

Newsletter of The Gopher Tortoise Council**In This Issue.**

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Message From a Co-Chair**Ron Concoby**

This year the 33rd Annual Meeting of the GTC was held at the Wyndham Orlando Resort with over 100 people in attendance. While contemplating this year's theme one thing kept coming to the forefront of my thoughts- "are we doing enough to protect the gopher tortoise and commensal species"? As a result, a theme resonated in my soul... "Gopher Tortoise Conservation, Yesterday, Today and Tomorrow." This theme was captured by many professional, academic and passionate tortoise conservation-minded folks who provided excellent oral and poster presentations. Many thanks go out to those folks. In addition, many thanks go out to Joan Berish and Deborah Burr of the Florida Fish and Wildlife Conservation Commission (FWC) for assisting with gathering experts to hold a series of open forum discussion sessions. Through this series of discussions I believe GTC has set the stage for providing an outline of the future needs of tortoises and commensal species. On that note, "thank you" to all who attended and participated in this year's annual meeting. It was a great honor to co-chair of the Annual Meeting.

One of the great achievements of the GTC over the years has been to provide grant money to those who express sincere interest in conducting new scientific research in the arena of gopher tortoise conservation. A challenging role indeed, but much has been learned to date. At times we have had to turn away excellent proposed projects despite their merit. It is my goal this coming year as your co-chair to find as many funding mechanisms as possible so that GTC can continue to fund researchers whose work increases our knowledge of tortoises and commensal species as we move toward the future. Please join me in this quest to seek the funding necessary to continue these valuable projects, despite the uncertainty of future fiscal challenges.

On to recent news that should be of interest to all GTC members. On November 17, 2011, FWC approved two substantial revisions to the Gopher Tortoise Permitting Guidelines, both of which can be viewed on the FWC website. The revisions came as a result of the continued support by the Gopher Tortoise Technical Assistance Group (GTTAG) and ad hoc groups willing to discuss challenging topics such as the relocation of tortoises to public lands and how to permit disturbed sites. Thank you all for the many comments provided to FWC during the review period. During 2012, FWC will be conducting a thorough review of the Gopher Tortoise Management Plan following the completion of the first five years since its initial approval. I would encourage everyone to participate in the review process and provide your comments, concerns and thoughtful proposed revisions.

U.S. Fish and Wildlife Service (FWS) is continuing the review of a petition to list the eastern populations of the Gopher Tortoise as federally threatened, which for many of us did not come as a surprise. Stay tuned folks; this is worth keeping attention focused on as we move forward. The FWC GT Management Plan 5-year review may determine future protection by the feds if the plan does not adequately provide the protection for gopher tortoises actually needed to prevent further decline of the species in Florida.

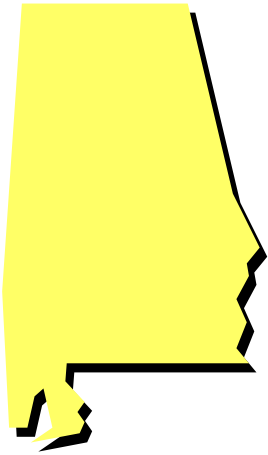
I would like to thank Pat Ashton (Ashton Biological Preserve), Bob Walker (E.O. Wilson Biophilia Center-Nokuse) and Don Stillwaugh (GTC Treasurer) for their dedicated service and conservation efforts throughout the years. Each of these folks was recognized at the annual meeting and received an award to honor their efforts! I also wish to thank out-going Co-Chair Dave Steen for his outstanding service to the Council. Lora Smith did a great job as Newsletter Editor over the past two years. Much thanks to Dave and Lora!

Lastly, I would also like to welcome our incoming Co-Chair Jennifer Howze!!! Jen is an exciting, energetic professional who is dedicated to the conservation of tortoises and commensal species. We are blessed that she has accepted this responsibility. Thank you Jennifer! Again, thank you all for the privilege of allowing me to serve GTC. Jen and I look forward to new and exciting challenges in 2012.



Annual Meeting
Pictures provided
by Lora Smith



STATE REPORTS**Alabama****Mark Bailey**

It has been a fairly quiet year with regard to tortoises and tortoise-related issues in Alabama. A gopher tortoise survey is being planned for Fort Rucker, which is thought to have the second largest tortoise population after Conecuh National Forest. A request for proposals went out in July and it is my understanding that it was awarded to a Colorado-based firm.

The Opp Rattlesnake Rodeo continues to solicit wild-caught eastern diamondback rattlesnakes, and for a short time they were advertising a bounty on snakes, encouraging the public to bring them in. An attempt by conservation leaders to work with the city in increasing the quality of the educational experience in exchange for discontinuing the wild snake hunting met with no success. The 2012 event will be March 30-31.

