



The TORTOISE BURROW

Newsletter of the
Gopher Tortoise Council
www.gophertortoisecouncil.org

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ALABAMA FLORIDA GEORGIA LOUISIANA MISSISSIPPI SOUTH CAROLINA



BOYD BLIHVDE

Notes from a Co-chair

Happy 2004! I hope you all had a wonderful holiday season. Its always busy during the holidays, but I hope everyone is ready to put increased emphasis on gopher tortoise conservation. As a New Years Resolution I would like to ask everyone to write at least one letter to your U.S. or state representative in the month of January. Please urge them to remember the environment during the new calendar year. You can easily email your elected officials at www.mrsmith.com. Also, there is great official information at www.senate.gov and www.house.gov.

I hope you all thought the 25th Annual Gopher Tortoise Council Meeting was a success. We had approximately 143 registrants to either Friday, Saturday, or both sessions of the meeting. The meeting venue (Wekiwa Springs State Park) was a very inspiring place to discuss Gopher Tortoise issues. The 2003 meeting was also a money generator for the GTC. The manager of the park, John Fillyaw, was generous, donated use of the facilities, and allowed us free entry into the park.

There are a lot of former and incoming volunteers to thank for their work as board members. Thanks and welcome to Cyndi Gates who agreed to be the new treasurer. Cyndi is taking the position from Lora Smith, who has been doing a great job as the stand-in treasurer. Lora has been helping on a variety of GTC issues, but has recently been overworked and needed to relinquish this position. Thanks Lora for all your hard work during the past few years. Tom Mann of Mississippi is taking over the Mississippi state representative slot from Deborah Epperson who moved to a job along the coast. Deborah was formerly with The Nature Conservancy at Camp Shelby, and I'm sure will be dearly missed. Overdue thanks goes to Roger

Birkhead from Auburn University who took over as the Alabama state representative from Ed Wester. The GTC would like to thank all the past and present board members who have been helping conserve gopher tortoise habitat in the Southeast. Please contact a current board member if you are interested in helping volunteer for the GTC.

Also at the 2003 meeting we elected a long-time member and former GTC newsletter co-editor John Jensen as the incoming co-chair. John is a herpetologist with the Georgia Department of Natural Resources' Nongame Wildlife Program. On behalf of the GTC I would like thank Sharon Hermann of Auburn University for her dedication and hard work during her two-year tenure as co-chair.

As always the socials at this year's meeting were lots of fun. Thanks to John Jensen (last meeting's social chair) we had plenty of "beverages" and lots of discussions around the campfires.

The continuing conservation problems in Florida (particularly Central and South Florida) are of increasing concern to me. I certainly believe that the GTC will one day be leading a charge to federally list the gopher tortoise. Although Florida has a great system of public lands that often contain large populations of gopher tortoises, the private properties are often quickly developed before proper planning can take place. Also, the relocation policy in the state allows for the land development with little concern for the future of the tortoise colony. Usually the tortoises are moved to a recipient site, but there are many occasions when the tortoises are "taken" or killed.

State Reports

Presented at the GTC Annual Meeting, October 4, 2003, Apopka, Florida

Alabama --ED WESTER

The gopher tortoise is federally protected as a threatened species in Mobile, Washington, and Choctaw Counties in southwestern Alabama. Gopher tortoises are protected by state nongame regulations throughout the remainder of southern Alabama.

As always, gopher tortoise conservation efforts in Alabama are most intensive in the federally protected range. This is particularly true in Mobile Co., which is experiencing rapid growth and urban sprawl. A gopher tortoise Conservation Bank, established a couple of years ago in cooperation with the Mobile Area Water and Sewer System (MAWSS), US Fish and Wildlife Service (USFWS) and Environmental Defense, continues to accept tortoises displaced from private lands (generally single-home and small developments). The 222-acre bank is within a 7,000 acre area around Converse Reservoir owned and managed by MAWSS. A total of 83 tortoises currently reside on the bank and at current translocation rates, the bank should reach its capacity of one tortoise per 1.5 acres by 2006. Discussions are already underway to add additional lands to the Bank. The Alabama Department of Transportation is also setting up a similar Conservation Bank on a 600-acre tract in northern Mobile Co. to aid in mitigating impacts from highway construction.

I received several calls and emails this year from folks in Mobile and Baldwin Cos. concerned about road construction/development and the potential impacts to gopher tortoises. That's going to become an even greater problem as the human population in this part of Alabama continues to grow. Unfortunately, the gopher tortoise is not federally protected in Baldwin Co. and many are likely being lost. I also received a few calls from folks that had rescued gopher tortoises from busy roads in Baldwin Co. In each case we were able to coordinate their release into nearby suitable habitats with sympathetic landowners.

