

# The Tortoise Burrow

Newsletter of The Gopher Tortoise Council



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## Notes From a Co-Chair

M. Rebecca Bolt

It is hard to believe that five months have flown past since our annual meeting in Palatka last October. On Thursday evening before that meeting, we had a very productive and enjoyable (yes, really!) business meeting. Lots of issues were discussed, chores divided up, and plans made. The setting was a nice restaurant with good food and drinks, and the atmosphere generated cooperation. We are going to try to repeat that scenario on 21 April in Gainesville for our spring business meeting. It will start around 5:30 or 6 p.m. and last two or three hours. Some of the agenda items will be updating our website, filling needed officer positions, and support for the Florida Uplands Network. It will also be an opportunity (for those of you who haven't already) to meet our new co-chair, Mitch Lockhart. He has promised to attend, even if he has to bring the triplets! Please RSVP to me by 7 April if you can join the party. Also, please send any items to me (with detailed explanation if you are not coming to the meeting) by 7 April. After that deadline, more details regarding time and place for the meeting will be sent to those planning to attend.

Many things are happening in the tortoise world. The Florida Fish and Wildlife Conservation Commission tortoise issues team is meeting every other week, reviewing problems, discussing solutions, and coming up with a new plan for tortoise conservation. Stakeholders are tackling tough questions via electronic and face-to-face meetings. A panel of tortoise biologists has written a review proposing that the tortoise be listed as a threatened species in Florida; this will be voted on by the Commissioners at their June meeting. A petition has been submitted to the U.S. Fish and Wildlife Service to federally list the tortoise in the eastern portion of its range. At the same time, a Memorandum of Agreement is being finalized that is intended to help keep the tortoise from requiring federal listing where it is not already federally protected. Lawsuits and threats of lawsuits abound on all sides. It is an exciting, although trying, time to be involved in gopher tortoise and habitat conservation. Every single one of us needs to be doing our part if these efforts are to be successful. If you are wondering what you can do, or would like to become more involved, please contact me or any of the GTC officers (listed on the website). Jobs, from large to small, are plentiful and your assistance would be greatly appreciated.

Hope to see you in April. Take care. Becky  
(M. Rebecca Bolt) Co-chair, 2005-2006

## CONTRIBUTED ARTICLES

## The red and yellow-footed tortoises of northern Brazil: Does hunting jeopardize their role as seed dispersers in the neotropics?

Joel N. Strong



A tortoise equipped with thread trailer device designed to monitor movements in Brazil.

The pink polyester thread seemed to go on forever, seemingly through the worst habitat possible, at least for the two sweaty humans trying to follow and map the route with a compass and meter tape. The thread trail led us from a dense patch of lowland palm swamp, where we had to meticulously weave our way through a gauntlet of spine-covered palm trees, into a flooded savanna, where clumps of cutting grass had to be carefully pulled apart to track the thread, meter by meter, as it wove its way through the grassy labyrinth. The trail crossed the 200 m savanna clearing and entered a small patch of forest where it continued to meander through vine falls, beneath a fruiting *Genipa* tree, and finally vanished into a giant armadillo, *Priodontes maximus*, burrow nearly a kilometer away from where we had begun.

*“The trail crossed the 200 m savanna clearing and entered a small patch of forest where it continued to meander through vine falls, beneath a fruiting Genipa tree, and finally vanished into a giant armadillo burrow...”*

After careful inspection of the burrow with a flashlight, we could see our quarry, a large male red-footed tortoise, resting about a meter back in his cool, damp retreat, safe from the reach of a hungry jaguar. The thread dispenser that we had attached to its carapace was still firmly in place so we could continue to track his movements. Marcelo, my Macuxi field assistant, and I recorded the GPS location, jotted down some notes about the habitat, and set off to do it again for another tortoise.

This was part of my master’s fieldwork, examining the movement patterns of red-footed (*Geochelone carbonaria*) and yellow-footed tortoises (*G. denticulata*) in Brazil. By combining this information with data on gut retention time of seeds to

model tortoise generated seed shadows (the proportion of seeds displaced as a function of distance from the parent tree) and analyzing fecal samples for seed diversity, abundance, and viability, my aim was to assess the importance of tortoises as seed dispersers in the ecosystem. Additionally, I conducted transect sampling in hunted and unhunted sites to examine how harvesting may affect population density and structure of tortoise populations and the subsequent impact on their role as seed dispersers.

Hunting is one of the most serious threats facing wildlife in the neotropics and potentially occurs in nearly 99 % of the 3.7 km<sup>2</sup> Brazilian Amazon.



Measuring a tortoise's path in the grassy savannah



A savannah in the Maracá Ecological Reserve, a 110,000 riverine island



Tortoises are a popular food item among indigenous peoples.

We ran transects at both sites and after six months, we had captured and released 56 red-footed and 21 yellow-footed tortoises. Although we found no significant difference in tortoise density between the two sites, we did observe that the hunted site at Mangueira was composed of more juveniles and females than the unhunted site at Maracá. One potential explanation is that males tend to be more active than females during the breeding season, moving more often and over greater distances, thus increasing their risk of detection by hunters. (Cont. on following page)

The partial or complete defaunation of these forests alters the complex ecological processes such as seed dispersal, pollination, plant-herbivore interactions, and predator-prey relationships. Despite their highly frugivorous diet and ability to occur at high densities relative to many bird and mammal species, tortoises have received limited attention as potential seed dispersers in the neotropics. Furthermore, these animals play an important socio-economic role as an important food source for rural people. Thus, research integrating both the biological impacts of hunting on tortoise populations and potential ecological implications are particularly relevant.