In September 2011, the Department of Conservation and Natural Resources revised its Nongame Regulation to protect most taxa it ranks as "Priority One" or "Priority Two." For the first time, the state protects a venomous snake, the eastern coral snake (a P2). Unfortunately, the eastern diamondback, also a P2 species, was not afforded state protection. These ranks were established at Alabama's Second Nongame Wildlife Symposium held in 2002. The third symposium is scheduled for July of 2012 which will allow for a 10-year review and update of conservation status for each species.

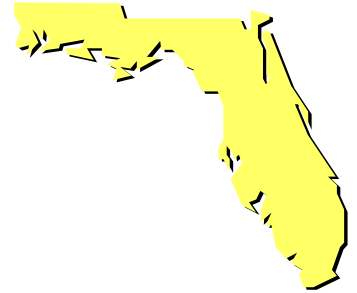
Jim Godwin, Craig Guyer, Jimmy and Sierra Stiles, and others are continuing the eastern indigo snake repatriation project on Conecuh National Forest. In May 2011, 30 snakes were released. These were approximately 1.75 years old, as were the ones released in 2010. Twenty-one were implanted with a radio transmitter, the remaining nine were not. All snakes received a PIT tag. The testing of hard vs. soft release (not penned vs. penned) continues with transmitters being equally divided between the two groups. The nine snakes that were not implanted with transmitters were all hard released. At least six snakes from the 2010 release survived the winter of 2010-11. These were recaptured in early 2011 to replace radio transmitters with longer-lasting (2 year) batteries. One recaptured female had expelled her transmitter during the previous summer. This snake was PIT tag scanned for positive identification but the X-ray showed no transmitter. The X-ray revealed the snake to be gravid. She later laid eggs while being held following transmitter replacement surgery but the eggs were not viable. Radio telemetry of the snakes continues year-round and losses of the 2011 snakes have been minimal. A third release with a minimum of 30 snakes is planned for the spring of 2012.

A gopher tortoise burrow survey on portions of three publicly owned lands (Geneva State Forest, Conecuh National Forest, and the Perdido River Wildlife Management Area) was recently completed by Craig Guyer and crew, and results are being analyzed. More on that in a future update.

Florida

Joan Berish

Status: The gopher tortoise has been classified as Threatened in Florida since 2007, after having been a Species of Special Concern for nearly three decades. A management plan has guided tortoise conservation since 2007. The overall goal of the plan is to restore and maintain secure, viable populations of gopher tortoises throughout the species' current range in Florida. The four objectives under that goal include habitat management, habitat preservation, restocking gopher tortoises, and decreasing tortoise mortality on development sites. That management plan is due to be revised in 2012 and the Florida Fish and Wildlife Conservation Commission (FWC) will be soliciting public input next spring.



Management Plan Implementation: Deborah Burr is the gopher tortoise management plan coordinator for FWC and has been leading the charge to get this ambitious plan implemented. The FWC gopher tortoise standing team continues to meet monthly to ensure that management plan tasks are being implemented according to proposed timelines; a policy sub-team also meets as needed to address the thornier issues. FWC staff also continues to coordinate with stakeholders through the Gopher Tortoise Technical Assistance Group (GTTAG). Noteworthy accomplishments include the following:

- Originally approved in April 2008, the Gopher Tortoise Permitting Guidelines were revised based on stakeholder and staff input, and were approved by FWC's Commission in June 2011. The guidelines include revisions to the monitoring and reporting requirements for long-term protected recipient sites, a new option for relocating tortoises from public projects to contiguous public conservation lands, and a new pre-application opportunity for potential recipient sites.
- Through the recipient site permit program, approximately 7,000 acres of private land have been protected via conservation easements and are currently being restocked with gopher tortoises.
- A public lands task force has convened over the past year to try to determine how best to restock public lands without compromising the private tortoise recipient sites. This task force, the FWC tortoise team, and GTTAG are hammering out creative solutions to achieve an equitable playing field.
- FWC continues to work closely with public and non-profit organizations to identify and provide incentives for gopher tortoise conservation on private lands; FWC staff regularly participates in private landowner workshops to encourage management for wildlife.
- FWC is continuing to provide local government workshops around the state to educate county and municipal staff about gopher tortoise mitigation and conservation.

STATE REPORTS

Florida cont'd

- FWC implemented a new training manual for FWC law enforcement recruits and FWC law enforcement officers. This manual will help FWC officers address wildlife complaints related to gopher tortoises in an effective and consistent manner statewide.
- Many different educational projects have been completed. New fact sheets, for example, cover diverse topics such as recipient sites, tortoise rehabilitation, and waif tortoises. FWC is also collaborating on a TV program that will showcase tortoise conservation efforts with a focus on the restocking of MC Davis's Nokuse plantation in the Panhandle.

