led by North Carolina wildlife professionals, poster sessions, 2 socials and so much more!

The meeting is open to anyone with an interest in NC wildlife, so whether you're a member of NCTWS or NC PARC, or just want to see what we're all about, join us April 5 - 7 in the mountains. Registration information and agenda at www.nctws.org and www.ncparc.org.



You won't want to miss:

- ◆ Field tours—elk & salamanders!
- ◆ 2, yes 2!, socials!
- ◆ Raffles, auctions and door prizes!
- ◆ Over a dozen informative talks!
- ◆ Keynote speaker Ken Kozak
- ◆ Panel discussions-climate change and forest/wildlife management
- ◆ The beauty of Haywood County

Providing annual meetings with great programs would not be possible without the continued participation and support from our membership. We look forward to your attendance and valuable contributions at this 2011 meeting!

SPRING MEETING ANNOUNCEMENTS

The **NCHS Spring Meeting** will be held on **Saturday-Sunday, 30 April-1 May 2011**, in the **Pocosin Lakes National Wildlife Refuge Visitor Center (Walter B. Jones, Sr. Center for the Sounds)** in downtown **Columbia, NC** (see agenda, p. 20).

REGISTRATION will take place at the meeting Saturday morning (**\$5 members, \$3 all students, \$7 non-members**). If you wish to renew membership for 2011, or join for the first time, you may do so at the meeting. **Please complete a membership form**, even if you are renewing (so that our Membership Directory information is current). Extra forms will be available. We don't want to "lose" members who join at meetings but fail to turn in forms. If your address, phone number, area code, e-mail, or other membership information has changed, or if any information appeared incorrectly in the last Membership Directory or on your newsletter mailing address label, this would be a reasonable time to make such corrections.

REFRESHMENTS will be served at the meeting, as usual. Try to remember to **BRING YOUR OWN REUSABLE CUP OR COFFEE MUG**. NCHS continues to try to reduce disposable trash. There *may* be some extra cups on hand for those who forget. You might consider bringing a reusable cloth napkin also.

There should be jars at the registration table for contributions to the Society's various funds—Project Bog Turtle, Aubrey Shaw Memorial Stewardship Fund, Project Simus, etc. Contributions are tax-deductible.

HERP SHOP items for sale will include the usual assortment of T-shirts, books, posters, greeting cards, mugs, jewelry, and other items. Do all your Mothers' Day shopping in one spot! (Volunteers may be needed to help staff the Herp Shop during the meeting. If you are available, please contact Sandy Durso.)

Volunteers are needed to help with the **registration** table in the morning. If you are willing to help, please contact Ed Corey or Jerry Reynolds.

AUCTION: Always one of the more entertaining features of our meetings, the auction will feature the usual (or unusual) assortment of herpetologically-oriented items. Bring money and a bidding attitude. If you have items to donate (literature, prints, photos, posters, artwork, cages, hooks, field equipment, decorative items, toys, clothing, jewelry, etc.), please bring them to the meeting (**early**), or get them to Jeff Beane before the meeting. **No live herps or herp parts will be auctioned**, but almost anything else goes (as long as it lies somewhere near the realm of legality). Items donated to the auction are tax-deductible to the extent allowed by law. All proceeds go to NCHS general fund, which helps support our grants program and other ongoing NCHS activities.

No special children's activities are planned for this meeting. Quiet, well-behaved children are, of course, welcome to attend all portions of the meeting, and older children especially may find some or all of the presentations interesting.

RAFFLE: This meeting's raffle item will probably again feature one or more items (a "reptile replica" and/or some pewter jewelry) made and donated by **Joe Morgan**. Raffle tickets will be available at the registration table for \$1 each. You may buy as many as you want, and you need not be present to win. The drawing will be held at the end of the meeting.