I worked at Maracá Ecological Reserve, a 110,000 ha riverine island, formed by the branching of the Rio Uraricoera in northern Brazil. The study site is situated on the northeastern edge of the Amazon basin. Maracá has been protected since 1978 and had minimal human occupation before this time, so it supports healthy populations of characteristic fauna for this region including tapirs, collared and white-lipped peccaries, jaguars, pumas, and giant anteaters. The hunted site, Mangueira Macuxi Indigenous Reserve, is a 4, 238 ha indigenous reserve located about 10 km to the south of Maracá, where about 65 Macuxi Amerindians reside. Hunting is the primary source of protein at Mangueira, although they do raise some livestock such as cattle, pigs, and chickens.



The author often made time to pursue other reptiles when the opportunity arose.

## Brazilian Tortoises (Cont. from page 3)



Over the course of the study, tortoises were recorded ingesting nearly 20 species of seeds.

Over the course of the study, we also recorded nearly 20 species of seeds ingested by tortoises, ranging in size from about 1 mm for tiny fig seeds to over 5 cm for a large palm seed, and most seed species were viable and abundant in fecal clumps. Some seeds took nearly four weeks to pass through tortoises' digestive tracts, similar to retention times recorded for gopher tortoises and box turtles. During that same time, tortoises traveled hundreds of meters, dispersing some seeds beyond one kilometer from the parent tree and over a wide variety of habitat types, thus increasing the likelihood seeds will arrive at a suitable site for germination. Thus, it appears that tortoises are likely important components of tropical ecosystems, effectively dispersing seeds of numerous species of plants.

So the question remains how hunting then might impact tortoises' roles as seed dispersers. We found that males generated longer seed shadows and larger tortoises ingested a greater numbers of seeds. Thus, even though density may be unaffected by hunting at this particular site, the shift in sex ratio and size structure of a hunted population to more females and smaller tortoises still results in a reduction in seed dispersal effectiveness by reducing the quantity of seeds handled and the distance at which they are dispersed from parent trees.

In the longleaf pine forests of the southeastern United States, gopher tortoises have been documented as important dispersers for many understory plant species and may be playing a similar role to *Geochelone* tortoises by transporting seeds across the landscape. Although gopher tortoises may not be dispersing at the scale of *Geochelone* tortoises in Brazil due to their small home ranges (usually no larger than 1 ha), they are likely an important seed dispersing component of the longleaf pine ecosystem by playing a role in structuring and maintaining the species composition of the understory vegetation. Funding for this study was provided by the Wildlife Conservation Society Research Fellowship Program and the Chelonian Research Foundation Linnaeus Fund.



*Joel Strong completed his M.S. research in 2005 at the State University of New York College of Environmental Science and Forestry and will be starting his Ph.D dissertation in the Zoology Department at the University of Hawaii at Manoa in August 2006. He will be conducting wildlife surveys at various villages in northern Brazil throughout a Macuxi indigenous reserve, investigating how the interaction of land use, hunting intensity, and retention of traditional beliefs influences wildlife densities. Joel hopes to continue working with *Geochelone* tortoises in Brazil to develop life tables and increase the knowledge base for these species to aid in developing conservation strategies based on sound biological data. He can be contacted at [joelstrong78@yahoo.com](mailto:joelstrong78@yahoo.com).*

## 2005 Georgia State Report

Sean Graham

I thank the outgoing state representative Bill Birkhead for his many years of service to the Gopher Tortoise Council, and hope that I can serve with as much distinction. I have big penny loafers to fill.

First, the good news—John Jensen reports that the Georgia Department of Natural Resources (DNR) is set to fund a three year sandhill inventory program which will include mapping, identification, and characterization of sandhill habitats throughout the Georgia Coastal Plain, with specific emphasis on suitable gopher tortoise habitat. Matt Elliott of the Georgia Natural Heritage Program reports that the acquisition of a 3660-acre tract adjacent to the unique Broxton Rocks has been approved, and will complement The Nature Conservancy (TNC) lands and form a large corridor suitable for gopher tortoises, *Gopherus polyphemus*, indigo snakes, *Drymarchon corais*, and many unique plants. Uplands adjacent to the recently purchased 4589-acre Penholloway Swamp tract also support tortoises and possibly indigo snakes. Both will be managed as Wildlife Management Areas (WMA). The Georgia DNR is also negotiating the acquisition of a 966-acre tract in the fall line sandhills that includes an isolated wetland with a far-flung population of striped newts, possibly the state's most robust gopher frog, *Rana capito*, population, and many rare plant species.

The Georgia research epicenters are Fort Stewart and Fort Benning. Natalie Hyslop concluded her radiotelemetry of indigo snakes at Fort Stewart, and we look forward to the publication of her findings. Dr. Terry Norton accumulated indigo health assessment data from Fort Stewart animals and other areas (he is gearing to publish his findings in veterinary journals very soon), and along with Dirk Stevenson is continuing the monitoring of Natalie's telemetered snakes. They have recaptured several of the snakes whose transmitters were removed and they are still in good health. This sort of follow-up is rarely done in snake studies and will provide invaluable data. Stevenson will continue his indigo snake mark-recapture study, providing long-term population information (he has recaptured snakes that were marked back in 1999). Dr. Norton has asked for our help with his health assessment work, and would like to examine fresh (within 48 hrs.) road-killed indigo snakes. Contact: [tnmyahvet@aol.com](mailto:tnmyahvet@aol.com) (912-884-5005).

