Dear Members-

We held the 38th annual Gopher Tortoise Council meeting January 13-15, 2017, at Ravine Gardens State Park in Palatka, Florida. This meeting had been originally planned for Oct 7-9, 2016 in Palatka, but a-not-so friendly storm, named Matthew, came-a-callin’ and we had to cancel the meeting. Lucky for us that we did! This hurricane tore up the east coast of Florida, washing away parts of A1A, flooding houses on the barrier islands, and raising water levels in the St. Johns River, destroying most of the river-side docks in St. Johns and Putnam County. We rescheduled the meeting for January 2017.

This year’s event was marked by several firsts...canceling the 2016 meeting because of a hurricane, rescheduling the meeting three months later, and placing trust in an old guy with failing eye-sight, diminished hearing, and bum knees with a need to write reminders on the back of his hand. Despite that, the January meeting went very smoothly. We had 138 registered participants. There were ten other people invited from the community because of their many important contributions to the meeting efforts. Several park and district biologists from the Florida Dept. of Environmental Protection (FDEP) also attended. Almost all of the 150 seats in the state park auditorium were occupied during the professional paper sessions. We also had 22 people attend the Sunday field trip to Dunn’s Creek State Park led by a park biologist who provided informative interpretations of upland and gopher tortoise management practices at the site.

The incredible cooperation between the FDEP park staff, GTC board members, City of Palatka, local businesses in Palatka, Water Works Environmental Education Center, and the St. Johns River Center made this event so successful. We want to extend our special thanks to the many volunteers at the state park, Water Works, and the River Center for their efforts.

The agenda was full. We had 18 posters and 29 oral presentations and a silent auction. We provided meeting-goers with GTC T-shirts, featuring an amazing gopher tortoise painting by local artist, Harimandir Khalsa. We also hosted a business meeting and three socials consisting of a noon luncheon on Friday at Water Works Environmental Education Center, the business meeting and the Friday night social at Beef O Brady’s at the Quality Inn, and the catered Saturday night event at the St. Johns River Center where we were treated to the sweet musical strains of Dim Lights!

The most exciting aspect of the meeting was the huge turn-out of young people, both undergraduate and graduate students, from colleges across the southeastern US. Their presentations were very professional and sophisticated. It is exciting to know that these young people represent the next generation of biologists that will find employment with state and federal agencies and private conservation groups across the southern US. They are the future safety-net to ensure that tortoises and upland habitats are protected and well-managed into the future.

We look forward to the next meeting in South Carolina. Will Dillman, South Carolina Department of Natural Resources Biologist, will need our help as he plans the meeting for next fall. The executive committee of GTC was a constant source of energy, information, and advice for Shann and me as we planned the Palatka meeting, and frankly we plan to be part of Will's support team as he wades into one of the most awesome, but complex, immersions probably in his career. Thank you one and all for the tremendous support shown us as we thrashed around organizing the 2016 (2017) GTC meeting.

Richard Franz & Shann Purinton
ANNOUNCEMENTS

Upcoming Meetings and Events...

THE ALL FLORIDA HERPETOLOGY CONFERENCE (now THE HERPETOLOGY CONFERENCE)

The 40th anniversary meeting will be held March 25-26, 2017, in Gainesville, Florida. Don’t miss out on two full days of oral presentations and posters and two keynote speakers. Silent and oral auctions will also be held. For information on venue and abstracts visit [https://www.fimnh.ufl.edu/herpetology-conference/home/](https://www.fimnh.ufl.edu/herpetology-conference/home/). Presenters will have the option of publishing in a special issue of the Bulletin of the Florida Museum of Natural History. Please attend.

Coming soon!

April 10th was officially adopted by the Gopher Tortoise Council as Gopher Tortoise Day! The goal of Gopher Tortoise Day is to increase awareness and appreciation for these long lived, gentle reptiles.

Gopher tortoises are considered a keystone species because they dig burrows that provide shelter for 360 other species of wildlife including “commensals.” These commensal species include the gopher frog, Florida mouse, eastern indigo snake, and hundreds of invertebrates like beetles and crickets. Without the gopher tortoise, many of these species would not exist.

You can help celebrate this native tortoise by hosting an event in your community, asking your local City or County Commission to officially adopt April 10th as Gopher Tortoise Day, and by educating others on the importance of protecting gopher tortoises.

Visit GopherTortoiseCouncil.org or GopherTortoiseDayFL.com to access resources, including the resolution template, ideas for hosting an event in your state along with hands-on activities, and educational materials that can be printed and distributed to friends and neighbors in your community.

Stay tuned for information on this year’s Gopher Tortoise Day!

Coming April 10th! More details to be provided at our website at [www.gophertortoisecouncil.org](http://www.gophertortoisecouncil.org).
STATE REPORTS

South Carolina

Gopher Tortoises have remained a focal species for work within South Carolina. Staffing changes within the South Carolina Department of Natural Resources (SCDNR) continued over the past year, but we are currently at full staff for positions related to gopher tortoise conservation. Barry Kesler accepted the Heritage Preserve Manager position responsible for management of the Aiken Gopher Tortoise Heritage Preserve (AGTHP) and was able to hire John Lawrence to assist with management activities. Trapper Fowler continues to manage the agency’s other gopher tortoise preserve, Tillman Sand Ridge Heritage Preserve (TSRHP). Now fully staffed we are able to focus on the management and restoration of these properties with plans to implement a number of interesting conservation projects.

Over the last year, SCDNR has continued efforts to establish a Minimum Viable Population (MVP) utilizing waif tortoises at AGTHP in collaboration with Dr. Kurt Buhlmann and Dr. Tracey Tuberville of the Savannah River Ecology Lab (SREL). Over the course of our reintroduction efforts we have received tortoises from a variety of individuals and institutions across the United States and these tortoises have been vital to the success of this program. The Florida Fish and Wildlife Conservation Commission (FWC) has provided a substantial number of waif tortoises for the project. This year SCDNR renewed the Memoranda of Agreement with FWC, allowing SC to receive additional waif tortoises from Florida. To date, approximately 280 tortoises have been reintroduced to the preserve. This is the first project to use waif tortoises as a conservation tool and we are in an ongoing effort to evaluate the success of this approach. Additionally, we have begun a study of the survivorship and movements of hatchling vs. head-started tortoises, and have released an additional group of 25 hatchling and head-started tortoises for this study. All tortoises for this study were hatched from nests collected at the AGTHP. Both SREL and Riverbanks Zoo in Columbia, SC, are collaborators on this project and have provided assistance in nest collection, incubation, hatching, and rearing of the tortoises. We plan to release an additional 30 to 45 tortoises as part of this study in 2017. Habitat restoration and management continue at the AGTHP and approximately 600 of the site’s 1600 acres were burned. As reported last year, three clusters of cavity inserts (13 total) were installed at AGTHP in hopes of attracting Red-cockaded Woodpeckers (RCW). This year one cluster was colonized by RCWs, and both pine snake (Pituophis melanoleucus) and coral snake (Micrurus fulvius) were documented for the first time on site, indicating the success of the restoration activities for this site.

The TSRHP has been the focus of a sandhill restoration project. SCDNR has marked timber for substantial thinning in an area of suitable soils. We plan to restore longleaf pine and native groundcover to the restoration areas to increase the amount of suitable habitat at this site and provide additional acreage for tortoises. TSRHP is scheduled for prescribed burning in 2017.

SCDNR conducted Line Transect Distance Sampling (LTDS) at several sites, both public and private, over the last year to establish population estimates for the state. We compiled historic information to identify gopher tortoise populations. We have completed three full surveys and two pilot surveys. We have identified two populations as MVP and a Primary Support Population. Plans are to continue our surveys in early 2017 at several private and public properties.