Finally, after more years than I can remember, this is my last year as Alabama State Rep. I'm handing the reins over to Roger Birkhead. Roger has extensive gopher tortoise experience and is currently working on his PhD at Auburn University. If the last name sounds familiar its because Roger's father Bill Birkhead is our Georgia State Rep. Don't hesitate to contact Roger if you have any questions about gopher tortoise issues in Alabama.

Florida --JOAN BERISH

The gopher tortoise has been listed as a Species of Special Concern in Florida for over 2 decades now. A

biological status review in 2002 indicated that, under Florida Fish and Wildlife Conservation Commission's (FWC) current listing criteria, the gopher tortoise would warrant elevation to threatened status. However, Commissioners have elected to postpone consideration of this proposed status change until a recently convened stakeholders' group has reviewed the listing process. In the meantime, FWC is creating an internal team to address the many issues associated with tortoise mitigation and management.

However we define its legal status in Florida, the gopher tortoise is in desperate need of a realistic, proactive management plan--which Paul Moler and I are attempting to create. A preliminary draft was sent for internal review in February 2003. That draft is currently being revised to incorporate format changes and reviewers' comments. Two of the many strategies that we advocate include implementing--rather than merely proposing--prescribed fire on public lands, and restocking the vast areas of recently restored, but gopher-depleted, sandhills at Eglin AFB in Florida's Panhandle. Paul and I met with Eglin staff this summer to outline goals and procedures for restocking. We hope to collect additional blood samples next spring to determine if Eglin's scattered tortoises have been exposed to the bacterium (mycoplasma) that causes upper respiratory tract disease (URTD); my research in 1996 did not reveal seropositive tortoises.

Relocation dilemmas associated with rampant development continue in Florida. There are still two types of permits: special permits to relocate 5 or fewer tortoises on-site (issued at the regional level with minimal review), and the standard permits (issued for more than 5 tortoises on-site or any number off-site). The standard permits are now reviewed and issued by our Tallahassee office. Testing a sample of tortoises for exposure to mycoplasma is still required prior to off-site relocations. The finding of even a single exposed tortoise precludes off-site relocation, meaning that either an on-site option is pursued, or the developer applies for an incidental take permit while protecting tortoises and habitat elsewhere through payment into a mitigation bank.

In 2002, an inter-disciplinary team from the universities of Florida and South Florida initiated a 5-year study regarding URTD and gopher tortoise population dynamics and health, with special emphasis on effects of relocation and habitat alteration. In 2003, blood and nasal flush samples were taken from tortoises on 14 sites. Disease status has been monitored on 4 of these sites since the late 1990's. Data from this study are already yielding valuable insights regarding seroepidemiology and changes in populations over time.

State Reports Continued

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Georgia --BILL BIRKHEAD

Natalie Hyslop, a Ph.D. student at the University of Georgia who was featured in the most recent issue of the Gopher Tortoise Burrow (Volume 23, Nos. 1 and 2), provided an update of indigo snake conservation efforts in Georgia. Natalie has collected approximately 850 radiolocations for 20 transmittered snakes to date. They have also obtained visuals on 29% of the winter and 30% of the spring locations. Winter minimum convex polygon home ranges averaged 3.1 ha. Home range size did not appear to be associated with sex or the length of time the snake was tracked. Spring home ranges were considerably larger ($x = 127$ ha) than those obtained during the winter, with male and female home ranges averaging 178.9 ha and 30.5 ha, respectively. Ninety-one percent of all radiolocations obtained during the winter were in sandhills. Snakes used a wider variety of habitats in the spring, including sandhills (55%), wetlands (17%), and clear-cuts (11.4%). Although this seasonal shift in habitat use was evident in most snakes, it was more pronounced in males.

Paula Kahn, a Ph.D. student at Auburn University, completed the first year of a two-year study designed to assess the physiological effects of relocation on gopher tortoises on the Fort Benning Reservation. The specific parameters measured included stress, immunocompetence, and reproduction. A total of 50 tortoises were relocated from impacted (sites on which military training takes place) and unimpacted habitats, to pens that were situated in either impacted or unimpacted habitats from which the resident tortoises had been removed. Relocated tortoises were fitted with transmitters. Stress and immune challenges and hormone analyses were conducted on all 50 tortoises the day there were trapped and 30 days after they were relocated. Tortoises will be challenged and assayed again in the spring after they have overwintered in these pens.