*“Stevenson will continue his indigo snake mark-recapture study, providing long-term population information.”*

Georgia Southern University biologist David Rostal submitted his final report of an ongoing gopher tortoise demographic and habitat study at Fort Stewart based on the long-term radiotelemetry of many individuals. Caroline Woods (also of GSU) has submitted a research proposal to determine the sex of juvenile and subadult gophers based on their hormone profiles. Auburn University students Paula Kahn and Rich Beauman continue their work on tortoises at Fort Benning, studying the effects of removal and burrow collapse on physiological indicators of stress. Roger Birkhead conducted a 20-year follow-up study of tortoises on islands in the Walter F. George reservoir. Finally, Terry Norton is continuing a long-term health assessment study of translocated tortoises on St. Catherine's Island and this year will team up with Tracey Tuberville to begin comparing the St. Catherine's tortoises to the recently translocated SREL gophers. The combination of population modeling planned by Tuberville and health assessment work by Norton should provide a powerful indicator of the success of these translocation projects.

Other upland species have also received some attention. This year the Targeted Bird Survey of the GA DNR included surveys for Bachman's sparrows, *Aimophila aestivalis*, on several WMAs in Georgia and established their presence in many of the searched locations, including some surprises in northern Georgia. Nikki Castleberry has been contracted by Jim Ozier (GA DNR) to conduct a statewide survey for

pocket gophers, *Geomys pinetis*. The work is set to begin in winter 2005 and they are asking for your help to locate historic and/or extant populations. Contact: [Jim\\_Ozier@dnr.state.ga.us](mailto:Jim_Ozier@dnr.state.ga.us) if you have any leads on the location of this species, also known as “salamanders.” Finally, Joe Mendelson and Brad Lock of the Zoo Atlanta Department of Herpetology have pledged their help in upland herpetofauna conservation, and are in discussions with John Jensen about involvement in future projects.

Now the bad news—as in most areas of the gopher tortoise’s range, suitable habitat in Georgia continues to give way to development. One particularly unnerving residential and marina development (Cumberland Harbour) on the Georgia coast slid greasily through the state permitting process before it drew the attention of biologists and the Southern Environmental Law Center, which is now suing the Coastal Marshlands Protection Committee (which issued the permit) for allowing development of habitat that could impact protected species such as the indigo snake, gopher tortoise, manatee, *Trichechus manatus*, and northern right whale, *Eubalaena glacialis* (perhaps the most endangered mammal on the planet). Apparently even the local nuclear submarine base was unhappy about the possibility of this development since it would result in increased civilian boat traffic. With all these factors going against it, the development will of course probably continue as planned (the developer has already sold 80% of the homes), but I will keep you posted.

At Moody Air Force Base, Greg Lee reported that the new Common Battlefield Airmen Training (CBAT) center may require the off-site removal of about 15 marked tortoises. As of now the development is still in the proposal stage, and will require an Environmental Impact Statement and United States Fish and Wildlife Service concurrence due to possible indigo snake impacts. The tortoises at Moody are upper respiratory tract disease free, and a donor site may need to be identified. Malcolm Hodges of the Georgia TNC expressed concern that developments like these may become more commonplace after military bases are closed and their operations become concentrated in the remaining reservations.

To close, I relay an attempt to extend interest in the gopher tortoise above the fall line and into the piedmont concrete sprawlands—John Jensen, Fort Stewart biologist Dirk Stevenson, and former GTC state rep Bill Birkhead have all attempted to take current GTC Georgia state rep. Sean Graham into the field in southern Georgia and show him a wild adult gopher tortoise, which he (Graham) has never seen. All attempts failed, though their efforts will continue under the encouragement of Alabama GTC state rep. Roger Birkhead, who stated, “it’s a step in the right direction [for a GTC state rep.] to see a gopher tortoise, especially if they have not.”



## Current Research

This section serves to summarize recent articles published in scientific journals that are relevant to the interests of the Gopher Tortoise Council.

**Earl D. McCoy, Mushinsky, Henry D. and Lindzey, Jonathan.** 2006. Declines of the gopher tortoise on protected lands. *Biological Conservation* 128:120-127.

We compared two assessments of the status of gopher tortoise populations at 10 protected sites in Florida, taken about a decade apart. We assessed status indirectly, using surveys of burrows along belt transects. Transect placement and timing were identical between surveys. We compared numbers of burrows, relative numbers of burrows of different activity conditions, and size distributions of burrows between surveys. The comparisons indicated that populations had declined at as many as eight of the sites. We found no strong connection between population decline and decline in habitat quality, as reflected in decreased ground cover and/or increased canopy cover between surveys. The response of a population to decline in habitat quality may depend on initial habitat structure, the degree of change in habitat structure, the period of time over which change is measured, the amount of habitat involved, and the level of habitat management.

**Kimberly M. Andrews and Gibbons, J. Whitfield.** 2005. How do highways influence snake movement? Behavioral responses to roads and vehicles. *Copeia* 2005:772-782.

*“Identifying direct and indirect effects of roads on snakes is essential for mitigating road impacts...”*

Roads affect animal survivorship and behavior and thereby can act as a barrier to movement, which exacerbates habitat fragmentation and disrupts landscape permeability. Field experiments demonstrated that interspecific differences in ecology and behavior of snakes affected responses of species when they encountered and crossed roads. The probability of crossing a road varied significantly among southeastern U.S. snakes, with smaller species exhibiting higher levels of road avoidance. Species also differed significantly in crossing speeds, with venomous snakes crossing more slowly than nonvenomous ones. All species crossed at a perpendicular angle, minimizing crossing time. A model incorporating interspecific crossing speeds and angles revealed that some species cannot successfully cross highways with high traffic densities. Individuals of three species immobilized in response to a passing vehicle, a behavior that would further prolong crossing time and magnify susceptibility to road mortality. Identifying direct and indirect effects of roads on snakes is essential for mitigating road impacts and for designing effective transportation systems in the future.