Georgia

Georgia Dept. of Natural Resources – Wildlife Resources Division (DNR-WRD)

During fiscal 2016, the Nongame Conservation Section tortoise survey crew completed line-transect distance surveys (LTDS) on nine sites. Sampling was aimed at estimating tortoise density and abundance. Sites included Altama Plantation Wildlife Management Area (WMA) in Glynn County, Flint River WMA in Dooly County, the Fort Perry Tract of Chattahoochee Fall Line WMA near Geneva, several Nature Conservancy properties near Fort Benning, private lands in Marion County, the newly acquired Altamaha “Connector” or BBT Tract in Altamaha WMA near Darien, industrial timberlands in Brantley and Camden counties, and a large private tract in Atkinson County. Highlights included a tortoise population topping 500 at Alapaha River Ranch, a new gopher frog site discovered at a Nature Conservancy tract and indigo snakes at both the Cox Tract at Altamaha WMA and the Atkinson County tract. Nongame Conservation began doing LTDS for gopher tortoises in 2007. Surveys have been completed on 81 sites, public and private, statewide. Survey results are incorporated into conservation strategies aimed at precluding the need to federally list the tortoise under the Endangered Species Act.

Continued on next page...
Georgia report continued...

At Yuchi WMA near Waynesboro, a site with extensive suitable habitat but a small, remnant population of gopher tortoises, Nongame Conservation and University of Georgia staff (UGA-Tracey Tuberville, Kurt Buhlmann, Dan Quinn) have been augmenting the population with adult tortoises displaced by development and with juveniles hatched and head-started from eggs collected from stable populations. In fiscal 2016, 28 juvenile tortoises were released at Yuchi. Radio transmitters were attached to a subset of the group. UGA researchers are tracking the free-ranging juveniles to evaluate growth, habitat use, home range and survivorship. Additional nests at stable sites were secured for egg collection and captive rearing of hatchlings for a spring 2017 release. Since 2011, 220 gopher tortoises have been released at Yuchi to complement the natural population, previously estimated at 44 tortoises. These efforts will ensure the Yuchi population exceeds minimum standards developed by The Gopher Tortoise Council and the U.S. Fish and Wildlife Service (USFWS) that define a long-term viable population.

In another study funded and supported by Nongame Conservation, The Orianne Society continued occupancy monitoring of imperiled eastern indigo snake habitat to determine population trends. In southern Georgia, indigos overwinter in xeric sandhill habitats, where they den in the burrows of gopher tortoises. The study is focused on the Altamaha River Basin, considered a population stronghold for eastern indigos. Orianne staff surveyed 12 sandhill sites on public and private lands, detecting indigos at 17 percent of the tracts. The degree of detections in 2016 declined significantly from the previous four years where stability in the populations was observed. However, the sites sampled in 2016 had not been surveyed in previous years and likely are not comparable. In addition, Nongame Conservation microchipped five indigo snakes at the new Alapaha River WMA in Irwin County. This property and others in the Alapaha and Satilla River basins will be incorporated into future occupancy monitoring for indigos.

State listed as rare, gopher frogs depend on intact sandhill habitats, where adults survive within the burrows of their namesake host, the gopher tortoise. However, these frogs also require nearby fishless wetlands where they breed and their tadpoles develop. Because of widespread upland and wetland habitat alteration throughout their range, gopher frogs are now limited to fewer than ten sites in Georgia. In 2007, the Nongame Conservation Section and partners (UGA, Atlanta Botanical Garden, Zoo Atlanta, and Bear Hollow Zoo) began a project that involved collecting gopher frog eggs from healthy populations, rearing them to late-stage tadpoles or post-metamorphic froglets and releasing them at an unoccupied but high-quality protected site at Williams Bluffs Preserve in Early County, which is within the species’ historical range. The goal: Establish a self-sustaining breeding population of gopher frogs, a range-wide first for this imperiled amphibian. Throughout the Fall Line sandhills region of the Southeast, biologists reported scant breeding by gopher frogs during the 2016 season. This observation also was the case in Georgia where only a few egg masses were found at donor populations despite extensive searches. Portions from two egg masses were collected and raised resulting in the release of 959 froglets at Williams Bluffs. Radio transmitters were attached to 15 of the metamorphs and the froglets were followed for two weeks. One individual moved 752 meters, or nearly 2,500 feet, from the release wetland before settling down in a gopher tortoise burrow. Only one mortality of a tracked froglet was observed. While tracking, researchers encountered a frog from last year’s release in a tortoise burrow. That frog had more than doubled in size.

Two competitive State Wildlife Grants in Georgia and other states have benefited sandhill and upland longleaf pine habitats that support gopher tortoises. A third grant, awarded in calendar year 2015, continued that progress. DNR received the first grant, for $1 million, in 2009 to work with Alabama, Florida and South Carolina on restoring high-priority sandhills. DNR and state wildlife agencies in Florida, Alabama, Mississippi and Louisiana were awarded a $981,000 State Wildlife Grant in 2011 for additional habitat restoration on the targeted habitats, referred to as phase two of the original project. In fall 2015, Georgia, Florida, Alabama, South Carolina, Mississippi and Louisiana began phase three, powered by a competitive $500,000 grant awarded earlier that year. In phase one, completed at the end of fiscal 2013, all states exceeded their project goals and nearly tripled the original goal for overall acreage treated (95,000 acres treated vs. the 38,600 acres proposed). In phase two, completed in fiscal 2015, restoration goals were exceeded again, with 76,666 acres treated versus an original goal of 51,575. This work is expected to yield significant habitat benefits – largely through improvements in herbaceous understory coverage – for priority species throughout the sandhills, such as the gopher tortoise and northern bobwhite. Goals for phase three, a two-year part of the project, include restoring or enhancing more than 33,000 acres of sandhill or upland longleaf habitat across the six states in the gopher tortoise’s range. Partner states are using standardized methods for long-term monitoring to gauge the success of habitat treatments. Changes in vegetation and breeding bird communities were picked as key indicators of progress toward restoration objectives. In general, progress toward habitat goals has been excellent across the states. In several cases, however, fire-return intervals of greater than three years have failed to control shrubby hardwood midstories to the extent desired. Some data analysis on the response of breeding-bird communities to restoration continues with publication of results expected in fiscal 2017.
Including all DNR-WRD efforts, the acreage burned on DNR-managed lands has almost doubled in the last decade, from 31,897 acres in 2007 to 60,363 acres in 2016. By land type most of the acres burned are on WMAs. But the growing trend in burning is the inclusion of property managed as natural areas and state parks. During fiscal 2016, Nongame Conservation staff applied prescribed fire to almost 30,000 acres on state, federal and private lands. As a member of the Interagency Burn Team, the agency worked with the Georgia Forestry Commission, The Longleaf Alliance, The Nature Conservancy, Orianne Society, the U.S. Forest Service and the USFWS. Nongame Conservation staff also teamed with other WRD sections and DNR’s State Parks and Historic Sites Division, as well as volunteers trained to federal fire standards.

The Army Compatible Use Buffer program, often referred to as ACUB, is focused on protecting priority conservation lands around military installations from development that would restrict key military activities such as training. This buffering is provided primarily through permanent conservation easements. In recent years, the Nongame Conservation Section has joined with Forts Stewart and Benning to identify easement priorities and draft plans to conserve critical lands adjacent to these installations. The areas include some of the best habitat in Georgia for rare or uncommon species, such as eastern indigo snakes, gopher tortoises and southeastern pocket gophers, as well as potential future habitat for red-cockaded woodpecker groups. The Nongame Conservation Section is involved with the Chattahoochee Fall Line Conservation Partnership which also is geared toward conserving lands along the eastern edge of Fort Benning. Staff involvement included teaming with land management activities to enhance gopher tortoise habitat, serving as chair of the group’s steering committee and supporting efforts to bring more tracts under conservation ownership and management. The new Chattahoochee Fall Line WMA, which includes the Fort Perry Tract in Marion County and the Almo area in Marion and Talbot counties, is an example of this partnership which helps the Army with its mission, protects rare species and provides for public recreation.