Research: A number of gopher tortoise research projects are underway or have been recently completed in Florida, and this list is not all-inclusive:

- Matt Aresco is continuing his radio-telemetry study regarding gopher tortoise response to restocking at Nokuse Plantation; he has documented predation by coyotes on both adult and immature relocated tortoises.
- Both The St. Joe Company and Disney's Animal Kingdom have embarked on gopher tortoise relocation studies that will help hone future relocation requirements.
- University of South Florida grad students Bill Hentges and Anna Hathaway (advisors: Henry Mushinsky and Earl McCoy) are continuing their project regarding the effect of cattle on relocated gopher tortoises. Bill is also looking at various tagging methods for tortoises and Anna is studying fecundity of tortoises in these pasture lands.
- University of Central Florida grad student Chris Catano (advisor: Jack Stout) is looking at gopher tortoise influences on vertebrate diversity in a central Florida state park.
- University of North Florida grad students Rachel Smith and Kristine Amatuli (advisor: Joe Butler) continued their studies on the population dynamics of two northeast Florida gopher tortoise populations. Undergrad Alexandra Legaza has created a promising robotic camera for determining burrow occupancy.
- University of Florida grad student Anthony Lau (advisor: Ken Dodd) has completed his investigation of gopher tortoise home range and movements in northeast Florida coastal dunes; these "beach bum gophers" appear to have relatively small home ranges.
- Alex Pries (FWC) is looking at the response of gopher tortoises and vegetation to experimental coastal scrub management in northeast Florida.
- Florida Gulf Coast University grad student Julie Ross continues to follow the tenacious tortoise population that persists on heavily urbanized Marco Island.
- Traci Castellon and Betsie Rothermel (Archbold Biological Station) have recently surveyed burrow densities and vegetation cover in scrub and flatwoods at Avon Park Air Force Range.



Young tortoise in Walsingham Pk., Largo, FL. Photo by Jim Layfield

Georgia

Jessica (Gonynor) McGuire

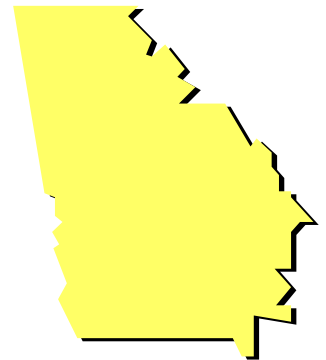
Georgia tortoise research continues to gain momentum as a number of projects have been initiated and many continued. We are collecting important information about the tortoise in Georgia. Keep up the good work!

Tracey Tuberville (Savannah River Ecology Laboratory) and **Terry Norton (Georgia Sea Turtle Center)** have been busy summarizing tortoise data collected on the St. Catherine's Island population of gopher tortoises. The mating system work and survivorship data have already been submitted for publication. **Bess Harris** (now a graduate student at the University of Georgia (UGA)) continued working on juvenile survival of naturally recruited animals this summer. In addition, Tracey and **Andrew Grosse** completed burrow camera surveys at Kings Bay. The results of this were submitted to the Journal of Herpetology and should be out soon.

The Georgia Department of Natural Resources (GA DNR), Atlanta Botanical Garden, UGA's Warnell School, The Nature Conservancy, Joseph W. Jones Ecological Research Center (JERC), Zoo Atlanta, and Bear Hollow Zoo have been collaborating on a gopher frog establishment/repatriation project at Williams Bluffs Preserve, Early County, GA with the release of 1,185 metamorphs this year. Over the last three years 3,174 metamorphs have been released at this site. With help from anticipated winter rains that normally fill the wetland, this season we will monitor the hopeful migration of mature, established gopher frogs returning to the pond to breed. This work was recently featured on Georgia Public Broadcasting Television in a program called "A Fight for Frogs".

GA DNR, along with cooperators from the **Oriante Society, JERC**, and the **Southern Company**, released 15 gopher tortoises, displaced by development in Telfair County, into a 1 hectare acclimation pen at Yuchi Wildlife Management Area (WMA). Health assessments were performed by Terry Norton and Jessica McGuire (Gonynor) of the **JERC** and **Southeastern Cooperative Wildlife Disease Study (SCWDS)**. Tortoises will remain penned until late Spring 2012. Yuchi WMA was identified in research funded by GA DNR and conducted by JERC as a site with too small of a gopher tortoise population to be viable without supplementation of additional tortoises. We anticipate this effort (which will include additional future tortoise releases), combined with continued quality habitat management, will ultimately build the population to a viable and self-sustainable level. An additional 15 tortoises from the development site were relocated to property in Telfair Co. owned and managed by The Oriante Society.