## GENERAL ANNOUNCEMENTS AND PRESS RELEASES

**2006 Joint Meeting of Ichthyologists and Herpetologists**

Tulane University, the University of New Orleans and local committee members from Loyola University of New Orleans and Southeastern Louisiana University invite you to the Joint Meeting of Ichthyologists and Herpetologists (JMIH) to be held at the Sheraton New Orleans Hotel at 500 Canal Street, July 12-17, 2006. The JMIH includes the 22nd annual meeting of the American Elasmobranch Society, the 86th annual meeting of the American Society of Ichthyologists and Herpetologists, the 64th annual meeting of the Herpetologists' League and the 49th annual meeting of the Society for the Study of Amphibians and Reptiles.

Since the hurricane, the New Orleans Convention & Visitors Bureau and the chosen reception and picnic venues have maintained their commitment to providing JMIH with the highest quality meeting experience. The French Quarter, the Central Business District, the Warehouse and Arts District, and other key tourism areas are experiencing lively activity as residents and business owners return to welcome visitors. The city and the venues will be ready and are happy to have us. In recognition of the recovery progress and as a show of support for the rebuilding process, JMIH will hold the 2006 meetings in New Orleans as scheduled.

Don't miss this opportunity! The Local Host Committee remains enthusiastically committed to the conference, and we look forward to seeing you in New Orleans, which will always be the birthplace of jazz, the home of unique French and Spanish architecture, and a destination for world-renowned cuisine.

This is how the Zagat Survey (2004) described the culinary scene in New Orleans: "The Big Easy is one of the most food- and entertainment-centric cities in the U.S. Fortunately, it is also one of the country's most affordable. In fact, the average price here is well below the national mean." There are numerous restaurants, cafés, grills and bistros listed in the Zagat that are within walking distance from the Sheraton Hotel. These cover the entire range from inexpensive to very expensive. However, even some of the most expensive places have summer luncheon specials under \$10. Many establishments offer substantial good quality meals for \$6-7, including all the major fast-food chains.

If you thrive on heat and humidity, you might want to take a tour of some of the surrounding wetland areas that amazingly still support a high diversity of animals and plants. Jean Lafitte National Historical Park and Preserve offers a high and dry walking tour of swamp and bayou environments, as well as up close observations of its denizens. Plantation tours can be arranged easily from the hotel and trips can be planned to the Chalmette Battlefield where the "Battle of New Orleans" was fought during the War of 1812.

We expect a large turnout of members and their families for the Joint Meetings in 2006. We anticipate that the quality of scientific interactions and presentations will be as high as the level of social interactions and experiences in "America's Most Unusual City". Again, on behalf of our hosting universities and the local committee, welcome to New Orleans. Laissez les bons temps rouler.

For more information, please visit: <http://www.dce.ksu.edu/jointmeeting/index.shtml>

*"The Big Easy is  
one of the most  
food- and  
entertainment-  
centric cities in the  
U.S..."*

## Royal Turtle Saved

Associated Press

An endangered Cambodian turtle was returned to the wild Friday, nearly six months after authorities saved it from becoming a meal in a Chinese restaurant, official said.

Known locally as the "Royal Turtle" in Cambodia because its eggs were once fed to kings, the turtle was released into a river in southwestern Cambodia during a ceremony attended by local and foreign wildlife conservationists, said Heng Sovannara, director of turtle conservation project at Cambodia's Agriculture Ministry.

The turtle appeared healthy and gained one kilogram (2.2 pounds) following six months of treatment for a variety of ailments, officials said. "He was in excellent shape and strong. He swam quickly away once we put it in the river," Heng Sovannara said. "He did not even raise his head to look back. No bye, bye."

The turtle was recovered six months ago along with 30 other common species during a raid on the smuggler's house in southern Vietnam's Tay Ninh province. Noticing the Royal Turtle was bigger than the rest, wildlife officials consulted an endangered species book and realized that it was a *Batagur baska* or Asian river terrapin.

The *Batagur baska* was thought to have disappeared in Cambodia until it was rediscovered in 2001. Conservationists eventually began tagging the animals with tracking devices and monitoring their nests, and King Norodom Sihamoni personally ordered their protection.

When officials inspected the turtle in Ho Chi Minh City, they found a tiny microchip implanted under its wrinkly skin, pinpointing its exact home on the Sre Ambel River in southern Cambodia. Vietnamese and Cambodians officials worked together to repatriate the turtle. Conservationists have said there are only about two to eight females remaining there, making the return of this adult male turtle even more vital. It had been tagged in Cambodia for research two years ago but not seen again until its discovery in Vietnam.

Many Asian turtles are in danger because of the thriving trade in animals in the region, where a species' rarity can add to its value in soups in China or as a traditional medicine.

### Note:

Heng Sovannara (mentioned in article) was one of the participants in the Gopher Tortoise Council's Visiting Southeast Asian Turtle Researcher Project coordinated by past co-chair George L. Heinrich. For more information, visit the GTC website at [www.gophertortoisecouncil.org](http://www.gophertortoisecouncil.org)



## Wood Turtle Habitat Protected

Madison Eagle (Max Pizzaro)

The threatened wood turtle, *Glyptemys insculpta*, appears to have driven a stake into the heart of plans by Chatham Borough and Chatham Township to develop two playing fields on the Woodland Park property off Woodland Road, adjacent to the Independence Court neighborhood in Madison, New Jersey.