DNR acquired fee ownership of 18,790 acres for public recreation and conservation as well as a 58-acre conservation easement in fiscal 2016. Acquisitions expanded ownership in five WMAs containing sandhill habitats: Sansavilla, Altamaha, Big Hammock, Chattahoochee Fall Line, and Flat Tub. Also, two new WMAs, Altama Plantation and Alapaha River, were formed from acquisitions and contain viable tortoise populations.

Much of the land protection and acquisition efforts have been through the Gopher Tortoise Conservation Initiative, a collaborative effort between Georgia DNR, the Georgia Forestry Commission, Georgia Chamber of Commerce, U.S Department of Defense, The Knobloch Family Foundation, The Conservation Fund, The Georgia Conservancy, The Nature Conservancy, and the USFWS. Based on field work to identify properties with viable populations of gopher tortoises, Georgia DNR and partners established a goal for the Gopher Tortoise Conservation Initiative to preserve a minimum of 100,000 acres of land. The belief is this would preclude the need to list the gopher tortoise and numerous other species while also protecting our water sources, important conservation areas and providing additional public recreation lands. Considering this would be achieved through fee simple purchases and conservation easements, because we recognize not all landowners will sell their properties, the cost to protect this land was projected to hit $150 million. This campaign is geared to protecting and managing enough gopher tortoise habitat to preclude a listing. The partners working on this effort realize that protection of the land is not enough to ensure the gopher tortoise and multiple other at-risk species found in this community are sustainable. Restoration and long-term management of these lands will be critical. As such, the partners are looking at ways to establish a stewardship fund to address these needs. Preliminary discussions indicate this fund will need to be in the $30 million range to assure that these properties are able to maintain viable populations. Projected funding for the $150 million land protection campaign would come from three sources; the State of Georgia - $50M; Federal funding - $50M; and private foundations and donors - $50M (The Knobloch Family Foundation has already pledged $12.5M to this initiative). We now seek to refine roles and responsibilities for implementing organizations, invite new supporters and establish an aggressive, shared work plan.

University of Georgia/Georgia Sea Turtle Center
Kimberly Andrews (UGA/GA Sea Turtle Center) and Lance Paden (UGA) are involved in tortoise translocation efforts from the Southern Ionics Mission Mine site to Penholoway WMA. Thus far 138 tortoises have been released into two pens, and 25 hatchlings are being captively cared for until their release in the Spring.

UGA/GA Coop Unit/U. S. Geological Survey
Conservation Planning: Work continued this year on our efforts to provide the Georgia DNR with a conservation planning
framework for the gopher tortoise (GT) in the state. The broader project is funded by grants from the Southeast Climate Science Center, GADNR, and the USGS Cooperative Research Units Program, with Clinton T. Moore and Jeff Hepinstall-Cymerman acting as principal investigators. The project includes several distinct components including habitat modeling (Rachel Bormann, PhD student), mark-recapture field work and analysis (Alex Wright, MS student), demographic modeling (Bryan Nuse, postdoctoral researcher) and reserve design (Nahid Jafari, postdoctoral researcher). Using habitat models developed in 2015, Ms. Bormann used burrow survey data to develop habitat suitability models drawing on land cover and soils as predictors. One goal of this ongoing exercise is to compare the predictive value of soil properties against a commonly used Natural Resource Conservation Service (NRCS) soil suitability ranking for GTs. Since finishing his final field season in October 2015, Mr. Wright estimated true survival, probability of detection, and annual and long-term movement rates for four long-term study populations at the Jones Ecological Research Center using a spatial capture-recapture analysis. Using a demographic model that draws upon burrow survey data collected by GADNR and Mr. Wright’s stage-based survival estimates, as well as a habitat resistance map derived from Ms. Bormann’s suitability model, Dr. Nuse predicted potential tortoise immigration into land parcels near to known metapopulations. Real parcels in the landscape were assigned values balancing the importance of potential immigration and habitat area. These parcel values were then used in Dr. Jafari’s optimization routine to find a set of parcels that forms the contiguous preserve that maximizes total value while minimizing total cost of purchase.

Improving Gopher Tortoise Habitat Models using Remote Sensing: In a related project, funded in part by the National Council on Air and Stream Improvement (NCASI), we have been working to improve mapping vegetation characteristics across the range of gopher tortoise in Georgia using a combination of field visits to measure site vegetation characteristics and multi-season satellite imagery. Our specific research questions are twofold: 1) can we map understory and ground vegetation characteristics using multi-date Landsat 8 imagery; and 2) can we use these new vegetation maps to improve our habitat mapping efforts. Additionally we are working to understand how forest management activities can be used to improve gopher tortoise habitat. In 2016, Ms. Bormann finished collection of vegetation data at 188 sites (135 within DNR/Jones Center defined tortoise habitat and 53 outside tortoise habitat) in Baker, Glynn, Marion, Randolph, Talbot, Taylor, and Wayne counties. From Ms. Bormann’s field data six vegetation measures representing important elements of gopher tortoise habitat were chosen to be predicted from remotely sensed data: canopy cover, pine dominance, shrub density, forb/grass cover, and ground-level woody vegetation. Tom Prebyl (GIS specialist) acquired all available Landsat 8 imagery from 2014-2016 and computed 15 remotely sensed variables of vegetation condition from three vegetation indices each from three seasons (winter, summer, and early fall), as well as the differences between summer and winter/fall. He then used random forests regression to model each field vegetation measure as a function of the 15 remotely sensed variables and mean annual temperature. The models were used to predict the six vegetation measures at a 30-meter resolution across the gopher tortoise range in GA and we expect they will be valuable in Ms. Bormann’s habitat modeling.

The Orianne Society

In 2016, The Orianne Society continued gopher tortoise, eastern indigo snake and longleaf pine sandhill ecosystem conservation-driven activities, including: 1) preparing habitat models for the eastern diamond-backed rattlesnake (Crotalus adamanteus) for both Georgia and Florida; 2) launching a south Georgia Snake Fungus Disease survey of eastern indigo snakes (Drymarchon couperi) and other native snake species; 3) continuing eastern indigo snake and eastern diamond-backed rattlesnake surveys (survey now in its 8th year; to detect population trends) in the Alapaha, Altamaha and Satilla River drainages of south Georgia; and 4) conducting southern hognose snake (Heterodon simus) surveys. Additionally, staff with The Orianne Society continues to assist the USFWS with preparation of the Eastern Indigo Snake Recovery Plan Revision.

Jones Ecological Research Center

A third LTDS survey of Ichauway Plantation’s tortoise population will take place this fall. Snake traps captured a record number (eight) of southern hognose snakes this year at Ichauway. Scotty McLeay, MS student from the University of Alabama, is looking at functional roles of larval amphibians in providing nutrient subsidies in isolated wetlands embedded in longleaf pine forests while Camille Herteux, MS student from Florida Atlantic University, is looking at wading bird use of isolated wetlands in longleaf pine and agricultural landscapes.
Georgia report continued...

Recent Publications relating to sandhill snakes:


Stohlgren, K.M., S.F. Spear, and D.J. Stevenson. 2015. A status assessment and habitat model for the eastern diamondback rattlesnake (Crotalus adamanteus) in Georgia. Unpubl. report to the Georgia Department of Natural Resources.