GA DNR and the **US Fish and Wildlife Service (USFWS)** are funding a long-term occupancy monitoring project for eastern indigo snakes in the lower Altamaha drainage. The objectives of the project are: 1) to estimate the proportion of suitable eastern indigo snake overwintering habitat that is occupied by eastern



STATE REPORTS

Georgia cont'd

indigo snakes during the overwintering season (November-March); and 2) to estimate the rate at which eastern indigo snake occupancy of these sites changes over time. **The Orianne Society** was contracted to conduct this research and have completed the first year of sampling (the baseline). **GA DNR** and **USFWS** are funding gopher tortoise surveys and population evaluations for 18 sites in Georgia, following up on a similar effort for 20 public lands completed two years ago. **JERC** (contractor) is conducting the effort using line transect distance sampling.

John Jensen served as the Chair of the Gopher Tortoise Candidate Conservation Agreement Team and GA DNR hosted the annual meeting at Charlie Elliott Wildlife Center in Mansfield, GA June 13-14.

GA DNR also reports that land acquisition has continued and habitat restoration efforts have begun at Townsend WMA and other tortoise/indigo -inhabited properties.

Mitch Lockhart (Valdosta State University) and students continue demographic work at Moody Air Force Base with a new emphasis on telemetry.

JERC continues work not only in Baker County, but throughout the state. As mentioned in the GA DNR report, the JERC has continued working on Georgia tortoise surveys. **Ashley Free**, a Masters student in the Warnell School of Forestry and Natural Resources at UGA is conducting tortoise surveys on 20 state and private lands in Georgia. She is also looking at detection probabilities and burrow occupancy of juvenile tortoises. She'll complete her thesis in fall 2012.

In other exciting research initiatives, **Beth Schlimm** is a new Masters student in the Warnell School of Forestry and Natural Resources at UGA who will be looking at upland snake species richness and diversity relative to land cover and habitat characteristics (including gopher tortoise burrow densities) on gopher tortoise survey sites in Georgia.

Jess McGuire, a PhD candidate from the University of Georgia is in her third year of data collection for her dissertation on URTD in tortoises in Georgia. Jess has been focusing her efforts this summer on the JERC population. A telemetry study has been initiated, as has a 10+ year follow-up on the "Green Grove" population. More details (and dissertation to follow) in 2012.

Did you know.....

Beginning January 1, 2012, a Georgia Outdoor Recreational Pass (GORP) will be required to use 32 properties owned by the Wildlife Resources Division.

The properties are Wildlife Management Areas (WMAs) and Public Fishing Areas (PFAs). Each is managed for wildlife and wildlife habitat, and funded mostly by revenue from hunting and fishing licenses. Secondary uses, such as hiking, cycling, caving, bird watching and many other such activities, are also allowed.

The GORP will help the Wildlife Resources Division cover the maintenance costs of properties that experience heavy traffic from secondary users. The GORP is available for purchase now and takes effect January 1, 2012. For more information please visit www.georgiawildlife.com.

Louisiana

Beau Gregory

The Louisiana Department of Wildlife and Fisheries has just launched a federally funded Section 6 project focusing on identifying key habitat areas in need of improvement and calculating the burrow occupancy rate for the gopher tortoise in Louisiana. We are currently working with landowners and managers to improve priority habitat for tortoises (>700 acres) on private and public property as well as updating and adding element occurrence records to the Natural Heritage Program database. We have also received a State Wildlife Grant (SWG) for a project entitled “East Gulf Coast Prescribed Burning Initiative” which can enroll up to 6,000 acres and will focus primarily on longleaf pine habitat, improving habitat for tortoises on private property. Our U. S. Fish and Wildlife Service funded project to survey utility right-of-ways (ROWs) throughout the gopher tortoise range has been completed, with two significant populations observed along approximately 6 miles of two major ROWs. One ROW had a total of 61 burrows of which 26 were identified as active burrows, 31 were inactive, and four were abandoned. On the other ROW, a total of 59 burrows were located with 37 identified as active, 19 as inactive, and three as abandoned. There was evidence of reproduction and recruitment along this ROW, with two non-viable eggs and broken egg shells at the mouth of one burrow and three of the active burrows created by juvenile tortoises.



With this project, we also updated our occurrence records by visiting previously known burrows as well as searching for new ones. Surveys were conducted within Sandy Hollow WMA, Ben's Creek WMA, and Lee Memorial State Forest. At Sandy Hollow, 41 burrows were located with 25 identified as active burrows, 12 as inactive, and four as abandoned. A total of 99 burrows were located while surveying Ben's Creek WMA with 54 identified as active and 45 as inactive. No abandoned burrows were located. At Lee Memorial, nine burrows were located with seven identified as active, one as inactive, and one as abandoned. Approximately 46 percent of burrows were located along two major ROWs that occur on the forest. During the upcoming year with ongoing survey efforts, we hope to have a handle on the number of tortoises in Louisiana. We are also working with colleagues throughout the Southeast on a multi-state SWG project intended to prioritize private lands and assist landowners with habitat management needs, improving 16,741 acres in Louisiana.