On December 12th, the state Department of Environmental Protection (DEP) classified a portion of the site as "exceptional" wetlands for their habitat value, requiring a 150-foot buffer from any development, and effectively blocking the plan to install two playing fields on the 6.6-acre site. Officials in the Chathams indicated wood turtle sightings filed by a consultant for Madison neighbors prompted the DEP's decision, and the wider wetlands buffer would make it impractical to develop more than one playing field on the property.

Mark Godfrey, supervisor for the Bureau of Inland Regulation, said information submitted to the DEP was accurate in its delineation of the wetlands area on the wooded property and, "the department has determined that the wetlands designated as 'C' and 'CA' are of exceptional resource value and require a 150-foot transition area or buffer." He added, "All other wetlands on site are of intermediate resource value and require a 50-foot transition area or buffer."

Thomas Ciccarone, the Chatham Township administrator, said two reported sightings of a wood



turtle, one near the tract in a utility right-of-way, and the other on the Woodland Park property itself, convinced the state to designate the wetlands as "exceptional," requiring a much wider buffer from disturbance. The Wood Turtle is considered threatened in New Jersey.

Chatham Township and Chatham Borough, which jointly own the tract, had planned to develop two recreation playing fields on the site, but the required-150-foot-

wide buffer zone renders that plan impossible, local officials said. For nearly two years, the Madison residents have argued the Chathams did not appreciate the extent of wetlands on the tract when they jointly purchased the property in 2002, and altered their original plans to push the proposed location of the playing fields to just 40 feet from back yards on Independence Court in Madison. The residents said that was too close to shield their homes from the fields and associated lights and parking lot and protested the loss of a quiet woodland. "This is a victory for the environment," Rothauser said Tuesday, December 13th, on learning of the DEP's response to the municipalities.

The Chathams jointly purchased the former residential property off Woodland Road in 2002, splitting the \$1.6 million cost equally, with the help of a \$250,000 open space grant from Morris County, state Green Acres funds and the open space funds of the two municipalities.

## Southeast Turtles Protected

## U.S. Fish and Wildlife Service Press Release

The alligator snapping turtle, *Macrochelys temminckii*, and all species of map turtles, which are native to the United States, are being given international protection, effective June 14, 2006, by their addition to Appendix III of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES). The listing, which will allow the U.S. Fish and Wildlife Service to work with States to regulate exports, marked the first time the U.S. has used Appendix III to protect native species.

The alligator snapping turtle, the largest freshwater turtle in the world, is found in Alabama, Arkansas, Florida, Georgia, Illinois, Indiana, Iowa, Kansas, Kentucky, Louisiana, Mississippi, Missouri, Oklahoma, Tennessee and Texas. The species is protected on State endangered species lists in Indiana and Illinois. The alligator snapping turtle is a species of concern due to several factors including: loss of habitat and collection from the wild for human consumption and for export as pets.

There are 12 species of North American map turtles, which range from Florida to Texas, as well as North Dakota, South Dakota and parts of Quebec, Canada. Two species of map turtles are on the Federal list of threatened species and a third map turtle is a candidate species for Federal listing. Several other map turtle species are on State endangered and threatened lists. Map turtles are vulnerable for many reasons; some currently known threats to the species include loss of habitat, exposure to contaminants, and collection for the pet trade.

*“The alligator snapping turtle and all species of map turtles...are being given international protection...”*

Some 168 countries, in addition to the United States, are signatories to CITES, which provides for a system of permits and certificates to monitor and regulate international trade in wild animals and plants. A CITES member nation may include a native species in Appendix III if it determines that cooperation of other CITES countries is needed to monitor and control trade.

"Wild populations of these turtles continue to decline, in part because of their popularity as both food and pets," said Service Director Dale Hall. "Working in close partnership with the States, we determined that an Appendix-III listing would allow us to reinforce State protections for these species and provide key trade information to better conserve these vulnerable species."

The Appendix-III listing of these species, published in today's Federal Register, requires a CITES export permit issued by the Service for all shipments of live specimens or products containing the turtle species. An export permit may be issued only for turtles collected in accordance with all Federal, State and local laws. Other CITES countries will only allow imports from the United States when shipments are accompanied by a valid U.S. export permit, and will only allow re-export of certified shipments. The CITES listing has no direct effect on any activities taking place within a State.

The U.S. Fish and Wildlife Service is the principal Federal agency responsible for conserving, protecting and enhancing fish, wildlife and plants and their habitats for the continuing benefit of the American people. The Service manages the 95-million-acre National Wildlife Refuge System, which encompasses 545 national wildlife refuges, thousands of small wetlands and other special management areas. It also operates 69 national fish hatcheries, 64 fishery resource offices and 81 ecological services field stations. The agency enforces federal wildlife laws, administers the Endangered Species Act, manages migratory bird populations, restores nationally significant fisheries, conserves and restores wildlife habitat such as wetlands, and helps foreign governments with their conservation efforts.

## John Behler

## Obituary

John Behler served as Curator of the Herpetology Department from 1976-2005 at the Wildlife Conservation Society's Bronx Zoo. He also served as the Program Coordinator for the Wildlife Conservation Society's Wildlife Survival Center on St. Catherine's Island, Georgia. Behler started his career with the Wildlife Conservation Society as a New York State Council on the Arts curatorial trainee in 1970.

Behler assumed leadership positions in the development of captive breeding programs for endangered and threatened crocodylians, tortoises, and freshwater turtles. Through his efforts, batagur turtles and false gharials successfully bred in captivity for the first time at the Bronx Zoo. He received the American Zoo and Aquarium Association's (AZA) Edward H. Bean Award in 1980 for most significant reptile birth for his work with Chinese alligators. Behler's interests also focused on the ecology and behavior of reptilians and reptilian diseases. He had also done extensive field studies of the tortoises of Madagascar and of North American spotted and bog turtles.