Alabama

Alabama Division of Wildlife and Freshwater Fisheries

Alabama is the only state in the range of the Gopher Tortoise to have both federally listed and non-listed populations with Mobile, Washington, and Choctaw counties comprising the listed portion of the range. The Division of Wildlife and Freshwater Fisheries (DWFF) continues to work on tortoise conservation issues in Alabama and across the tortoise range.

The DWFF continues to work towards determining a more accurate gopher tortoise population estimate and distribution in Alabama. Line Transect Distance Sampling continues on Alabama’s public lands with hopes to finish public land surveys in 2017 to include Geneva, Barbour, and Perdido Wildlife Management Areas (WMA), Geneva State Forest (owned by Alabama Forestry Commission), Fred T. and Upper State Sanctuary, Solon Dixon Center (owned by Auburn University), and Conecuh National Forest.

Longleaf pine restoration work continues under the Multi-state Sandhill / Longleaf Pine Ecosystem Restoration State Wildlife Grant. Roughly 450 acres have been site prepped and will be planted this winter on the Geneva WMA. Prescribed burning efforts on WMAs continue with emphasis on summer burns when applicable. Invasive plant control and feral hog management also continue on public lands.

Twelve gopher tortoises were relocated to a DWFF property due to loss of habitat from the conversion of forest land to agriculture. An enclosure was built on state protected lands where the tortoises will reside for ten to twelve months. After that time the enclosure will be removed so that the tortoises can disperse.

Continued on next page...
The DWFF continues to be a partner in the Gopher Tortoise Candidate Conservation Agreement (GT CCA), a voluntary partnership with the U.S. Department of Defense, state agencies, and non-governmental agencies in the unlisted portion of the range. The Alabama Forestry Commission became a new signatory this past spring.

The DWFF increased education and outreach activities promoting gopher tortoise conservation in Alabama. April 10, 2016, was Alabama’s first Gopher Tortoise Day event which took place in Andalusia in front of the Covington County Courthouse. A live tortoise was on site which provided participants the opportunity to see up close this incredible animal and learn about its biology and importance as a keystone species. Youth participated in several hands-on activities that further demonstrated the importance of the tortoise to the longleaf pine ecosystem. Approximately 25 participants took advantage of learning about the gopher tortoise and its habitat. Though participation seemed somewhat low, the DWFF considered this event a success and has already begun planning for two additional events in the state based on lessons learned from the first event. YouTube videos were created to communicate DWFF Gopher Tortoise conservation efforts and the importance of prescribed fire related to habitat management. The Gopher Tortoise webpage continues to expand. Several landowner workshops took place throughout the year supporting gopher tortoise conservation and habitat management.

DWFF partnered with Sustainable Forestry Initiative to develop and produce a gopher tortoise display to be used at meetings, landowner events, and workshops. The DWFF Education and Outreach Section designed a beautiful display. The display includes three window shade type banners that can be used at events either together or individually. Each banner has a theme. The themes are Gopher Tortoise Habitat, Gopher Tortoise and the Ecosystem, and Gopher Tortoise and Prescribed Fire. Staff used the display at multiple events throughout the summer to promote gopher tortoise conservation. DWFF and partners developed a Gopher Tortoise Best Management Practices pamphlet for landowners who want to manage their property. These recommendations are intended to be used as a guide for landowners who want to enhance or create gopher tortoise habitat on their property.

Several presentations and workshops were conducted by Nongame Wildlife Program staff throughout the year. Presentations included a variety of topics from tortoise biology, protection status, and best management practices that enhance habitat.

**Alabama State Lands Division Update** contributed by Eric Soehren

Wehle Land Conservation Center staff have continued radio telemetry monitoring of six individuals (four males and two females) regularly (1-3 times per week) since June 2015. The primary objective of this project is to look at movement and activity patterns of translocated individuals following establishment. The affixed transmitters have an advertised battery life of approximately four years so we will continue to monitor them through the life span of the transmitters.

We initiated another property-wide trapping effort of all known active burrows to “re-census” the individuals under our management purview. This not only gives an indication of movements of individuals since the 2014 census effort but also allows continued monitoring of their physical conditions. This does not include those that have emigrated off the Wehle Tract.

As with last year we documented recruitment in 2016 indicating this population is reproductively active. However, we do not know the survivorship of the hatchlings following dispersal from their natal grounds.

We have transitioned our prescription burning from late winter (March) to late summer with burns performed on:

- 24 August 2015 (336 acres on the north side of Twin Creek floodplain)
- 30 August 2016 (281 acres on the south side of Twin Creek floodplain)

Burns are scheduled on a two-year return interval, although we may reduce it to 1.5-year intervals to favor a diverse herbaceous layer and to discourage aggressive shrub succession. The native graminoid and forb response to the burning has been terrific!

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*Student Spotlight*  
GTC wishes to highlight students who are actively involved in upland conservation projects within the gopher tortoise’s range in the GTC newsletter. The purpose of this 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 photographs. Please send to: cyndi@fgates.com
**Louisiana**

Keri Landry

Louisiana Department of Wildlife and Fisheries (LDWF) is working towards re-surveying all known concentrated tortoise areas to assess the current status of existing populations. All historical tortoise records are also being visited to assess the status and distribution of isolated populations.

Prescribed burning was conducted in May 2016 on approximately 1,600 acres of private lands (totaling nine separate tracts) surrounding Sandy Hollow Wildlife Management Area (WMA) in Tangipahoa parish and funded through the Multi-state Sandhills/Upland Pine Restoration grant. Prescribed burning was also conducted on a privately-owned longleaf pine restoration tract in St. Tammany Parish that is currently registered as a Natural Area under the Louisiana Natural Heritage Program's Natural Areas Registry. LDWF continues to reach out to private landowners interested in prescribed burning within the gopher tortoise range in Louisiana. LDWF along with staff from North Carolina State University-Prescribed Fire Extension, Natural Resource Conservation Service (NRCS), The Nature Conservancy, National Wild Turkey Federation, Louisiana Department of Agriculture and Forestry, and Louisiana State University Agriculture Center partnered together to organize and provide a prescribed burning workshop for private landowners within the gopher tortoise range in March 2016. The workshop was a huge success with over 50 attendees. LDWF, NRCS, and USFWS staff are working together to provide assistance and promote habitat restoration through the Working Lands for Wildlife Program to private landowners within the gopher tortoise range.

LDWF has received four waif tortoises during the past year. Three of these tortoises (two females, one male) were released on the north tract of Sandy Hollow WMA in two separate release pens. One male tortoise, currently in captivity, was significantly malnourished and will be released in 2017 after passing a health check. Several education and outreach events promoting gopher tortoise awareness and conservation took place during the past year including festivals and various school groups. In March and October of 2016, LDWF assisted with LA Master Naturalists of Greater Baton Rouge (LMNGBR) public education classroom and field workshops to provide education on threatened and endangered species including gopher tortoise conservation.