Mitch Lockhart, a faculty member at Valdosta State University, reported they have now marked approximately 104 tortoises on Moody Air Force Base. All of these tortoises were URTD's negative. Serum chemistry from these individuals will be published next year. Mitch also had a directed student who did some powder tracking of tortoises from a small population at the Lake Louise Research Area in Valdosta. They obtained compelling evidence from this study that DOT practices may have enhanced the habitat for juvenile tortoises because several juveniles were living (editor: a precarious existence) on the side of the interstate in at least one location (in Lowndes County).

Lora Smith, Assistant Scientist in Herpetology at the Joseph W. Jones Ecological Research Center, provided a short synopsis of activities that were being carried out at the center in southwest Georgia this past year. In brief, they found 48 tortoise nests this year. Twenty-eight of these nests were depredated. The remainder are being monitored for hatching success. Striped newts were found at only one pond in 2003. Gopher frogs bred at nine ponds. Lastly, ten eastern diamondback rattlesnakes (six males and four females) were radio-transmittered as part of a predator exclusion study. An additional 10-15 snakes will be instrumented this coming spring.

Biologists at the Savannah River Ecology Lab (SREL) are involved in a project to determine the impacts of military training and single-species management for the red-cockaded woodpecker and other rare sandhills species at military installations located along the fall line. Target species include gopher tortoises and several federally- and/or state-protected plant species. SREL herpetologists are conducting burrow surveys at the Fort Gordon and Fort Benning Reservations as part of this project. They are, in addition, conducting a radio-telemetry study of gopher tortoises on Fort Gordon. This work will continue through 2004.

Donna Wear and her students continue to radio track six adult gopher tortoises that were relocated to the Georgia Department of Natural Resources mitigation site in McDuffie County. All six tortoises are still on the site. Twenty-three tortoises (15 adults and eight juveniles) have now been moved to this 95-acre tract of land. Dr. Wear and her students have good visual evidence that an additional six untransmittered (and free-ranging) adult tortoises were "still hanging around." All of these tortoises were enclosed for at least a year prior to their release. Two adult tortoises and all eight of the juvenile tortoises are still enclosed. One adult tortoise perished following its relocation.

Louisiana -- INÉS MAXIT

The Louisiana State University and the Louisiana Natural Heritage Program conducted a study from August 2002 through June 2003 in the eastern part of the state to develop baseline health parameters for Louisiana gopher tortoises. A total of 59 gopher tortoises were collected from two Wildlife Management Areas (Ben's Creek and Sandy Hollow WMA, Washington Parish), one State Park (Lee Memorial Forest, Washington Parish) and private lands in Washington and St. Tammany Parishes. The findings of this study suggest that these tortoises are generally healthy but 26% of them were suspect or positive for exposure to *Mycoplasma*. We will continue the study next year to monitor these tortoises.

State Reports Continued

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Mississippi --DEBORAH EPPERSON

Gopher Tortoises

Negative trends cited in the most recent state reports from Mississippi continue. Tortoise habitat is being permanently lost to suburbanization, particularly in the coastal counties and in the Hattiesburg, Petal and Poplarville areas, and to habitat deterioration resulting from insufficient burning. Within the past year International Paper has sold much of its extensive industrial forestry holdings in MS. Many of these parcels have been bought by developers, and some have already been converted to tract housing. Habitat destruction and fragmentation accompanying Mississippi's extensive four-lane highway construction program continue.

This was a very wet season throughout much of southern Mississippi, preventing much-needed application of growing season prescribed burns in many areas. The Chickasawhay Ranger District of the DeSoto National Forest, home to the best remaining tortoise populations in Mississippi, has an extensive burning program, but plans to conduct 80-90% of its burns in the winter. This is probably the case on the DeSoto Ranger District as well. Research indicates that winter burning will not control or reduce stem densities of shrubs, already excessive in most areas in Mississippi. The U.S. Forest Service needs support at all levels, local, regional, and national, for a shift in its burning program from one based upon a preponderance of winter burning to one based largely upon more seasonally appropriate growing season burning.

Early indications are that these soggy soils will again, as last year, greatly reduce hatching success of gopher tortoises. Most tortoises in MS occur on/in soils of relatively high clay content.

At Camp Shelby, research continues to investigate the response of gopher tortoises to habitat management by prescribed burning in sites adjacent to military training areas. We had almost complete nest failure this year on these study sites most likely due to the exceptionally wet summer. Adult tortoises are being monitored with radio-telemetry, and daily activity patterns determined using powder tracking. Vegetation sampling continues in an effort to document changes in habitat characteristics due to prescribed fire. Dr. Carl Qualls (University of Southern Mississippi) and his graduate student, Krista Noel, continued their investigation of gopher tortoise hatching success. Of eggs incubated in the laboratory, approximately 60% hatched. Eggs in the field experienced less than 20% hatching success which may be due to the increased amounts of precipitation this summer. Investigations will continue for one more field season (2004) and hopefully some causal factors contributing to decreased hatching

success in the field will be identified.