LUNCH will be catered by Mike's Kitchen, and will include chicken teriyaki, stir-fry rice noodles (vegetarian), BBQ chicken (or BBQ pork ribs), meat loaf, fried rice, mashed potatoes, stir-fry vegetable medley, dinner rolls, tea, and chocolate cake, for about \$8.00 per person. Lunch is optional (you'd have to be insane to pass up that menu, but then, some herpers are known to be insane). The business session will be held immediately afterward.

ACCOMMODATIONS

Camping

A group campsite at Pettigrew State Park has been reserved for Friday (29 April) and Saturday (30 April) nights. If you plan to camp one or both nights, please contact Ed Corey (ed.corey@ncdenr.gov) ASAP to make reservations.

Motels

Several motels are within a 30-45 min. drive. Here are some of the closer ones (there are others in Manteo, Nags Head, Edenton, etc.):

Dalton House Motel	109 Ramp Road, Columbia, NC	(252) 796-0381
Lasseters Landing B&B on the Sound	42 Lasseters Landing, Columbia, NC	(252) 796-3379
Holiday Inn Express Hotel Plymouth	840 US Hwy. 64 W, Plymouth, NC 27962	(252) 793-4700
Sportsman's Inn	990 US Hwy. 64, Plymouth, NC	(252) 793-3095
Port-O Plymouth Inn	510 US Hwy. 64 East, Plymouth, NC	(252) 793-5006
Pinetree Motel	241 US Hwy. 64, Plymouth, NC	-
White's Shopping Center Motel	7395 US Hwy. 64-264, Manns Harbor, NC 27953	(252) 473-2256

A **GROUP DINNER** and **SOCIAL** will be held after the meeting at Columbia Crossing Restaurant & Good Times Tavern (immediately across the street from the meeting site). Plan to stay for it if you can—our socials are always enjoyable, and an excellent way to get to know other members.

FIELD TRIPS will be held on Sunday. One trip will consist of a canoe paddle on the Scuppernong River. There will probably be at least one other (terrestrial) trip. Details will be announced on Saturday.

SPEAKERS

Jeff Beane is Herpetology Collections Manager for the North Carolina State Museum of Natural Sciences in Raleigh, where he has been employed since 1985. He holds a B.S. in Zoology from North Carolina State University (1982). Active in NCHS since 1982, he has served as its newsletter editor since 1986, and in many other capacities. He is a frequent contributor to *Wildlife in North Carolina* magazine, and has authored many other popular and scientific publications. His interests include virtually anything pertaining to natural history or conservation, especially sandhills ecology and the natural history, zoogeography, and conservation of amphibians and reptiles in North Carolina and the Southeast.

Richard Bruce is Professor of Biology Emeritus at Western Carolina University, where he served for 39 years. He also served as Director of Highlands Biological Station for 27 of those years. Dr. Bruce received a B.S. from Tufts University, and M.A. and Ph.D. from Duke University. His research has focused on plethodontid salamanders of the southern Blue Ridge, but has also included studies of salamanders of the North Carolina Coastal Plain, Edwards Plateau of Texas, and Costa Rica.

David Cooper has been the Staff Biologist at Soil and Environmental Consultants, PA since 2007. He has a B.S. in Zoology from North Carolina State University. In the past, he has held various positions at the NC State Museum of Natural Sciences, including contract educator, field and laboratory technician, Curator of Program Animals, and Living Collections Curator of Herpetology. He is current NCHS President, and also shares the co-chair position of the Stewardship Committee with Ed Corey.

Will Fields is a Ph.D. Candidate in the Department of Biology at North Carolina State University. He received a B.S. in Animal Ecology from Iowa State University before working with The Nature Conservancy, the University of California Cooperative Extension Program, and the Florida Fish and Wildlife Conservation Commission. He moved to Raleigh to begin graduate school in 2005. His dissertation research focuses on factors affecting the distribution of amphibians, the effects of climate variability on amphibian population dynamics, and how larval conditions affect juvenile amphibian dispersal.