**Mississippi**

Tom Mann

**Status Overview**

A group of biologists met at the Jackson Office of the U.S. Fish and Wildlife Service (USFWS) in November 2015, and again in November 2016, to determine recovery priorities and to identify related data gaps. Participants at the 2016 meeting included Dr. Nicole Hodges, Kathy Shelton, Heather Sullivan, Katelin Cross, Tom Mann (Mississippi Museum of Natural Science), Matt Hinderliter, tortoise recovery lead (USFWS), Keri Landry (Louisiana Dept. of Wildlife and Fisheries), Dr. Lisa Yager (U.S. Forest Service), Dr. Carl Qualls and Dr. Brian Kreiser (University of Southern Mississippi), and Jim Lee (The Nature Conservancy at Camp Shelby). We discussed the logistics of conducting breeding experiments to evaluate the possibility that allelic impoverishment may be contributing to low hatching success, the need for more study to elucidate the reasons for carapace/plastral fontanelles in a large percentage of adult tortoises in Mississippi (MS), the standards used to identify viable and support populations in MS and Louisiana (LA), the need for and logistics of consolidation of isolated tortoises/very small populations into viable populations on properties which can be managed for them, the tortoise density standards in the Tortoise Recovery Plan, and the logistics of securing protection and management of the tortoise colony at the Hillsdale Community (see David Felder’s description of the site in the USFWS section below). Other topics included discussions on whether all waifs should be tested for URTD exposure and the need for a change in burning season and frequency on priority soils on the DeSoto National Forest. We agreed that there is a long-term and widespread recruitment deficit at most tortoise colonies in MS, and that the tortoise population is disproportionately comprised of old, smooth-shelled animals. Recent papers on senescence in turtles give reason for concern and lend urgency to the identification and mitigation of factors threatening this species in the range of Federal listing.

In state reports from 2014 and 2015 (refer to the photographs therein), and at the mid-October 2015 GTC meeting in LA, I requested input from elsewhere in the range of the gopher tortoise on whether shells of adult tortoises are ever seen with plastral/carapacial fontanelles, and if so, at what frequency. The mid-plastral fontanelle is visible as a yellow spot and as being a soft, relatively easily depressed zone. **We received no feedback from the newsletter request but ask again if this is being observed**

Continued on next page...
Mississippi report continued...

in other parts of the range. Also, we would appreciate information on hatching rates seen elsewhere (in situ and in labs), and on the frequency of cracked eggshells observed when freshly deposited clutches are excavated. We would also appreciate any information available on a possible relationship between calcium insufficiency/unavailability and burning regimes. Please contact me at tom.mann@mmns.state.ms.us.

Heather Sullivan (MS Natural Heritage Program) has now compiled all known tortoise locality information for MS from paper and digital sources into tortoise occurrence polygons based on NatureServe tortoise element occurrence specifications, a herculean achievement.

**Tortoise Research**

**Head-starting Project at Camp Shelby**—Jim Lee (The Nature Conservancy, Camp Shelby Tortoise Biologist) Camp Shelby Field Office (CSFO), Camp Shelby Joint Forces Training Center

This is a continuation of the project begun at Camp Shelby by Matt Hinderliter in an attempt to rear juvenile tortoises to a size at which they would be much less vulnerable to mortality from various sources, since Camp Shelby, like most sites in MS, has a long-term recruitment deficit. In 2016, 33 gopher tortoise nests were located at 17 different sites on the Camp Shelby Joint Forces Training Center, Perry and Forrest counties, MS. Nests were excavated, and eggs (N=152) were transported to the lab for incubation (145 eggs incubated; 7 were cracked/broken or predated upon discovery and not incubated). Twenty-three clutches, containing 107 eggs, were incubated at 31°C. The remaining 10 clutches, containing 38 eggs, were incubated at 28°C: incubation temperatures that are believed to have an increased likelihood of producing females or males, respectively (Demuth 2001). Average (+1 SD) number of eggs per clutch was 4.6 (+1.49; range: 1-7) and overall hatching success, (42% -61 of 145 eggs), were lower than that previously reported for lab-incubated eggs in southern MS (e.g. 58.8%, Noel et al. 2012; 59.2 and 64.3%, Lee 2014, 2015). Unlike in 2015, eggs incubated this year at a higher temperature had a lower hatching success (37.8%), than eggs incubated at a lower temperature (55.3%). The 61 hatchlings were placed into our indoor head-start facility (Figure 1), where they will be raised at a constant temperature over the course of the next two years (following the methods of Holbrook et al. 2015) prior to release.

Sixteen tortoises that had been head-started for two years were released in September in T-44. Each animal was notched and tagged. Released animals were on average larger than wild six-year-old tortoises (Figure 2).

![Figure 1. Gopher Tortoise head-start facility at the Camp Shelby Joint Forces Training Center.](image1)

![Figure 2. Size comparison of tortoises head-started indoors for 1 or 2 years compared to a wild 6-year-old tortoise on left.](image2)

Continued on next page...
Mississippi report continued...

Tortoise Habitat Management

DeSoto Ranger District (DRD) - Ed Moody (DRD Biologist)
- 24,317 acres growing season burned
- 19,856 acres dormant season burned
- 6,081 acres surveyed for GT for future timber sales
- 3,200 acres thinned
- 893 acres restored to longleaf

Chickasawhay Ranger District - Jay McLain (district silviculturist)
- 11,006 acres growing season burned
- 15,927 acres dormant season burned
- 1,500 acres thinned
- 3,735 acres surveyed for GT for future timber sales:
- 98 acres restored to longleaf

Camp Shelby - Melinda Lyman, Coordinator, Nature Conservancy Office at Camp Shelby
- 2,032 patches of cogongrass covering 88 acres were treated on state and Dept. of Defense land.

Natural Resources Conservation Service (NRCS) - Glynda Clardy, State Wildlife Biologist, Jackson, MS.
The NRCS administers programs offering assistance (technical and financial as well as easement agreements) to landowners interested in restoration/proper management of longleaf pine habitat, many acres of which will also include areas occupied by tortoises or potentially inhabitable by tortoises:

For FY 2016:
1) Healthy Forest Reserve Program – not yet funded under new farm bill.
2) Environmental Quality Incentive Program:
   - Longleaf Pine Initiative: 69 contracts 4,862 acres
   - Working Lands for Wildlife Initiative: 41 contracts 4,949 acres

Mississippi Dept. of Wildlife, Fisheries, and Parks (MDWFP) - Tamara Campbell
The Fire on the Forty partnership with the Foundation for Mississippi Wildlife, Fisheries and Parks and the USFWS, which provides cost-share assistance for prescribed burning on private lands, is entering its fifth year. Landowners in selected counties are reimbursed for up to 50% of costs for implementing and performing prescribed burns. Within focal counties which also support tortoises, Fire on the Forty funded more than 9,000 acres of prescribed burning on private lands. Due to wet conditions through much of the spring only about 2,000 acres were burned, but landowners still have one more year to fulfill their agreement. Landowners must submit an application to be considered for this cost-share program. Applications are competitively ranked based on potential habitat benefits; priority sites will be selected for funding by the MDWFP. To download an application, visit www.mdwfp.com/longleaf. For more information regarding the Longleaf Pine Restoration Program call 601-432-2199.

- Number of acres applied for program: 16,846
- Number of acres funded Fire on Forty: 12,517
- Number of acres burned so far: 3,725 (landowners have 18 months to complete the burn once approved)

Managed areas with prescribed burns:
Pascagoula River - 105
- Marion County – 2,045
- Ward Bayou – 347
- State Line Bog (no acreage provided)

Continued on next page...
Mississippi report continued...

USFWS Tortoise Recovery Activities—contributed by David Felder and Matt Hinderliter

1. No biological opinions were written in 2016 for the relocation of tortoises.

2. Florida Gas was approved to relocate two tortoises along their existing pipeline right-of-way near the TNC rosemary preserve in Greene County. They were performing maintenance work on the Florida Gas Phase IV project, which the Service consulted on years ago and for which a biological opinion was written approving relocations associated with future pipeline maintenance. Tortoises were relocated into adjacent nearby burrows (hard release).

3. Chickasawhay Mitigation Bank – The banking review team inspected the site and assisted with a fall burn at the bank.

4. Hillsdale Update – There are hundreds of small one acre or less parcels of land for sale (tax lien property sale) by the Mississippi Secretary of State’s office within this platted but mostly undeveloped neighborhood. The Hillsdale community contains some of the deepest sands in the State along with high tortoise recruitment. The area has remained largely undeveloped with only a few house trailers on isolated plots. The tortoise working group is discussing ways to permanently protect this tortoise colony with hopes of finding a non-profit organization or agency that would take fee-title to the parcels owned by the State of MS. Difficulties include lack of funding to manage the property, the fragmented nature of tracts for sale, the potential for trespassing/vandalism, and the presence of dogs on the plots which do have homes on them.