We continue to inherit a few “waif” tortoises each year and have constructed a 2-acre release pen at Sandy Hollow WMA, designed to accommodate several years of tortoise releases. The pen was designed with a staggered structure so that tortoises are constrained to a portion of the pen until they become established at which point they are allowed to use the entire pen to forage. After sufficient time has passed, their burrows will be excluded from the pen and the parolees will be free to roam the open forest. The remainder of the pen will be used continuously in the same fashion to accommodate future “waif” tortoises until the entire pen has been used. Artificial burrows were constructed to provide options for tortoises

STATE REPORTS

Louisiana cont'd

during the winter months and protection from predators. There were five tortoises released in the pen during August and September, but sadly, one or possibly two of these tortoises have been depredated by coyotes. We've recently discovered several other burrows on the WMA that appear to have been altered by coyotes so we intend to assess this issue and employ predator management if necessary. One "waif" tortoise found in a Baton Rouge subdivision (which is outside the gopher tortoise range) tested positive for mycoplasma and was released on an isolated area of Sandy Hollow to ensure no contact with other tortoises. Tortoise translocations are rare in Louisiana and none occurred in 2011.

Two graduate students are currently working on tortoise projects in Louisiana. Jean Elbers (LSU) is studying Mhc [Major Histocompatibility Complex] variation and mycoplasmal Upper Respiratory Tract Disease. Daniel Gaillard (USM) is conducting a range-wide genetic study and acquired samples from tortoises at Sandy Hollow WMA, Bens Creek WMA, a pipeline ROW, and Lee Memorial State Forest in Louisiana during June 2011.

Mississippi

Tom Mann

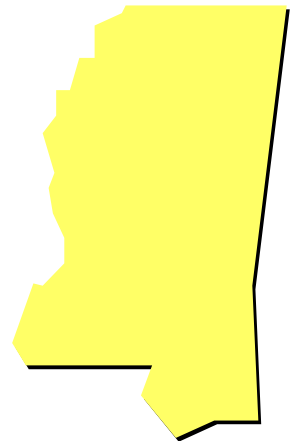
Status

Gopher tortoise status in Mississippi (MS) has not changed significantly, except that we are a year farther from progress toward recovery. The depressed housing market has likely lessened the pace of conversion of tortoise habitat, which while good for tortoises hasn't helped the folks managing MS's only federally-approved mitigation bank (the Westervelt site in Greene Co.). The bank took in no customers this year, but must still somehow pay for the management necessary to maintain and improve its prospective tortoise habitat, which entailed burning (400 acres during the winter, 300 acres during the growing season), midstory thinning, and spraying of cogon grass (40 acres) (John McGuire pers. comm. to T. Mann).

The USFWS recently hired Matt Hinderliter as point man for tortoise recovery, and who will be stationed in the Jackson, MS Field Office. One of his primary tasks will include revision of the Recovery Plan. Good luck Matt!

Tortoise Research

Headstarting Project—Matt Hinderliter (formerly with TNC, Camp Shelby Tortoise Biologist) continued his headstarting project. As in the five previous years, tortoise eggs were collected from the field (18 nests, a total of 88 eggs, with an average clutch size of 4.89 ± 1.4) and incubated in the lab to augment the Camp Shelby headstarting study. For the majority of the nests, once the first egg was observed (confirming nest presence), it was re-buried with a nest protector for a period of 60 ± 5 days, at which point eggs were excavated and placed in an incubator in the lab. However, for the four nests in soil of high clay content, eggs were excavated and brought back to the lab immediately, because in previous years a higher



Male GT, PL=8.75" photo submitted by Tom Mann

Mississippi cont'd

percentage of eggs laid in high-clay soils were rotten when excavated after the 60-day period. The 14 nests left to incubate naturally for 60 days contained 67 eggs; eight of which were rotten when excavated. This percentage (12%) is lower than the percentage of rotten eggs encountered during excavation in the previous two years, possibly because immediate removal of eggs from clayey sites helped mitigate the problem. Out of the 88 eggs total, 76 were placed into the incubators and 50 hatched (65.8% of eggs brought back; 56.8% of the total clutch count). Of the 26 eggs that did not hatch in the incubators, four contained late-stage embryos.

Plans changed at this point. Accumulating evidence indicated that a number of hatchlings placed into the headstart enclosure after 2007 succumbed to metabolic bone disease (MBD), or died from predation or other factors because of debilitation related to MBD. As it is suspected that environmental factors within the enclosure (possibly repeated dormant season burning?) may potentiate the malady, no more animals were placed therein, and another study has been started to investigate the factors which may potentiate MBD (see below). The 50 were released into the field at their natal site (30 with transmitters and 20 without transmitters). Release methods varied this year to include: 1) hard release onto natal burrow apron; 2) release into starter burrows in an open area treated with fire ant bait; and 3) release into starter burrows in an enclosed pen treated with fire ant bait. Survivorship based on release methodology will be assessed next year. Nine hatchlings incubated at the Qualls lab at the University of Southern Mississippi were also released with transmitters.