Jeff Hall's fascination with wildlife began in early childhood. His career in this field was launched during high school when he volunteered as a Junior Curator at the North Carolina State Museum. Jeff received a Bachelor's degree in Biology from Wake Forest University in 1995 and completed a Master's degree in Biology from East Carolina University in 2006. He has worked as a trail guide/naturalist for The Nature Conservancy, a researcher for North Carolina State University, a naturalist for Betsy-Jeff Penn 4-H Camp, an educator for Imagination Station science museum, and as the director for Weyerhaeuser's Cool Springs Environmental Education Center. He currently serves as the Partners in Amphibian and Reptile Conservation (PARC) Biologist with the North Carolina Wildlife Resources Commission. As PARC Biologist, Jeff works with landowners to promote habitat management that benefits reptiles and amphibians as well as other wildlife species. He coordinates the North Carolina chapter of PARC, helping to bring public and private partners together to further conservation efforts for reptiles and amphibians. Jeff also manages the Calling Amphibian Survey Program (CASP), which is designed to monitor long-term trends of frog and toad populations across the state. Jeff, his wife Shannon, and their two boys live in Greenville, NC.

David Pfennig is a professor of biology at the University of North Carolina at Chapel Hill. He is interested in the interplay between evolution, ecology, and development, particularly in how competitive interactions shape biodiversity. Additionally, he studies how a common feature of development—its tendency to respond immediately to changes in an organism's environment—evolves and how such developmental plasticity, in turn, affects the evolutionary process. Recently, he has also become fascinated by mimicry in snakes as a way of understanding how selection promotes the evolution of complex features. His work has been featured on The National Geographic Channel and in *The New York Times*, *Newsweek*, *National Geographic*, *Scientific American*, *New Scientist*, and *Discover*, among other publications.

Karin Pfennig is an Associate Professor of Biology at the University of North Carolina at Chapel Hill. She has a B.A. in Ecology, Behavior, and Evolution from the University of California, San Diego and a Ph.D. in Biology from the University of Illinois. She held postdoctoral fellowships at the University of Bristol in the U.K., the University of Texas at Austin, UNC-CH, and Duke before taking her current faculty position at UNC-CH. Her research interests are in behavioral and evolutionary ecology, with a particular focus on the evolution of behavior, sexual selection, hybridization, and speciation.

Ted Simons is a Professor and Assistant Unit Leader in the USGS Cooperative Fish and Wildlife Research Unit, Department of Biology, NC State University. He earned his B.S. at the University of Wisconsin, Madison, and his M.S. and Ph.D. at the University of Washington, Seattle. He served as a research biologist with the National Park Service and the Director of the NPS Cooperative Park Studies at the University of Virginia before coming to NCSU in 1993. His research is focused in three broad areas: (1) understanding the ecological factors that constrain species diversity and abundance, (2) modeling wildlife habitat relationships at the population and landscape level, and (3) improving wildlife population sampling methods.

Wendy Stanton has worked as Wildlife Biologist at Pocosin Lakes National Wildlife Refuge for 12 years. Previously, she served as a biologist at Pea Island National Wildlife Refuge in North Carolina and the Bureau of Land Management in Roseburg, Oregon. Her professional interests include wildlife ecology, wetland restoration, and Atlantic white cedar reforestation. Most of her work at Pocosin Lakes is focused on waterfowl conservation, restoration of peatlands, and invasive species management. She has always been fascinated by herps, especially amphibians.