5. USFWS and state biologists are attempting to identify viable tortoise populations (MVPs) in MS. The pickings are slim, based on current criteria for population size and occupied area. It is possible that some smaller populations on good habitat on smaller, isolated parcels may have better long-term viability prospects than are reflected in modeling.

6. In July, Southern Company, in partnership with the National Fish and Wildlife Foundation (NFWF) as part of the Longleaf Stewardship Fund, approved funding a grant to the Land Trust for the Mississippi Coastal Plain and partners to restore and enhance 527 acres of longleaf pine adjoining the De Soto National Forest near the Glen’s Pond Gopher Frog Tract. Part of this funding will be used to work with MDWFP to restore and manage a conservation area to receive translocated waif gopher tortoises in the same area.

7. As part of the overall effort to identify and delineate priority gopher tortoise areas for conservation across the southeast, models of soils and land cover were used, along with population/survey data, to determine where the most important areas are in MS for focusing GT conservation activities in the future (see red zones on Fig. 3).

Relocations, Waifs

In coordination with Kathy Shelton (MMNS/MDWFP), Jim Lee (TNC) relocated seven tortoises (four hatchlings, two adult males, and one adult female) to the Ward Bayou Wildlife Management Area. All adult tortoises were tested for Upper Respiratory Tract Disease and found to have “clean” results.

Four new adult waifs materialized in 2016 from the following counties: Stone, Hancock, and Pearl River as well as ten hatchlings from an unidentified donor that materialized at a veterinary clinic in Saucier. In 2015, four hatchlings (see above relocation to Ward Bayou) were provided from the same source.

Dr. James Askew and Missy Dubisson are again thanked for long-term services in rehabilitative care of several waif tortoises and for temporary care and phlebotomy services (blood samples for URTD testing) for other waifs. Kathy Shelton (MDWFP) is thanked for husbandry and phlebotomy services for various waif tortoises in 2015.
The gopher tortoise (Gopherus polyphemus) is a State-designated Threatened species in Florida. Gopher tortoises are keystone species whose burrows provide refuge for over 350 species. In order to conserve the species and its habitat the Florida Fish and Wildlife Conservation Commission (FWC) published its first Gopher Tortoise Management Plan in 2007. The Gopher Tortoise Management Plan was revised in 2012 and is intended to guide the continued conservation of the gopher tortoise in Florida through 2022. The plan places an emphasis on landowner incentives, habitat management, and maintaining the gopher tortoise as a keystone species through commensal species conservation. FWC continues to coordinate with the stakeholder Gopher Tortoise Technical Assistance Group (GTTAG) on gopher tortoise conservation issues. The continued participation of stakeholders is vital to the long-term conservation of the species.

Research
The Gopher Tortoise Conservation program has coordinated with researchers on several projects outlined in the Gopher Tortoise Management Plan during this past year. FWC assisted with development and funding (through the Fish & Wildlife Foundation of Florida) and issued a Scientific Collecting permit for a University of Central Florida study (Dr. Anna Savage, PI) to assess impacts on gopher tortoises being temporarily excluded from the Sabal Trail natural gas pipeline project area in Central Florida. FWC also coordinated with the U.S. Forest Service and Wiregrass Ecological Associates to develop and permit a study to determine how gopher tortoises respond when released in different areas on part of the Munson Sandhills at the Apalachicola National Forest (ANF). Along with the large-scale population restoration objective (currently not a viable population), the research study will evaluate site fidelity of relocated gopher tortoises on ANF in response to different habitat management treatments across 2,216 acres of suitable habitat. The study is scheduled to be complete in December 2021. Another project previously funded by Florida’s State Wildlife Grants program at the Kennedy Space Center is underway (Rebecca Bolt, PI) to examine the use of corridors by gopher tortoises as a response to sea level rise and identified barriers to these movements. A few studies learning about the use of burrows by nonnative wildlife such as pythons and tegus has provided insight to the impact these nonnative animals have on gopher tortoises, particularly in South Florida. Preliminary data has shown that female pythons have nested inside burrows in Rookery Bay Preserve and juvenile gopher tortoise remains were found in a tegu’s gut in Hillsborough County. Additional research studies are being conducted to better learn the movement patterns of these two nonnative species so that biologists can eradicate them more strategically.

Education and Outreach
The FWC is recruiting citizen scientists to assist in gopher tortoise conservation efforts by submitting photos of gopher tortoise sightings to FWC using the “Florida Gopher Tortoise” Smartphone App (http://myfwc.com/wildlifehabitats/managed/gopher-tortoise/app/). The goal of this app is to increase public awareness and citizen participation in gopher tortoise conservation throughout Florida. Citizens can also use the app to learn more about the life history of the species, report wildlife alerts, and test their gopher tortoise knowledge with a quiz. Citizens can also view an interactive map online and on their mobile device that displays where other citizen scientists have documented gopher tortoises. To date, the app has been installed 3,551 times, and users have submitted photos for 1,069 gopher tortoise and burrow locations. The app quiz has been attempted 5,709 times.

A new fact sheet addressing Upper Respiratory Tract Disease in gopher tortoises was created this year and is available for download from MyFWC.com/GopherTortoise as part of the extensive educational materials already available. Approximately 4,800 gopher tortoise brochures and fact sheets have been distributed including 3,230 copies of A Guide to Living with Gopher Tortoises to local governments, schools, nature centers, and Florida residents. The poster Got Gophers, Get Permits is continuously distributed to planning councils, county and city building departments, and local permitting offices. More than 900 Safe Roads for People and Tortoises placards have been distributed and are available at Florida visitor centers, state parks, highway rest stops and local parks. All publications are also available to download at MyFWC.com/GopherTortoise and at each of FWC’s Regional Offices.

Utilizing staff and student interns, the Gopher Tortoise Conservation program hosted and/or participated in 28 outreach events including: four local government workshops, three Law Enforcement training events, and additional outreach events including wildlife festivals, several county 4-H events, Eighth Street Elementary School, St. Marks Stone Crab Festival, Oakland Heritage Festival in Lake County, Earth Day Celebration in Tallahassee, and an event at Marion Therapeutic Riding Association. To enhance the protection and conservation of gopher tortoises and gopher tortoise habitat statewide, program staff conducts training for FWC Law Enforcement officer recruits. Additional training will help FWC officers address wildlife complaints related to gopher tortoises in an effective and consistent manner statewide. Working with law enforcement and the FWC legal...
Florida report continued...

office, a gopher tortoise student intern created a Law Enforcement Field Guide for conducting investigations of gopher tortoise incidents and violations. This field guide will assist FWC Law Enforcement in consistent response to wildlife violations involving gopher tortoises.

Permitting
Since implementation in 2008, the recipient site permit program (a voluntary program in which landowners may use their lands with suitable habitat to receive gopher tortoises from development sites), has protected approximately 16,000 acres of gopher tortoise habitat through permanent conservation easements. Under these permits private landowners can accept gopher tortoises relocated from development sites and assess a monetary charge to the developer for accepting tortoises. In exchange, the recipient site landowners agree to manage and protect the habitat for gopher tortoises in perpetuity. Currently, 40 recipient sites with an available capacity of 16,670 tortoises are permitted. An additional four recipient site permit applications are currently under review with potential available capacity for an additional 1,488 tortoises on 776 acres of gopher tortoise habitat. During this past fiscal year, 6,843 tortoises were relocated under FWC-issued permits.