Ed Wester (Southern Ecosystems Research) and his survey crews have recently begun another comprehensive census of tortoise burrows at Camp Shelby Training Site. Ed's surveys are going to cover approximately 123,000 acres. Ed conducted a previous comprehensive survey of Camp Shelby in 1995, so these data should provide important information on population trends. In 2002, the U.S. Forest Service, DeSoto National Forest, contracted with Southern Ecosystems Research to resurvey priority soil sites in the three management districts to assess gopher tortoise population and habitat trends since the earlier survey in 1995. Overall, a declining trend was observed, usually associated with poor habitat conditions in the absence of sufficiently frequent fire or other habitat restoration and management needs. The decline in mean density of active adult burrows was statistically significant in two of the three management districts.

Dr. Rich Seigel is conducting a relocation experiment in Harrison County in association with a proposed development. Twenty-four tortoises were relocated from nearby development sites to a restored longleaf pine habitat on the Desoto National Forest. Two short-term (three month) and two long-term (12 month) enclosures were constructed, each 0.6-ha and containing 12 starter burrows. Tortoises were equipped with radio transmitters and placed into the enclosures to determine if length of penning influences relocation success. Tortoises from short-term enclosures were released mid-August 2003, and tortoises from long-term enclosures are scheduled to be released in June 2004. To date, about 50% of the tortoises in the short-term enclosures have left the relocation site.

Gopher Frogs

Research by Dr. Joe Pechmann and his graduate students continues on the only remaining population of the Mississippi gopher frog (*Rana sevosa*). An ephemeral upland pool on The Nature Conservancy's Old Fort Bayou Mitigation Bank near Ocean Springs will be used to investigate conditions needed for successful relocations. A small number of tadpoles will be transferred to the site from the sole remaining breeding pond during the next breeding event. These animals will be monitored within enclosures in the pool, and any resultant metamorphs will be released on site. If successful, additional tadpoles can be transferred in subsequent seasons, and it is hoped that the nearby tortoise burrows will improve the upland foraging habitat for adult gopher frogs.

Upland Conservation

On September 23 - 24, a longleaf pine training work-

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shop was held for Mississippi Forestry Commission (MFC) foresters. The workshop was organized and held by the MFC, the Longleaf Pine Alliance, Mississippi Agriculture and Forestry Experiment Station, U.S. Fish and Wildlife Service, and the MS Fish and Wildlife Foundation. Over 80 staff attended sessions on silviculture, economics, fire, and endangered and threatened species including the gopher tortoise.

On May 28, 2002 the U.S. Fish and Wildlife Service announced that the American Forest Foundation, Environmental Defense, American Bird Conservancy, and the Mississippi Fish and Wildlife Foundation were the recipient partners of a \$315,475 Private Lands Stewardship Grant. The purpose of their project is to restore and enhance fire maintained longleaf pine and southern pine habitat to benefit the gopher tortoise, black pine snake, and other species of concern in a 23-county area in southwestern Alabama, southern Mississippi, and southeastern Louisiana, while developing and implementing multi-species Safe Harbor and Candidate Conservation Agreements with Assurances with private landowners. As part of this project, a demonstration field day was held on September 26 on the property of John Lambert, where other private landowners were invited to tour stations and learn about the economic and ecological benefits of longleaf pine management. To date, 2,500 acres of privately owned longleaf pine habitat has been enrolled in this program.

South Carolina --STEVE BENNETT AND TRACEY TUBERVILLE

Jayne Waldron, a PhD student at Clemson University, is collaborating with South Carolina Department of Natural Resources (SCDNR) on an ecological study of the eastern diamondback rattlesnake and the canebrake rattlesnake in southeastern South Carolina. During the 2003 field season, nine adult timber rattlesnakes (2 male and 7 non-gravid females) and one eastern diamondback rattlesnake (non-gravid female) were implanted with radio transmitters and located daily. Fewer eastern diamondbacks were telemetered this year compared to previous years due to difficulty in capturing them during the spring. Flooding and higher than average temperatures in February may have forced diamondbacks from hibernation earlier than normal, thus making them more difficult to find and capture. The study animals were implanted with transmitters in early April, and the transmitters will be removed in March 2004. Vegetation analysis was conducted on locations at which telemetered snakes spent a minimum of 24 hours. Additional components of the project include a

mark-recapture study-21 timber rattlesnakes (15 adults and 6 juveniles) and four eastern diamondbacks (1 adult and 3 juveniles) were newly marked this year-and a diet study from individuals collected throughout the Coastal Plain.