To date, 176 hatchling and juvenile tortoises have been headstarted and released. Predation has been documented by all four predator classes (mammal, snake, invertebrate [fire ants], and avian) originally thought to be potential predators. The majority of predation has been by mammals and fire ants; mammalian predation has been documented on all ages of juvenile tortoises, but fire ants prey almost exclusively on hatchling tortoises (21 out of 23 predation events – 91%). The only known predation by a snake (Eastern Coachwhip – *Coluber flagellum flagellum*) was on a hatchling tortoise.

Metabolic Bone Disease in Gopher Tortoises (*Gopherus polyphemus*) of Tortoise Enclosure at Camp Shelby Joint Forces Training Center and on Public Forestlands of South Mississippi: Potential Influences of Physiological, Pathogenic, Genetic, and Habitat-related Factors Jeanne C. Jones and Nicole Hodges (MSU Dept. of Wildlife and Fisheries), Matt Hinderliter (USFWS, Jackson, MS Field Office), and Debra Lee Miller (University of Tennessee).

Phase I and II investigations will include soil and forage nutrient analyses to assess potential relationships between metabolic bone disease (MBD) in gopher tortoises in the following study sites: a) enclosure holding a captive population of young tortoises (the 0.2 ha headstart enclosure at Camp Shelby), b) habitat adjacent to this enclosure, and c) public forestlands inhabited by gopher tortoises and under differing fire management regimes. Depending on results of early phases of this work, subsequent phases will focus on the extent of disease occurrence in free-ranging tortoises on suitable and priority soil areas under various management regimes, including different fire management, herbicide management of vegetation, and fire ant control measures. Additionally, these phases will encompass assessments of predisposition and occurrence of MBD as disease incidence relates to genetic and age class structure, metabolic and physiological pathways, and potentially pathological and toxicological agents. Of specific interest in understanding MBD in tortoises is the content and availability of calcium and other macronutrients in food plants.

STATE REPORTS

Mississippi cont'd

Mound Densities of Red Imported Fire Ants (*Solenopsis invicta*) associated with Gopher Tortoise (*Gopherus polyphemus*) Burrows on Private and Public Forest Lands in Mississippi. Jeanne C. Jones; W. Daryl Jones; Clint Smith; Nathan Stuke; Katherine E. Edwards; Jarrod H. Fogarty (MS State Univ.-Meridian, Division of Arts and Sciences); Kathy Shelton (MS Dept.of Wildlife, Fisheries & Parks; Nicole Hodges (MSU, DWFA); and Evan O'Donnell (MSU, DWFA). Poster presentation at the Annual Conference of the Southeastern Association of Fish and Wildlife Agencies.

Investigation of fire ant mound densities relative to cover type. They found 15 mounds per ha in closed canopy, mixed pine habitat and 175 mounds per ha in open canopy longleaf forests on priority soils. Areas managed for restoration and habitat enhancement for tortoises manifest the greatest density of mounds. Monitoring and careful control of fire ants is recommended at sites at which tortoise conservation is a priority.

Biological Community Evaluations of Potential Black Pine Snake (*Pituophis melanoleucus*) Habitat in Mississippi, Masters Thesis . Clinton Smith, (MSU, DWFA), 2011

Fire ant mound densities were greater in areas with tortoise burrows than in areas without tortoise burrows.

Tortoise Genetic Population Structure—Daniel Gaillard (University of Southern Mississippi).

Daniel continues his ongoing survey of the rangewide variation in allelic diversity in tortoise populations. Assisted by Angie Getz (USM), he trapped adult and subadult tortoises and collected blood samples from 30 tortoises at the Hillsdale Community sandhill (Pearl River Co.) and 57 tortoises in Louisiana.

Assay of Population Differences in Corticosterone Titer and Assessment of the Impact of Maternal Transfer of Corticosterone to Hatchlings Via the Yolk— Aaron Holbrook and Dr. Carl Qualls (USM).