Population Restoration and Monitoring
The FWC continues with efforts to identify solutions for dealing with waif tortoises. Waif tortoises are gopher tortoises that have been removed from the wild (either unauthorized or due to injury) and for which their origin cannot be determined. One solution includes identifying willing landowners to care for waifs on their property and designating the land as a “waif tortoise recipient site.” Newly-permitted waif sites were established in Bay, Manatee, Miami-Dade, and Okaloosa Counties and four tortoises have found permanent homes at Manatee County’s Perico Preserve. Additionally, previously-permitted Sabal Bluff (Lake County) and Circle B Bar Reserve (Polk County) waif recipient sites received ten and five tortoises, respectively. FWC is currently in the process of developing additional waif sites by working with private landowners to establish sites in Pasco and Wakulla Counties. FWC is working with wildlife rehabbers to place waifs at designated waif recipient sites or releasing them back to their origin if location information is known. Under a Memorandum of Agreement (MOA) with the South Carolina Department of Natural Resources (SCDNR) there is also an ongoing effort to restock depleted gopher tortoise populations on public lands in South Carolina through the FWC waif program. FWC staff worked with the SCDNR to amend the MOA by extending it by three years and increasing the number of gopher tortoises transferable to South Carolina by an additional 100 tortoises. During this past year, 13 juvenile and 25 adult tortoises were relocated to Aiken Gopher Tortoise Heritage Preserve under supervision of the SCDNR. See also “Waif Tortoises” section on next page.

To better understand gopher tortoise population distribution and trends in Florida, Line Transect Distance Sampling, a survey protocol adopted by range-wide partners in the Southeastern states, was implemented. Under a three-year contract with the Joseph W. Jones Ecological Research Center, and funded in part by a federal grant, 26 select public conservation lands in Florida were surveyed using this standardized technique between August 2014 and February 2016. Under this contract, 58 staff from the Florida Department of Environmental Protection (FDEP), Florida Forest Service (FFS), Florida National Areas Inventory (FNAI), Florida Park Service (FPS), FWC, and Hillsborough and Polk County were trained to use this survey method. Little Talbot Island State Park had the highest population density (1.8 tortoises/acre, 95% Confidence Interval [CI] = 3.8-5.0), and Withlacoochee State Forest-Croom Tract had the largest population estimate (8,221 tortoises, 95% CI = 6,308-10,714). Burrow occupancy ranged from 20% at Blackwater River State Forest West Boundary Unit to 71% at Hilochee Wildlife Management Area (WMA). Burrow size class distributions indicated a predominance of adult burrows (>23 cm in width) in most populations. Gopher tortoise interns and staff input survey data into a GIS database to identify, monitor, and track potential viable and supporting populations throughout Florida. Of the 26 conservation lands monitored during the three-year contract, 19 sites met the criteria for a viable population (≥250 adult tortoises, ≥0.16 tortoises/acre, and ≥250 acres of continuous gopher tortoise habitat). In addition to FWC efforts, FWC is contracting with Florida Natural Areas Inventory on future monitoring efforts that will focus on surveying additional public conservation lands to locate viable populations statewide, as well as locate populations that may become viable with increased management.

Disease
The FWC encountered a large-scale mortality event at Lake Louisa State Park (Clermont, FL) in 2015. The procedures explained in the Procedure for Investigation of Large-Scale Gopher Tortoise Mortality Events was followed and FWC staff provided disinfection and sanitation protocols for those persons conducting the investigation. A survey of shells resulted in 91 shells in an approximately 15 hectare area of the park. Location data was recorded for all shells, and the stage of shell disarticulation was determined using the stages identified by C. Kenneth Dodd (1995). An intensive trapping and blood

Continued on next page...
Florida report continued...

collection effort was completed in August 2016 and 42 blood samples were sent to the University of Florida to test for *M. agassizii*. Thirteen samples came back positive, seven were suspect, and 22 tested negative for the mycoplasma.

Waif tortoises
The FWC continues with efforts to identify solutions for placing waif tortoises. Waif tortoises are gopher tortoises that have been removed from the wild (either unauthorized or due to injury) and for which their origin cannot be determined. One solution includes identifying willing landowners to care for waifs on their property, designating the land as a “waif tortoise recipient site”. One waif site in Lake County was established over the past year, and a total of ten tortoises (out of 13 possible) have found permanent homes at this site. FWC is currently in the process of developing several additional waif sites working with public and private landowners to establish sites in Manatee, Duval, Miami-Dade, Broward, Bay and Sarasota counties. FWC is working with wildlife rehabbers to place waifs currently undergoing rehabilitation at designated waif recipient sites or releasing them back to the wild if location information is known. The Memorandum of Agreement (MOA) with the South Carolina Department of Natural Resources (SCDNR) was recently amended to extend it for three more years to allow an addition 118 waif tortoises to be translocated there from Florida. FWC staff recently worked with SCDNR in order to amend the MOA increasing the number of gopher tortoises transferable to Aiken Gopher Tortoise Heritage Preserve by an additional 100 tortoises (for a total of 200 tortoises by the end of the three years).

Incentives
The FWC continues to work closely with public and non-profit organizations, as well as private landowners, to identify and provide incentives for gopher tortoise conservation on private lands. Staff regularly participates in workshops that promote conservation opportunities and habitat management. The FWC is also working with the Department of Defense (DoD), the U.S. Fish and Wildlife Service (USFWS), and other states to develop a *Gopher Tortoise Crediting System* for military installations. The crediting system establishes the framework for evaluating and determining credit for DoD conservation actions and will be sent out for public comment soon. The intent of this crediting system is to provide military installations with predictability for gopher tortoise management in the case that the species becomes federally listed. Using this crediting system the DoD can work with state wildlife agency partners to acquire gopher tortoise habitat, determine where best opportunities exist to perform conservation activities, and utilize those activities to offset the effects to gopher tortoises caused by current and future military installations.

Habitat management
During FY 2015-16, the Habitat Assistance Funding program provided $71,911 in funding to assist local governments with gopher tortoise habitat management activities on more than 587 acres of their conservation lands. Some habitat management and improvement activities conducted through the Habitat Management Assistance Funding program included fire line preparation, prescribed burns, selective tree removal, roller chopping, disking, planting beneficial species, and controlling exotic and invasive plants via the utilization of herbicide applications.

Gopher Tortoise Conservation Program staff have also coordinated with FWC's Landowner Assistance Program (LAP) and partner agencies to provide support and technical assistance to private landowners for managing gopher tortoise habitat. The FWC also continues to support existing prescribed fire strike teams to enhance the number of gopher tortoise habitat acres burned or otherwise treated. The Gopher Tortoise Conservation Program approved matching funds to a State Wildlife Grants (SWG) Program grant for Wildland Restoration International for this year and next.

Law enforcement
To enhance the protection and conservation of gopher tortoises and gopher tortoise habitat statewide, program staff conducts training for FWC Law Enforcement officer recruits. Over the past year, two training events have taken place, and a third event is scheduled for October 26th. This additional training will help FWC officers address wildlife complaints related to gopher tortoises in an effective and consistent manner statewide. One of our gopher tortoise interns is currently developing a law enforcement “short-course” to assist law enforcement officers in the field with a quick gopher tortoise reference guide for rule violations. Also the team has completed revisions and distributed the Law Enforcement Training Manual around the state. Just this year, FWC law enforcement has made numerous arrests of individuals who have illegally “taken” gopher tortoises for human consumption, animal abuse including painting tortoise shells, and burrow impacts as a precursor to development activities.

Continued on next page...
Florida report continued...