Among his many conservation affiliations, Behler chaired the World Conservation Union's Tortoise and Freshwater Turtle Specialist Group and was a member of the Convention on International Trade in Endangered Species (CITES) Turtle Trade Working Group. He was a former coordinator of the AZA's Crocodylian Advisory Group and was a member of the AZA's Chelonian and Lizard Taxon Advisory Groups. Behler worked closely with the New York State Department of Environmental Conservation's Endangered Species Unit and the U.S. National Park Service. He served on his community's Conservation Board and on the Westchester County Environmental Management Council.

Behler received a Bachelor's degree in Zoology/Botany from the University of Miami and a Master's degree in Biological Sciences from East Stroudsburg University. A native of Pennsylvania, Behler resided in Amawalk, New York with his wife.

The following announcement was prepared by the Wildlife Conservation Society:

The Board of Trustees and Staff of the Wildlife Conservation Society are profoundly saddened by the death of our esteemed colleague, John L. Behler. As Curator of Herpetology, Behler began his WCS career in 1970 in the Reptile Department as an intern. John's knowledge and love of wildlife included working with WCS field staff on related projects in Madagascar and Asia and is known and appreciated worldwide. His work exemplified the long history of WCS setting standards for others to follow. He assumed a leadership role among his peers in groundbreaking captive breeding programs for endangered crocodylians, tortoises, and freshwater turtles and also focused on the ecology and behavior of reptilians.

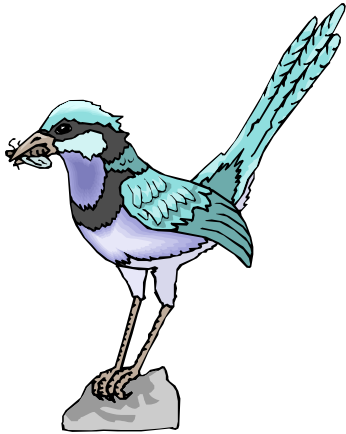
John's quick wit, charm and dedication allowed him to share his life's work with many. Among his numerous affiliations, John was a founding member of the American Zoo and Aquarium's Crocodylian Advisory Group and worked closely with the NYS Department of Environmental Conservation's Endangered Species Unit. Likewise, Behler served his community on the Sommers Conservation Board and Muscote Farm Nature Center in Westchester County Park.

Behler authored more than 40 popular scientific articles, five guidebooks highlighting reptilians and amphibians and co-authored a book "Frogs - A Chorus of Colors" with his wife Deborah Behler.



## Scrub Jay Status Review

USFWS



The U.S. Fish and Wildlife Service (USFWS) announced its plans to conduct a 5-year status review of the Florida scrub-jay, *Aphelocoma coerulescens*. This periodic 5-year review is conducted to ensure that listing classifications under the Endangered Species Act (ESA) are accurate.

Any interested party is invited to provide information and comments pertaining to this species. Specifically, this review seeks information on: (1) species biology, including population trends, distribution, abundance, demographics, and genetics; (2) habitat conditions, including amount, distribution, and suitability; (3) conservation measures that have been implemented; (4) threat status and trends; and (5) other new information, data, or corrections, including taxonomic or nomenclatural changes, identification of erroneous information contained in the ESA list, and improved analytical methods. Written comments and information may be sent: via email to [floridascrubjay@fws.gov](mailto:floridascrubjay@fws.gov), sent via regular mail to U.S. Fish and Wildlife Service, Attn: Florida Scrub-Jay 5-Year Review, 6620 Southpoint Dr. South, Suite 310, Jacksonville, Florida, 32216, or faxed to (904) 232-2404.

Written comments and information related to this 5-year review must be received by April 5, 2006

The Federal Register notice announcing this status review of the Florida scrub-jay, as well as a list of Frequently Asked Questions, is available online at <http://www.fws.gov/northflorida>.

## Funding for Woodpeckers

USFWS

Deputy Interior Secretary P. Lynn Scarlett said today the President is requesting more than \$2.1 million to bolster the recovery effort for the endangered Ivory-billed woodpecker, *Campephilus principalis*. Scarlett stated that, "As the search of more than 550,000 acres intensifies, this funding will play a critical role in helping us ensure this second chance is not wasted. The work that is being done today will have lasting conservation benefits for this woodpecker, migratory birds and wildlife throughout the valley."

Scarlett said the funding will benefit at least 28 species in the region in addition to this species of woodpecker, which had been thought to be extinct for more than 60 years before the April 28, 2005 announcement of its rediscovery at Cache River National Wildlife Refuge in the bottomland hardwood forests known as the Big Woods of Arkansas. The first draft of a recovery plan for the woodpecker is expected to be available for public comment in Sept. 2006.

The President is requesting \$1.6 million for recovery planning, \$396,000 for monitoring work the Lower Mississippi Valley Joint Venture is beginning, and \$197,000 for law enforcement, for the fiscal year that begins Oct. 1.

In addition to announcing the FY 2007 request for more than \$2.1 million, Scarlett also announced that three prominent conservation organizations in Arkansas and Mississippi would share \$800,000 made available through the agency's Private Stewardship Grants program for FY 2006. The money will be used to bolster private lands conservation in the Lower Mississippi Valley to benefit the woodpecker and other wildlife.

The Private Stewardship Grant program is an incentive-based program aimed at providing financial

assistance to private landowners who want to conserve habitat to benefit wildlife listed as threatened or endangered by states or the federal government. The program is cost-shared with a variety of conservation partners and private landowners.