Aaron collected and incubated eggs in the laboratory to assess hatching success and offspring fitness for eggs/hatchlings from T-44 (Camp Shelby Tortoise Preserve, no natural recruitment) and Hillsdale (private sandhill, ample recruitment). He got a total of 10 clutches (76 eggs) from T44 (45 eggs) and six clutches from Hillsdale (31 eggs). Average clutch size was 4.75 overall, (T44 only = 4.5; Hillsdale only = 5.17). Hatching success was 76% (58/76) overall, 82% for eggs from T44 (37/45) and 69% for those from Hillsdale (21/31). Blood samples were collected from all hatchlings to assay post-hatching corticosterone levels; scute clippings were retained for genetic analysis. A sample (29) of the hatchlings from this year were placed in individual 6'x6' outdoor enclosures with native and planted grasses; these will be held in the enclosures through next spring to assess survivorship and other aspects of fitness under naturalistic conditions. Hatchlings from 2010 (now one year old) are still being held in captivity (indoors) in a common garden experiment to examine growth, survivorship, and other aspects of fitness (behavior, stress response) among individuals and between populations. The juvenile tortoises in the lab common garden have also been subjected to bone density scans at multiple intervals to assess the rate and degree of skeletal ossification. Additionally, a small number (<10) adult tortoises from Hillsdale were transported to the USM campus for bone density scans in an effort to quantify the "yellow spot" phenomenon (mid-plastral fontanelle).

Tortoise Habitat Management

DeSoto Ranger District (DRD) - Ed Moody (DRD Biologist)

Prescribed burning of 31,000 acres (approx. 8% of the Desoto National Forest) was accomplished.

Mississippi cont'd

Additionally 566 acres of pines were thinned and longleaf pines were restored on 278 acres.

Chickasawhay Ranger District (CRD) - Stephanie Steele (CRD Biologist)

In 2011, the Chickasawhay Ranger District of the De Soto National Forest was only able to prescribe burn six percent of the district (9,190 acres) due to poor weather conditions with zero percent burned in the growing season. The District thinned 599 acres and reduced midstory on 589 acres, all on suitable soils with large gopher tortoise populations.

Surveys

Sandhill Surveys for Florida Harvester Ants, Tortoises, and Oldfield Mice-Tom Mann (Mississippi Museum of Natural Science).

In 2011, rare species surveys were undertaken on sandhills in Greene, Jackson, Jasper, Lamar, Clarke, Forrest, Perry, Wayne, Stone, and Pearl River Counties. Previously unrecorded populations of tortoises were discovered at 10 sites (Greene, Forrest, Perry, Pearl River Counties); 3 additional Florida harvester ant populations were discovered (Perry and Pearl River Counties), and two oldfield mouse populations were discovered in Jasper County. The new Pearl River Co. harvester ant site was discovered at the Hillsdale sandhill by Aaron Holbrook. Tortoise recruitment occurs at each of the harvester ant sites. Two of the ant sites were on DNF land, but the ants only occurred on open ROW (a highway ROW and gas pipeline corridor, respectively); flanking sandhill forests were too overgrown with woody midstory species to support the ant. Numerous new records for plants of special concern were recorded as well. The latter should serve as a point of caution for those seeking to correct with herbicide applications alteration of community structure wrought by years of fire exclusion, phenologically inappropriate fire regimes, and clearcutting of longleaf without an adequate regeneration class in place. Many plants, some rare, others more common and including turkey oak, are as anchored to the sandhills as are tortoises.

Conservation Initiatives and Relocations

Tortoise Consultations and Classification of Tortoise Soils-David Felder (USFWS, Jackson, MS).

There were only two formal consultations in 2011. One was an emergency pipeline replacement project in Forrest County. Federal authorization for on-site relocation of tortoises was granted, but testing of the line went well and the tortoises weren't moved. An on-site relocation of up to 12 tortoises was approved to accommodate expansion of the Wiggins airport. Jodie Smithem (USFWS, AL Field Office) and David continue to collaborate with the NRCS to develop a protocol for ranking every soil series in the southeastern US according to its suitability for gopher tortoises; a draft should soon be ready for review.

Jim Lee and Matt Hinderliter (TNC's Camp Shelby Office) moved five waif, URTD-free tortoises (from a variety of spots without known tortoise occurrences nearby) to TNC's Old Fort Bayou Mitigation Bank, and Tom Mann moved three yearling juveniles from their indoor headstarting facility, where they were being maintained with the best of intentions but without the approval of officialdom, to an outdoor headstarting enclosure elsewhere on a Poplarville property. Dr. Qualls (USM) relocated one waif tortoise found wandering in inappropriate habitat near Hattiesburg to a longleaf savannah owned and managed by USM.

Dr. Karen Rushing, Dr. James Askew, and Missy Dubisson are again thanked for long-term services in rehabilitative care of several tortoises injured on roads or by dogs, and for temporary care and phlebotomy services (blood samples for URTD testing) of other waif tortoises in 2011.

ANNOUNCEMENTS

Coming website update!