During 2003, SCDNR initiated a radio-telemetry study of gopher tortoises on two study sites on the Tillman Sand Ridge, fluvial ridge located parallel to the Savannah River, near the town of Tillman. The study sites are located on the Tillman Sand Ridge Heritage Preserve (TSRHP), a 900-acre preserve with approximately 300 acres of upland sandhill habitat, and Public Service Authority (PSA) tract, a 1000 acre parcel with approximately 800 acres of upland sandhill habitat. The goals of the tortoise project are to document the natural history traits of the tortoise at the sites, including movement patterns, seasonal habitat use, home range size and reproductive ecology. The study is being funded under the State Wildlife Grants program.

The Savannah River Ecology Laboratory (SREL) completed the 2nd year of monitoring of the gopher tortoise population translocated to the Savannah River Site (SRS). Movement patterns and home range estimates of the SRS individuals will be compared to data collected by SCDNR on individuals from the naturally-occurring Tillman Sand Ridge populations. In addition, SCDNR and SREL are collaborating on a project funded by Corp of Engineers Research Lab that will investigate the effects of forestry management practices on gopher tortoises at the South Carolina sites and at Fort Gordon military installation in Georgia.

Tortoise Management Courses by the Gopher Tortoise Conservation Initiative

The Gopher Tortoise Conservation Initiative, established by the Ashton Biodiversity Research & Preservation Institute, is offering the following training programs. Deadlines for registration are 30 days before the scheduled dates.

3-day Field Training Program on Gopher Tortoise Management and Mitigation Techniques: April 21, 22, 23, June 9,10,11, July 14, 15, 16

1-day Management Workshops: January 16, May 21

1-day Monitoring Workshops (1/2 day habitat and plants and 1/2 day tortoises): May 14, July 30

For details, visit www.ashtonbiodiversity.org or contact Ray Ashton at tortfarm2@aol.com or call at 352-495-7449.

Health Assessment in the Eastern Indigo Snake (*Drymarchon couperi*) in Southeastern Georgia

TERRY NORTON, DVM

For the past two years, researchers from several institutions (Wildlife Conservation Society, University of Pennsylvania, University of Georgia, and University of Florida Colleges of Veterinary Medicine, Ft. Stewart Fish and Wildlife Branch, University of Miami, U. S. Geological Survey-BRD Florida Caribbean Science Center, University of Boston, White Oak Conservation Center) have been participating in a collaborative study to evaluate the health, reproductive, and nutritional status of the Eastern indigo snake in Southeastern Georgia. Dr. Terry Norton, a veterinarian working for the Wildlife Conservation Society's St. Catherines Island Wildlife Survival Center, and Dirk Stevenson, a herpetologist from Ft. Stewart are leading the investigation. Most of the snakes in the study have come from the Ft. Stewart area. Dr. Norton has also been surgically placing transmitters for a spatial ecology study being conducted by Natalie Hyslop, a PhD candidate from University of Georgia. Involvement in this study has given the researchers the opportunity to perform health assessment on radioed indigo snakes during the warmer months of the year when they are otherwise almost impossible to capture.

There is surprisingly limited published information on health assessment parameters in the eastern indigo snake, and most of this information is from captive specimens. The most notable study of captive snakes evaluated plasma biochemistry panels in 17 snakes from different collections. All snakes had an unusually high plasma calcium and phosphorous level. Most of these snakes were apparently healthy.

The most common reported mortality events in free-ranging eastern indigo snakes are being run over by vehicles and traumatic injuries induced by misinformed persons. A parasitic survey of indigo snakes from Florida and a study using ultrasonography and radiography to evaluate the reproductive status in the eastern indigo snake have been conducted.

The objectives of this on-going study are to develop baseline data for health assessment, reproductive and nutritional parameters specific to free-ranging eastern indigo snakes. To date, 6 female and 11 male (two snakes were caught in consecutive years for a total of 13 exams) eastern indigo snakes have been captured for health assessment. Seven postmortem examinations have been performed on specimens found dead on roads. Seven radioed snakes (6 male and 1 female) were also evaluated over the past summer and early fall months. The results presented here are very preliminary and a final report will be published in a refereed journal.