The following projects have been selected for private stewardship grants:

The Nature Conservancy, Arkansas Chapter (\$380,950). The Nature Conservancy will restore 440 acres of agricultural field to native bottomland hardwood wetland habitat for the Ivory-billed woodpecker and other targeted species. The project involves hydrological restoration of the lower stream reach of Benson Creek to its natural flow regime. This project site is adjacent to public lands where the Ivory-billed Woodpecker sightings have been confirmed or are anticipated to occur. When completed, the existing agricultural crop fields and associated ditch will be restored to a natural stream channel, riparian wetland vegetation and associated bottomland hardwood forest. The project will be monitored and used as a demonstration site to help inform nearby private landowners about restoration techniques.

The Nature Conservancy, Arkansas Chapter (\$71,269). The Arkansas Chapter of The Nature Conservancy will work in collaboration with private landowners to enhance 350 acres of foraging habitat for the Ivory-billed Woodpecker. This project will utilize various treatments (e.g., girdling, prescribed burning) to increase the number and length of time a recently dead or dying tree may be valuable to the woodpecker for foraging. The Nature Conservancy and landowners will work together to determine the treatment method and size of the project as well as monitor the results. Information on improving habitat for the woodpecker will be developed and provided to private landowners.

The Mississippi River Trust (\$100,000). The Mississippi River Trust will work with a number of partners to restore 500 acres and enhance 2,000 acres of habitat to increase the food supply for the Ivory-billed Woodpecker. This partnership project involves contributions from the Natural Resources Conservation Service, Environmental Defense, The Carbon Fund and BASF Corporation to enhance habitat for the Ivory-billed woodpecker and to protect areas of old-growth timber. Demonstration areas will be established and field days conducted to reach out to private landowners. Efforts will be made to place safe-harbor agreements on all acres involved in the project.

National Audubon Society, Audubon Arkansas (\$247,781). Audubon Arkansas proposes to work with private landowners to conduct restoration activities to improve habitat for the Ivory-billed Woodpecker. This project involves reforestation of cleared and degraded sites and forest habitat improvement on approximately 2,000 acres. Activities will include bottomland hardwood tree planting, prescribed burning, thinning and exotic species control within 35 miles of where the bird was initially seen.



## Conservation Views

The views expressed in this column are solely those of the author(s) and do not necessarily represent the position of the Gopher Tortoise Council. To respond to this column or submit your own view on a current conservation issue, please contact the editor.

### The following is an editorial, "Growth and the Gopher Tortoise" published in the St. Petersburg Times on 1/1/06:

They are slow, so homely they're cute and their hygiene leaves something to be desired. Yet Florida's gopher tortoises are developing a national following. Credit the Lake Park Five, who gave their lives for the cause. It must have seemed like an insignificant obstacle: five burrows on land Wal-Mart intended for a new store in Lake Park. The retail giant could have relocated the tortoises, which are a "species of special concern" and therefore protected (somewhat) by the state. Instead, Wal-Mart chose to pay \$11,409 for a state permit to entomb the tortoises under the store's foundation, benignly dubbed an "incidental taking."

Wal-Mart is no stranger to controversy, but it probably didn't anticipate such a backlash to the deaths of five lethargic burrow-dwellers. The Humane Society of the United States took up the cause, bringing nationwide denunciation of the corporation's decision to condemn the tortoises to a slow death by starvation or asphyxiation. Now the company promises to "do a better job" of looking for an alternative the next time.

Wal-Mart isn't the only villain. In the past 14 years, the Florida Fish and Wildlife Conservation Commission has approved the destruction of 74,000 gopher tortoises to make way for development. The commission has also allowed more than 50,000 of them to be moved elsewhere.

*"It must have seemed like an insignificant obstacle: five burrows on land Wal-Mart intended for a new store in Lake Park..."*

Relocation sounds like the more humane choice, and it should be. But just digging up a burrow and releasing the tortoise elsewhere falls far short of ensuring its survival. Given their slow-motion lifestyle, it is difficult for tortoises to find a mate or food, escape traffic or adapt to change. They need dry sandy soil (also a favorite of developers) and because they commonly suffer from respiratory disease, their introduction into a different tortoise colony could further endanger the species. Gopher tortoises are found only in the Southeast corner of the country, with Florida being their largest range. Not only are they fascinating creatures, but their burrows are used by other species, including owls and armadillos. Most importantly, they are a unique part of natural Florida, which is in danger of disappearing.

Development isn't going to stop, so the state needs to do a better job of protecting gopher tortoises. It has used the permit money to create nine protected habitats, but more energy should go into relocation. The Humane Society of the United States recommends post-release monitoring of gopher tortoises, which isn't currently required. That way, the state would know which techniques and locations work. Also, "soft releases" should be mandatory, meaning that rather than leaving tortoises to fend for themselves, they should be kept in a confined area and fed until they adapt to their new surroundings.

Those requirements aren't too much to ask of Wal-Mart and other developers. At least the conservation commission seems to have gotten the message. It has assembled a group made up of individuals and organizations interested in the issue. Together, the group and the commission should develop new guidelines to better protect the species. Florida shouldn't wait for another Lake Park Five to shame the state into action.