ABSTRACTS

Amphibians and Reptiles of the Albemarle Peninsula

Jeff Beane

North Carolina Museum of Natural Sciences
jeff.beane@ncdenr.gov

The Albemarle Peninsula (also known as the Albemarle-Pamlico Peninsula) is North Carolina's largest peninsula, encompassing some 3,200 square miles. The peninsula is bordered by the Albemarle and Pamlico sounds and encompasses Dare, Hyde, Tyrrell, and portions of Beaufort and Washington counties. The region is drained by the Alligator, Pamlico, Pungo, and Roanoke rivers and includes Lake Mattamuskeet (the state's largest natural lake), Lake Phelps, Alligator Lake, and Pungo Lake. Hydric, peat-based soils are common on the peninsula. Natural habitats consist mostly of pocosin wetlands; marshes; and mixed pine, hardwood, and Atlantic white cedar forests. Timber companies and agricultural corporations own a high percentage of the peninsula, and much of the land has been clearcut and now lies in agriculture. Drainage operations have seriously altered the hydrology of much of the area. Despite this history of land abuse, some 540,000 acres are now in some form of conservation ownership. These include nearly 340,000 acres encompassed by Alligator River, Pocosin Lakes, Lake Mattamuskeet, Swan Quarter, and Pea Island national wildlife refuges. Other protected lands include those managed by the North Carolina Wildlife Resources Commission, The Nature Conservancy, U.S. Air Force and U.S. Navy (Dare County Bombing Range), Cape Hatteras National Seashore; Pettigrew, Goose Creek, and Jockey's Ridge state parks; and Fort Raleigh and Wright Brothers national monuments. The region is blessed with some of the lowest human population densities in the state. The peninsula and adjacent barrier islands support a rich diversity of wildlife, including at least 28 amphibian and 53 reptile species documented, and several others of expected or potential occurrence. This presentation will provide an overview of this region's rich herpetofauna.

Community Assembly of *Desmognathus* Salamanders in North Carolina and Beyond

Richard Bruce

Western Carolina University
EBruce1563@aol.com

Of the 21 species of *Desmognathus* in eastern North America, 15 occur in North Carolina, and are found statewide from the swamps of the lower Coastal Plain to the summits of the highest mountains. Most Coastal Plain and Piedmont localities support a single species, but assemblages of as many as six or seven species occur in the Blue Ridge within the boundaries of a single small watershed. *Desmognathus* salamanders can be sorted into three life-history categories: stream, streamside, and terrestrial. A large body of experimental evidence, much of it conducted in western North Carolina, suggests that assemblages of *Desmognathus* are regulated by competition and predation among the members of an assemblage. This allows the formulation of "rules" to describe the assembly of *Desmognathus* communities, in North Carolina and throughout the range of the genus. Thus, assemblages begin with a streamside species, followed by the addition of a second streamside species, with the next species being either a streamside or stream species. If the third species is a streamside species, the next species is a stream species. Additional species are either stream or forest. The maximum numbers are two/three streamside species, two/three stream species, and two forest species, although assemblages of more than six species are undocumented. There are a few exceptions to this pattern. And, given continuing uncertainties about the nature of interactions among the species of *Desmognathus*, these assembly rules are to be considered preliminary.

An Overview of the North Carolina Herpetological Society's Stewardship Properties

David Cooper

Soil and Environmental Consultants, PA
nvrpetaburningdog@yahoo.com

The North Carolina Herpetological Society's Stewardship Committee acts as the land steward for two tracts of land in North Carolina: the Donnelley Hardpan Bog Preserve in Chatham County, and the Big Shoe Heel Creek Preserve in Scotland County. NCHS President and Stewardship Committee co-chair David Cooper will provide a brief overview and history of the Society's involvement with these two sites and discuss land management and plans for the future.

(contd.)

Variation in Climate Changes Our Perspective on the Viability of Amphibian Populations

Will Fields

North Carolina State University
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Habitat loss has long been considered one of the most important factors affecting the loss of biodiversity, but the effects of climate on populations have received more attention in recent years as processes driving climate change become better understood. Amphibians present an ideal model system for studying the effects of climate change on species because their reproductive cycle is strongly influenced by patterns of rainfall. However, few studies have examined how long-term variation in climate might affect amphibian demography. I studied a tiger salamander population in the Sandhills of North Carolina in order to study how variation in climate interacts with demography to affect the viability of an amphibian population. Six years of demographic data from a tiger salamander population were used to estimate vital rates for this species, and a statistical model to predict the hydrology of the wetland breeding site for this population was developed and applied to 50 years of climate data. Simulation models based on this information show that variation in climatic conditions may make population growth more sensitive to larval recruitment. Improvements in future climate models will improve our understanding of conservation actions that can help protect amphibian populations.