Once the snakes are captured, a complete physical examination is performed and a blood sample is taken from each snake for a variety of diagnostics (e.g. complete blood counts, plasma biochemistry panel, plasma protein electrophoresis, heavy metal and pesticide screens, plasma vitamin A, E, and D levels, plasma sex hormones (17B estradiol and testosterone), infectious disease serology). Stomach and fecal contents, radiographs, and skin biopsies are taken from selected snakes.

The following summarizes some of the preliminary findings of this study. A high percentage of snakes have had dry crusty to ulcerative skin lesions. The number of skin lesions are variable from very few to the entire body being covered. The lesions can be superficial to extending down to muscle tissue. These lesions appear to resolve in the summer and return in the winter. Skin biopsies have been taken from several snakes to determine the cause of the lesions. Numerous opportunistic bacterial and fungal organisms have been cultured. Inflammatory cells with a variety of bacteria and occasionally fungal organisms have been seen on histopathology. We suspect that the lesions may be secondary to the relatively high humidity in the gopher tortoise burrows, suppressed immune system due to lower body temperatures and possibly decrease in the snakes shedding during the winter. No external parasites have been found on any snake during the winter; however, red mites have been found on all snakes evaluated in the summer.

Plasma calcium levels have been extremely elevated in free-ranging eastern indigo snakes when compared to other snake species. However, the calcium levels are significantly lower than previously documented for captive indigo snakes. Interestingly, the mean plasma calcium is the same for males and females. The highest value was from a female that was mobilizing calcium for egg laying. These calcium levels would be incompatible with life in most other vertebrate species. Phosphorous levels are similar to other snake species and are lower than reported for captive eastern indigo snakes. Vitamin D levels are extremely high when compared to other snake and vertebrate species. Vitamin D is involved in calcium and phosphorous regulation. Low to moderate levels of blood and tissue mercury has been found in most snakes evaluated.

A variety of infectious diseases are being evaluated. To date, all samples have been negative for West Nile Virus and paramyxovirus antibodies. *Cryptosporidium*, a coccidian parasite found in snakes, which can be carried without symptoms or can lead to serious medical problems, has been found in some of the indigo snakes. No pathology has been associated with the organism. Mild to severe infestations with a red blood cell parasite, *Hemogragrina* spp, has been found in most snakes.

A complete necropsy is performed on fresh road-killed specimens. Samples are taken for histopathology, contaminants, prey item identification, and nutritional evaluation. Parasites that have been documented include *Ochetosoma kansense* from the oral cavity, unidentified nematodes from the gastrointestinal tract and adult pentostomes from the lungs. Histopathology has revealed inflammatory lesions associated with parasites in the lungs and gastrointestinal tract in most snakes. A copperhead, southern toads, and juvenile gopher tortoises have been found in the gastrointestinal tract of necropsied snakes.

The main focus for the committee continues to be completing the *Gopher Tortoise: A Species in Decline* educational program and resource notebook. As I write this report, I can look across the room at the boxes of 3-ring binder notebooks piled up & waiting for the contents to be returned from the printer. It reminds me of the *Gopher Tracks* project and entering George & Donna Heinrich's dining room that was taken over by boxes of books for several weeks! Before the year is through, all of the educators who requested the resource notebook & program in PowerPoint will be receiving their program. Those who preferred slides will have to wait awhile. To receive the

best prices on slide duplication, we are waiting until after the holidays. A huge thanks to David Lee with the Tortoise Reserve for coordinating the slide duplication! In the next issue of *The Tortoise Burrow* I will list all the people and groups who have generously donated both time and money to helping complete this project.

Our GTC display is available & is not scheduled until April. If anyone would like it to be at an event, or even just put on display at a library, museum, or other facility please let me know.

If there are educational projects that you would like to see GTC involved with, please share your ideas!

Announcing the 2003 J. Larry Landers Student Research Awards

The Gopher Tortoise Council annually presents the J. Larry Landers Student Research Award to the best student research project concerning the biology of the gopher tortoise or any aspect of its sandhill community. In 2003, a total of \$1600.00 was awarded to two graduate students to partially support their projects:

Natalie Hyslop, University of Georgia: Spatial Ecology and Habitat use of the Threatened Eastern Indigo Snake in Southeastern Georgia. \$800.00

Roger Birkhead, Auburn University: Gopher Tortoise Conservation Genetics. \$800.00

Students interested in applying for the J. Larry Landers Student Research Award should submit a concise description of their project with a detailed budget and a brief *curriculum vitae* to Bob Herrington, Research Advisory Committee Head, Dept. of Biology, Georgia Southwestern State University, Americus, Georgia 31709. Deadline for receipt of proposals to be considered for the 2003 award(s) is August 21, 2004.