**In response to the preceding editorial, George L. Heinrich submitted the following to the St. Petersburg Times:**

While I am pleased to see the St. Petersburg Times address the conservation needs of this declining state-listed species, I would like to comment on some of the misconceptions that can be caused by taking such a strong pro-relocation position. I have worked as a turtle biologist and conservationist for twenty years and have long maintained the position that relocation of gopher tortoises has little to no conservation value. Environmental consultants that specialize in relocation will argue to the contrary, and considering the amounts of money to be made in this game of musical tortoises I can understand their position. The fact is that this half-way technology does little to conserve the species or its associated upland habitats. As your editorial pointed out, gopher tortoise relocation is difficult. I would like to add that on-site relocations (to a different section of the land slated for development) result in the concentration of tortoises into small fragmented habitats that are often difficult, if not impossible, to manage. Off-site relocations can contribute to the introduction of diseases, disrupted social behavior, skewed sex ratios, and mixed genetic populations. From an economic perspective, relocation is both costly and labor intensive. However, a greater ecological concern is that this activity only moves one component of the ecosystem. Why is it that there is little concern about the fate of the other species, both faunal and floral, that occur in the same community? While the gopher tortoise is both a keystone and umbrella species, it is absurd for us to think that we are saving the species by moving individual animals. Unfortunately, this so-called solution does nothing to conserve the species overall. Furthermore, there is a net loss of habitat.

*“...it is absurd for us to think that we are saving the species by moving individual animals...”*

I agree that incidental take permits often lead to entombment of tortoises and it is hard to believe that we, the public, allow this horrific activity to continue. Although research indicates that many tortoises are able to dig themselves out of sandy soils, that is only possible when there is not a layer of concrete or asphalt present. That aside, incidental take permits have allowed the Florida Fish and Wildlife Conservation Commission (FFWCC) to develop and fund a Mitigation Park Program over the past sixteen years. This program purchases and protects intact functioning upland habitat with gopher tortoises already present. To be fair, inadequate compensation paid by developers for loss of habitat has economically limited the total acreage purchased.

The debate over relocation vs. incidental take has gone on for many years and will likely continue even when the FFWCC implements their new species management plan. The public needs to become more vocal and insist that a real conservation effort be initiated for this species. The best thing that we can do for gopher tortoises is to seriously address uncontrolled human population growth and the resulting rampant rate of development of our remaining upland habitat. The development of more stringent laws regarding the protection of tortoises and their associated habitats would be a good start.

In addition, upland ecosystems play a significant role in the hydrologic cycle, and their protection is pivotal to the success of water conservation efforts. The question that we should be asking ourselves is whether should we be developing upland habitats at all.



George L. Heinrich owns and operates Heinrich Ecological Services ([www.heinrichecologicalservices.com](http://www.heinrichecologicalservices.com)), a St. Petersburg-based company conducting wildlife surveys and research, natural history programming, and nature-based tours. A graduate of Memphis State University, his interests include southeastern upland and brackish coastal ecosystems, impacts of roads and automobiles on wildlife communities, and the role of education in conserving herpetofauna. He has worked for a number of years on the conservation of gopher tortoises and has studied the ecology and conservation needs of diamondback terrapins as part of a University of North Florida research team since 1995. George served twice as co-chair of the Gopher Tortoise Council and is the founding president of the Florida Turtle Conservation Trust. He can be contacted at [info@heinrichecologicalservices.com](mailto:info@heinrichecologicalservices.com)

## GOPHER TORTOISE COUNCIL ANNOUNCEMENTS

### Gopher Tortoise Council Business Meeting

M. Rebecca Bolt

The Spring Business meeting will be held in Gainesville on Friday, 21 April, at 5:30 p.m. Business meetings are open to all members and your participation is important, particularly if you are an officer, state representative, or serve on a committee. This will be a dinner meeting at a local restaurant, location to be determined by the number of responses received. If you plan to attend, please RSVP to me at [boltmr@kscems.ksc.nasa.gov](mailto:boltmr@kscems.ksc.nasa.gov) by 7 April. We will need to be as accurate with the head count as possible, so mark your calendar and make your commitment now.

Regardless of whether you can come to the meeting or not, forward appropriate agenda items to me as well by 7 April. If the item is complicated or controversial, please plan to present the item yourself or send a representative.

Please try to come to the meeting if at all possible and help us keep our good work moving forward. If you need lodging or anything else to make your attendance possible or more pleasant, do not hesitate to let me know.



### From the Editor

David A. Steen

Are you still receiving a hard copy newsletter? If this is the case, we likely do not have a valid e-mail address for you. Please consider contacting the membership secretary, Bill Knox, at [wknnox55@bellsouth.net](mailto:wknnox55@bellsouth.net) with your contact information. The transition to an all electronic version will allow the Gopher Tortoise Council to reduce the ecological and monetary cost of producing the newsletter while simultaneously expanding the content.

Please consider submitting material for publication in the Gopher Tortoise Council Newsletter. In addition to announcements and annual reports from state representatives and committee members, two types of submissions are available:

**Article:** Generally a research summary or review concerning upland habitats and associated species in the southeast. However, topics need not be specific to a particular system or species. For an example, please see Joel Strong's article on Amazonian tortoises on page two.

**Conservation Views:** These are opinions or editorials regarding a current conservation issue, preferably within the southeast. The purpose of this section is to provoke thought and stimulate debate while educating the membership regarding an issue they may not be fully aware of. For an example, please see George Heinrich's piece on page 16 or Matt Aresco's column in the previous issue (page 12).

If you have ideas for alternate types of submissions or have questions or comments regarding potential contributions or the newsletter in general, please contact me at [DSteen@gophertortoisecouncil.org](mailto:DSteen@gophertortoisecouncil.org)

## *Newsletter of The Gopher Tortoise Council*

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Directory of Gopher Tortoise Council Officers, Committee Chairs, and State Representatives  
Please view the GTC website (below) for contact information

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## **The Tortoise Burrow**

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<http://www.gophertortoisecouncil.org>

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

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