Herpetofaunal Sampling in the North Carolina Coastal Plain: A Comparison Between Techniques Across Habitats

Jeff Hall

North Carolina Wildlife Resources Commission
jeff.hall@ncwildlife.org

Numerous techniques are available to study reptile and amphibian communities, and researchers must often choose among these methods to obtain the most useful data. During the years 1999-2006, multiple trapping techniques were employed at Weyerhaeuser's Cool Springs Environmental Education Center. Located near New Bern, this 1,700-acre site includes diverse habitats ranging from cypress-tupelo swamp to longleaf pine ridge. Trapping techniques have included pitfall traps used with and without drift fences, minnow traps used in both aquatic and terrestrial settings, turtle traps, dipnets, artificial cover materials arrayed in transects (tin, wood, and PVC pipes), road-cruising, and general habitat searches. A total of 67 species of herpetofauna have been identified from the property across all techniques, habitats, and years. Comparative analyses of these field data helped identify the relative effectiveness of sampling techniques, allowing comments on their general utility to researchers and land managers.

When Life Imitates Life: The Evolution of Mimicry

David Pfennig

University of North Carolina at Chapel Hill
dpfennig@email.unc.edu

Batesian mimicry evolves when individuals of a palatable species gain the selective advantage of reduced predation because they resemble a toxic species that predators avoid. This idea traces to Henry Walter Bates, who regarded convergent evolution between a palatable species (the "mimic") and an unpalatable one (the "model") as "a most powerful proof of the theory of natural selection" (Bates 1862). Even today, Batesian mimicry is used as a prime example of natural selection's efficacy in promoting adaptation. Many aspects of Batesian mimicry remain unclear, however. In my talk, I will concentrate on coral snake mimicry to explore two unsolved issues. The first issue is whether and how a mimic can occur in the absence of its model. As we will see, the occurrence of mimics outside the range of their model potentially undercuts the notion that selection to avoid predation drives convergence of models and their putative mimics. Consequently, it has long been postulated that mimics should only occur with their model. Yet, many Batesian mimics occur in the absence of their model. I will discuss the various factors that promote such paradoxical species distributions. The second major issue requiring clarification is why Batesian mimics often do not appear to match their model precisely. Specifically, why are such imperfect mimics not further improved by natural selection? As we will see, selection might not favor improved mimicry for a variety of reasons. In sum, studies into the causes and consequences of "rule-bending" mimics promise to offer fundamental insights into the evolution of mimicry and thereby continue to provide "a most powerful proof of the theory of natural selection."

(contd.)

Mate Choice, Hybridization, and Speciation in Spadefoot Toads

Karin Pfennig

University of North Carolina at Chapel Hill
kpfennig@email.unc.edu

Two species of spadefoot toads, *Spea multiplicata* and *S. bombifrons*, co-occur and hybridize in the southwestern U.S. Although the most divergent in the genus *Spea*, the two species produce viable hybrid offspring. In my talk, I outline how hybrid performance relative to pure species types is environmentally dependent. I further discuss how this variation in hybrid fitness has important implications for the maintenance of species boundaries. Finally, I describe the general implications of this work for understanding the origins of new species.

Ribbit Radio—Evaluating Detection Bias on Auditory Frog Call Surveys

Ted Simons

North Carolina State University
tsimons@ncsu.edu

We experimentally tested the efficiency of human observers and acoustic listening devices to detect calling anurans. We modified a system originally developed to simulate avian point counts ("Bird Radio") to: estimate the effective detection radii of both human listeners and automatic detection devices for several anuran species, explore variables influencing detection probabilities and listening radii, investigate the degree to which species misidentification is a factor that should be incorporated into estimation methods, and explore the effectiveness of current model-based methods to estimate anuran chorus size (relative or absolute abundances of calling males) by broadcasting a known number of calling 'individuals' to experienced observers. We found that misidentification errors are a potentially serious source of bias in frog calling surveys, especially when occupancy metrics are applied to the data.