Newsletter to be produced 3 times per year

Beginning with this issue, *The Tortoise Burrow* will be published three times annually (Spring, Summer, Fall). Deadlines for submission of announcements and articles are the 15th of March, July, and November. Send materials to the editor: Mark Bailey, 2040 Old Federal Road, Shorter, AL 36075, telephone (334) 727-2040, fax (334) 727-1005, mbailey@conservationsoutheast.com. Decisions concerning publication of submitted material rest with the editor and co-chairs. Please send address changes to membership secretary Will Knox, P.O. Box 2265, Cross City, FL 326287, or e-mail at wknox@svic.net.

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Southeast Regional PARC Meeting Announcement

February 27 and 28, 2004

Ridgeland, South Carolina

Purpose

With the upcoming release of two pivotal publications (SE PARC Habitat Management Guidelines and SE PARC Inventory and Monitoring Guidelines), SE PARC is poised to make a significant step forward. To maximize the impact of these new tools and emphasize the importance of our mission, we will feature speakers and discussions on the following topics:

- Habitat Management
- Inventory and Monitoring
- State Wildlife Grant ("SWiG") Planning
- Habitat Protection

The event will begin Friday with a VERY important meeting of the Education/Outreach working group, in which plans will be developed to disseminate the new publications.

Who should attend?

Wildlife agencies, heritage agencies, SWiG planning teams, land/habitat managers, land trusts, forest products industry, field scientists, ALL education/outreach working group members, and anyone else who wants to help SE PARC conserve wild herpetofauna populations.

Why should you attend?

We must maximize the potential momentum the HMGs and I&MGs can generate. These new publications and the concepts they articulate can make greatly enhance herp conservation efforts in the Southeast, but not if they gather dust. It will

take all of us to refine and disseminate these messages.

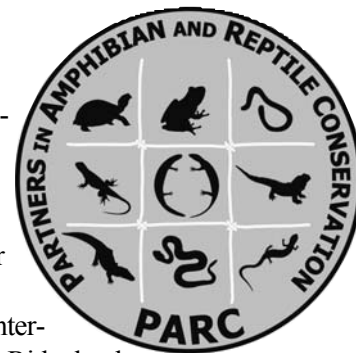
The meeting will be held at the Blue Heron Nature Center in Ridgeland, South Carolina. The facility is located at the intersection of I-95 and US 278 in Ridgeland, about 1 block off the Interstate. There are 5 motels within walking distance of the Center and several restaurants in the vicinity.

Ridgeland is about 30 minutes driving time north of Savannah, Georgia, located in the heart of Jasper County ... known to many as the reptile capital of the world!

The Legendary South Carolina Low Country

Field Trip: Ever read Kauffeld? Ever seen an eastern diamondback rattlesnake? Ever seen 50,000+ acres of fire-maintained mature longleaf pine? Ever wonder where "Okeetee" corn snakes come from? Sunday, Feb 29 will be reserved for a field trip (or trips, depending on the number of participants) to the Webb Wildlife Center and/or Tillman Sandridge Heritage Preserve. SC Dept. of Natural Resources staff is conducting research on the eastern diamondback rattlesnake and "canebrake" rattlesnake at the Webb Center and on the gopher tortoise at Tillman. Other areas of local interest include Savannah National Wildlife Refuge, ACE Basin and Francis Marion National Forest.

For more information, contact Tom Akre at (803) 725-4790 or e-mail at akre@srel.edu



Longleaf pine forest, Jasper County, South Carolina

The Visiting Southeast Asian Turtle Researcher Project (Year Two): Where Do We Go From Here?

GEORGE L. HEINRICH

When the Gopher Tortoise Council (GTC) first developed the Visiting Southeast Asian Turtle Researcher Project (VSATRP), we only had plans for the summer of 2002. However, the success of the first year, with Firoz Ahmed (India) and Sovannara Heng (Cambodia), encouraged those involved to continue the project for another summer. This past August, the GTC supported a three-week visit by Luu Canh Trung of Vietnam. Trung is a national conservation officer for the Vietnam Ministry of Agriculture and Rural Development, the governmental agency that oversees the management of forests, national parks and other protected areas. Trung previously worked as a technical and planning officer for the Tam Dao National Park, where he worked extensively with seven species of local turtles, attempting to raise conservation awareness and recover local populations.

The success of this year's project was due to the combined support of Ray Ashton (Ashton Biodiversity Research & Preservation Institute), Dr. Deborah Epperson (Camp Shelby), Dr. Lora Smith (Jones Ecological Research Center), and Laura Wewerka (Lee County Parks and Recreation). In addition, I would like to acknowledge the local hosts that were kind enough to open up their homes to Trung: Anik and Brad Smith (Fort Myers, Florida), Bob Brechtel (Summerfield, Florida), and Robin _____ (Hattiesburg, Mississippi).