Commensals
In order to maintain the gopher tortoise’s function as a keystone species, the FWC has been working on learning about how and if Florida gopher frogs can be translocated. This project is a pilot study to evaluate the effects of experimental translocation on gopher frogs. The pilot study was initially attempted from July 2013 – May 2014 at Jennings State Forest (JSF) but low numbers of captures led to a revision of the project design and a renewed attempt beginning in October 2015 at the Ocala National Forest (ONF). Challenges encountered during this second attempt led to a subsequent revision in January 2016. Since the final revision, transmitter attachment and translocations have been successful and the project is proceeding. To date we have successfully monitored 13 translocated frogs. The study objectives are to: 1) evaluate the effects of translocation on survival, movement, and habitat use by gopher frogs at a single study site; 2) determine if translocated individuals are able to successfully navigate among wetlands and terrestrial refugia; and 3) test methodologies and determine feasibility of a larger-scale study on gopher frog survival and movement following translocation. Trapping will resume in November 2016 with preliminary results expected next summer.

A State Wildlife Grant funding “Filling in the Data Gaps for Obligate Invertebrate Commensals of the Gopher Tortoise,” was completed this past year. The surveys were conducted by Dave Almquist, invertebrate zoologist at the Florida Natural Areas Inventory. Five regions were surveyed for gopher tortoise obligate invertebrate commensals (OIC) using various methods in at least two habitats per region. More than 294 samples were taken from traps and 934 burrows with 141 samples being positive for OIC. We documented at least ten of the 14 target taxa, with one species being impossible to positively identify. Three of the more common and widespread taxa were found in four of the five regions surveyed. Four were documented from pine plantation, abandoned field, sandhill, upland mixed woodland, and upland pine habitats. For species that were found at enough sites to draw any conclusions, it appears that most OIC do not require pristine habitats, but rather xeric areas with healthy tortoise populations. Further survey work is recommended for all species. At least two species, the Gopher Tortoise Copris Beetle and Gopher Tortoise Noctuid Moth, appear to have declined and research is highly recommended for them and certain other of the rarer OIC. The most valuable product from this project is the habitat modeling that accompanies this report which should greatly facilitate future research on these and the other OIC.

The FWC issued a Scientific Collecting permit to facilitate repatriation of eastern indigo snakes to the Florida Panhandle. A Conserve Wildlife Tag grant was also awarded to fund the initial repatriation efforts that are scheduled for spring 2017 and will be conducted under the supervision of Dr. David Steen at Auburn in partnership with the Orianne Center for Indigo Conservation, The Nature Conservancy and FWC.

The Donna J. Heinrich Environmental Education Award-Congratulations to Our 2016 Winners!
The GTC Environmental Education Grant was established to support educators and organizations committed to developing educational projects about the gopher tortoise and the fascinating world in which it lives. The grant honors Donna June Heinrich, an environmental educator, whose life was dedicated to conserving wildlife and their associated habitats.

The Gopher Tortoise Council is pleased to announce the winners of this year’s award:
Tree Hill Nature Center in Jacksonville, Florida-to improve an exhibit, provide new signage and develop and print educational brochures
Jonathan Dickinson State Park in Hobe Sound, Florida-for purchase of a burrow camera to use for children’s and outreach programs

GTC Silent Auction
This year’s silent auction at the Annual Meeting in Palatka was a resounding success! Thanks to all who participated and a special thanks to those who donated items for the auction. Funds collected from this annual event go to support the Donna J. Heinrich Environmental Education Grant Program

Special Thanks also to Connie Henderson for organizing and managing this event and to all volunteers who assisted.
Annual Meeting Highlights...Student Awards

A highlight of every annual meeting is the presentation of student awards. This includes awards for oral presentations, Bob Herrington Student Travel Award and the J. Larry Landers Student Research Award.

Student Oral Presentations

**First Place: Rhett M. Rautsaw (Towson University),** Scott A. Martin, Frank Robb, M. Rebecca Bolt, Richard A. Seigel, and Christopher L. Parkinson. “Updating the Drift Fence: Applying Game Cameras to Survey Herpetofauna and Small Mammals”

**Second Place: K. Nicole White (University of Georgia),** Betsie B. Rothermel, Kelly R. Zamudio, and Tracey D. Tuberville. “Patterns in Multiple Paternity and Male Siring Success in a High-Density Population of Gopher Tortoises (Gopherus polyphemus)”

**Third Place: Tessie Offner (University of Florida),** Steve Johnson, Jennifer Ketterlin Eckles, Sarah Funck, and Bernie Kaiser. “Central Florida Tegu Population”

Bob Herrington Travel Award

This award is named in memory of the late Dr. Robert Herrington. Bob was a beloved mentor to many graduate and undergraduate students and an active and staunch supporter of the Gopher Tortoise Council. It is with pleasure that we recognize the first recipients of the Bob Herrington Travel Award:

Congratulations to David Lucien and Carolyn Reiland-Smith, both of Florida Atlantic University

Jen Howze, on left, presents travel checks to Carolyn and David
Student Awards continued...

J. Larry Landers Student Research Award

This is a competitive grant program for undergraduate and graduate college students. This year’s winners are:

Meghan Kelley (Auburn University) “Possible effects of upper respiratory tract disease on tortoise olfaction, steroid hormonal cycles, and social behavior”

Rebecca McKee (University of Georgia) “Augmenting populations in peril with waif animals: evaluating a new strategy for tortoise conservation”

Rebecca Cozad (University of Georgia) “Investigating translocated gopher tortoise (Gopherus polyphemus) health and mortality in northwest Florida”

From left to right: Rebecca Cozad, Rebecca McKee, and Meghan Kelley

GTC Service Awards

This year Dan Quinn, a former graduate student of the Savannah River Ecology Lab/University of Georgia, received a Special Project Award...

After graduation last spring, Dan set out to hike the Appalachian Trail and solicited sponsors for his hike. He requested that donations be made to GTC. Dan completed the entire trail (!) resulting in a considerable monetary contribution to GTC.

At left, Lora Smith presents the Special Project Award to Dan—congratulations and thank you for your generosity to the Gopher Tortoise Council!
GTC Service Awards...continued

Ms. Carissa Kent was presented with the GTC Conservation Education Award for her tireless efforts as a volunteer and educator on behalf of the gopher tortoise. Presenter Jess McGuire noted that “Carissa's team is most well known for their gopher tortoise relocation efforts in Florida. Their primary mission is to save tortoises impacted at ITP [incidental take permit] sites. They also assist with injured and waif tortoises. In addition, and often overlooked, are her educational efforts throughout the state. All expenses for their education efforts are donated.” Congratulations Carissa!

Carissa Kent, on left, pictured with Jess McGuire and Co-Chair Dick Franz

More Meeting Highlights

A stroll through Ravine Gardens...

A crowd gathers for a tour of Water Works

Co-chair and Host Dick Franz gives opening remarks to begin the festivities at the Saturday night social

Thanks to photographers Keri Landry, Don Stillwaugh and Deb Burr
Fun on the St. Johns in Palatka, Florida

GTC Member Tom “Spider” Mann—if he’s not skating, he’s scaling!

Music by Dim Lights at the Saturday Social

Dance, Dance, Dance! Calvin McGuire hits the floor and finds that country beat!

Enjoying the St. Johns with a little “beer on the pier”!
Directory of 2017 Gopher Tortoise Council Officers, Committee Chairs, and State Representatives
Please view the GTC website (below) for contact information

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Will Dillman

Secretary
Connie Henderson

Membership Secretary
Eric Sievers

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http://www.gophertortoisecouncil.org

The Tortoise Burrow is published in April, August, and December. Deadlines for submission of announcements and articles are the 1st of the preceding month. Send materials to the editor:

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Decisions concerning publication of submitted material rest with the editor and co-chairs.

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