An Overview of Pocosin Lakes National Wildlife Refuge

Wendy Stanton

Pocosin Lakes National Wildlife Refuge
Wendy_Stanton@fws.gov

Wendy will provide an introduction to, and overview of, Pocosin Lakes National Wildlife Refuge.

* * *

Directions

The Walter B. Jones, Sr. Center for the Sounds (Pocosin Lakes National Wildlife Refuge Visitor Center) is located off U.S. 64 at the junction of NC 94, by the Scuppernong River in downtown Columbia. From the west or east, take U.S. 64. From the south, take NC 94. You can't miss it. The address is 205 South Ludington Drive, Columbia, NC 27925. Phone: 252-796-3004. Email: pocosinlakes@fws.gov

Questions about the meeting? Contact Bryan Stuart (919-733-7450, ext. 751; bryan.stuart@ncdenr.gov) or any officer.



THE NORTH CAROLINA HERPETOLOGICAL SOCIETY

Announces

2011 Spring Conference and General Meeting

☆ ☆ Saturday, April 30-Sunday, May 1, 2011 ☆ ☆

Pocosin Lakes National Wildlife Refuge

Walter B. Jones, Sr. Center for The Sounds
Columbia, NC

AGENDA

Saturday, April 30

- 8:00-9:00 a.m. Registration and Refreshments
- 9:00-9:10 a.m. Welcome and Announcements
- 9:10-9:30 a.m. **An Overview of Pocosin Lakes National Wildlife Refuge.** Wendy Stanton, Pocosin Lakes National Wildlife Refuge
- 9:30-10:00 a.m. **Amphibians and Reptiles of the Albemarle Peninsula.** Jeff Beane, North Carolina State Museum of Natural Sciences
- 10:00-10:30 a.m. **Ribbit Radio—Evaluating Detection Bias on Auditory Frog Call Surveys.** Ted Simons, North Carolina State University
- 10:30-10:45 a.m. Break
- 10:45-11:15 a.m. **Mate Choice, Hybridization, and Speciation in Spadefoot Toads.** Karin Pfennig, University of North Carolina at Chapel Hill
- 11:15 -11:45 a.m. **Community Assembly of *Desmognathus* Salamanders in North Carolina and Beyond.** Richard Bruce, Western Carolina University
- 11:45 a.m.-1:30 p.m. Lunch and Business Session
- 1:30-2:30 p.m. Auction
- 2:30-3:00 p.m. **Variation in Climate Changes Our Perspective on the Viability of Amphibian Populations.** Will Fields, North Carolina State University
- 3:00-3:30 p.m. **When Life Imitates Life: The Evolution of Mimicry.** David Pfennig, University of North Carolina at Chapel Hill
- 3:30-3:45 p.m. Break
- 3:45-4:15 p.m. **An Overview of the North Carolina Herpetological Society's Stewardship Properties.** David Cooper, Soil and Environmental Consultants, PA
- 4:15-4:45 p.m. **Herpetofaunal Sampling in the North Carolina Coastal Plain: A Comparison Between Techniques Across Habitats.** Jeff Hall, North Carolina Wildlife Resources Commission
- 4:45-5:00 p.m. Raffle Drawing, Closing Announcements
- 6:00 p.m. until . . . Group Dinner and Social

Sunday, May 1

Field Trips; details to be announced.



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Mail to: **North Carolina Herpetological Society, NC State Museum of Natural Sciences,**
11 West Jones Street, Raleigh, NC 27601-1029

Dues are for the calendar year. Anyone joining before Nov.1 receives all newsletters and other mailings issued during that year. Anyone joining after Nov.1 will receive a membership for the following calendar year. Individual memberships are allotted 1 vote each in elections and 1 newsletter subscription. Family memberships are allotted the same regardless of number in family, but all persons are full members.

Please check any of the following that might interest you:

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____ Stewardship

____ Meeting speaker (topic: _____)

____ Refreshments

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