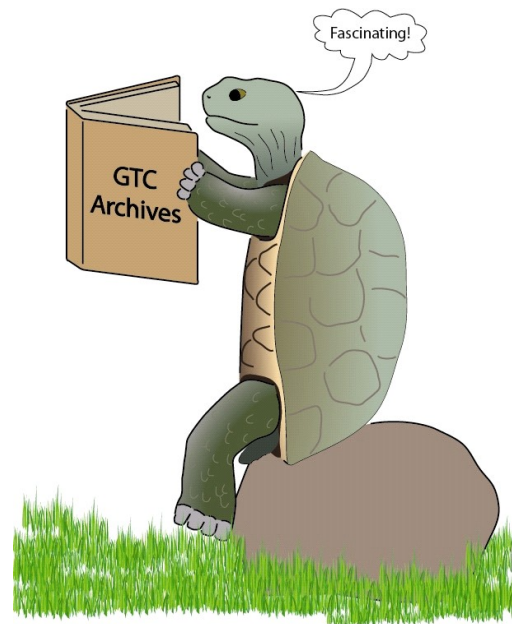
GTC Needs Your Help in Updating the Gopher Tortoise Bibliography!

Several years ago, GTC member and former co-chair Boyd Blihovde began the painstaking task of putting together a bibliography of published gopher tortoise and commensal articles (refereed and “gray” literature). We are working to update that document which can be found at our website, www.gophertortoisecouncil.org. Please check the bibliography after the first of the year-if you have published an article or completed a thesis/dissertation on the gopher tortoise or their commensals within the past 5 or 6 years, and you *don't* see your citation once the site is updated, please send the citation to GTCnewsletter@gmail.com. And don't forget to tell your friends and associates!

GOPHER TORTOISE COUNCIL ARCHIVES ARE AVAILABLE BY MAIL!

Good news! If you missed your chance to pick up the GTC Archives CD at the Annual Meeting this year, it is available by mail. For a donation of at least \$10 we will send you a CD as a “thank you”. You can't get this anywhere else! This information has been scanned to pdf. It is not posted on the website.

Go to the Gopher Tortoise Council website (www.gophertortoisecouncil.org) main page, scroll to the bottom and click on the [Make A Donation](#) link to donate to GTC. Forward the PayPal confirmation email to Jess McGuire at jgonynor@gmail.com (remove spaces). In this email include your mailing address. Jess will then mail you a CD. It is that simple!



Artwork by Wesley Gates

Learn more about the Gopher Tortoise and the Gopher Tortoise Council at www.gophertortoisecouncil.org

Also “like” us on Facebook and get Tortoise News and Council Updates.



Public Information and Education Update

2011 Donna J. Heinrich Environmental Education Grant Winner

Once again we had several worthy projects submitted for the Donna J. Heinrich Environmental Education Grant which were reviewed by Laura Wewerka, chair of the Public Information and Education Committee, and three volunteer reviewers. This year's recipient is Joshua Scholl, a member of SEEDS (Strategies for Ecology Education, Diversity and Sustainability) at Florida Atlantic University (FAU). The award will go toward FAU's project, the Tortuga Trail, which is a living classroom approach to achieving gopher tortoise and upland habitat conservation. Look for updates on the project in upcoming editions of *The Tortoise Burrow!*

2011 Larry Landers Student Research Awards

The J. Larry Landers Student Research Award is a Gopher Tortoise Council competitive grant program for undergraduate and graduate college students. Proposals may address research concerning gopher tortoise biology or any other relevant aspect of upland habitat conservation and management. This is an excellent opportunity for undergraduate and graduate students to access funding for their projects. Dr. Bob Herrington and the Research Advisory Committee again had the pleasure of reviewing student research award applications. And the winners are...

Bridget Hodges, Mississippi State University for her study on "Metabolic bone disease in gopher tortoises of tortoise enclosures at Camp Shelby Joint Forces Training Center and on public forest lands of south Mississippi ". Bridget received an \$1,100 award.

Joanne Mankin , University of Birmingham (United Kingdom) for her study on "Recolonization of scrub and sandhill by gopher tortoises following the reintroduction of fire at Archbold Biological Station". She was awarded \$300.

Lee Ann Colley, Georgia Southern University for her work on "FSH challenge in *Gopherus polyphemus* and sex hormone differentiation in response to greater carapace length". Lee Ann received a \$300 award.

Congratulations to all!

Announcing a New Feature to The Tortoise Burrow!



Artwork by Wesley Gates

"Student Spotlight" GTC wishes to solicit graduate and undergraduate nominations concerning students who are actively involved in upland conservation projects within the gopher tortoise's range. The purpose of this new feature is to encourage greater student participation in the organization and bring recognition to students and their projects. Projects pertaining to research, management, or policy will be considered. Please submit a brief description of the project and any findings to date. Submissions should be 500 words or less and may be accompanied by a photograph(s). Please send to: GTCnewsletter@gmail.com.

Newsletter of The Gopher Tortoise Council

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<http://www.gophertortoisecouncil.org>

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