The next issue of this newsletter will include an article written by Luu Canh Trung. Meanwhile, readers wanting to learn more about this successful international conservation project are invited to visit the GTC website.

GTC members should be proud of our organizational contribution to Asian turtle and tortoise conservation. The big question now is where do we go from here? Funds remain in the VSATRP subaccount and interest for a third summer is present, so it was decided at the fall business meeting that we would run the project for one more summer. That will likely be the final summer of the VSATRP. It was never intended to be a permanent GTC program. I am currently exploring host sites for 2004 where a visiting researcher would have the opportunity to learn about tortoise research and conservation methods. Please contact me if you and your agency/organization would like to participate.



Visiting researcher Luu Canh Trung of Vietnam measuring a gopher tortoise at Camp Shelby, Mississippi.

Council members that want to assist with the success of this project and international tortoise conservation efforts still have time to do so. In fact, those making donations of \$20 or more will receive a beautiful longleaf pine poster produced by the St. Marks Refuge Association. Checks made out to the VSATRP can be mailed directly to the Gopher Tortoise Council, c/o George L. Heinrich, 1213 Alhambra Way S., St. Petersburg, FL 33705-4620. Thank you to everyone that contributed to the financial success of this project!

Upland Snake Habitat Research at Duke University

Ron Sutherland, a PhD Student at Duke University, has initiated a new research project aimed at understanding the habitat requirements of various upland snake species at a landscape scale. Using a combination of museum data and fieldwork in North Carolina, Ron hopes to quantify how much habitat the snakes need to persist in a given patch of natural vegetation. Both local factors (such as the size of a patch of forest) and landscape scale context (as indicated by density of roads, fraction of natural habitat remaining, distance to nearest other habitat patch, etc.) may be important to the survival of a snake population in a habitat fragment. Results of this research will be extremely useful for improving the design of nature reserves to maintain snake populations, and for indicating where rare snakes are expected to persist despite the continuing loss of habitat. The project will focus initially on 11 species of terrestrial snakes, all believed to be at least somewhat sensitive to human habitat alteration: Eastern Diamondback Rattlesnake, Timber Rattlesnake, Pygmy Rattlesnake, Coral Snake, Coachwhip, Pine Snake, Eastern Kingsnake, Scarlet Kingsnake, Pine Woods Snake, Scarlet Snake, and Southern Hognose. Anyone who would like to learn more about the NC snake project, or to collaborate with Ron on similar landscape-scale reptile conservation research in the Southeast, should contact him at rws10@duke.edu or 919-942-1780. Donations for defraying the cost of fieldwork would also be appreciated.



Eastern diamondback rattlesnake
photo by Steve Bennett

PARC T-Shirts Still Available

PARC t-shirts (9" PARC logo on front) are still available by mail order, although some sizes are very limited. At present only four M and seven XXL remain. There are still an adequate number of L and XL t-shirts in stock. They are printed on high-quality Hanes Beefy-T's, 100% cotton, natural color, and are now available at a reduced price of \$18 each or 2/\$30 (includes shipping by USPS).

Please make checks payable to the "Gopher Tortoise Council" and write the shirt size(s) you are ordering on the check in the "memo" space. Send checks to: Gopher Tortoise Council, c/o George L. Heinrich, 1213 Alhambra Way S., St. Petersburg, FL 33705-4620.

All profits from the sale of PARC t-shirts support the Gopher Tortoise Council's Visiting Southeast Asian Turtle Researcher Project. Visit the Gopher Tortoise Council website at www.gophertortoisecouncil.org or see the article on page 9 for more information on this project.



Beth Willis-Stevenson demonstrates one of many fun things you can do in a genuine PARC t-shirt.

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THIS MAY BE YOUR LAST ISSUE...

...but only if your membership is not current. We don't want to lose anyone, but ***we are purging our mailing list of all non-paying former members.**** It is time to renew your membership if you have not done so in the past 12 months. If we do not hear from you and your dues are unpaid, this will be your last newsletter. Membership categories and annual dues are as follows:

Student- \$10
Regular- \$15
Contributor- \$25
Corporation/Society- \$50
Sustaining- \$100
Life- \$250 (one time payment)

Make checks payable to
the Gopher Tortoise Council and send to:
GOPHER TORTOISE COUNCIL
c/o Florida Museum of Natural History
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* Some nonprofits and agencies receive complimentary copies.
This announcement is directed at private individual and corporate members.



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