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Notes From a Co-Chair**Margaret Gunzburger**

This year's annual meeting, hosted by Mitch Lockhart at Valdosta State University on October 26-28, was a great success! Our business meeting Thursday evening was well attended and we lined up two new officers, Don Stillwaugh to replace Cyndi Gates as treasurer and myself as the new Florida co-chair. I'd like to thank Cyndi for her many years of service to the Gopher Tortoise Council (GTC) and Becky Bolt for a great job as co-chair! The meeting officially began on Friday morning at beautiful Powell Hall on the VSU campus. The special symposium this year focused on the impact of invasive species on coastal plain uplands, and we learned about a wide range of topics, from fire ants to cogongrass, *Imperata cylindrica*, to a new introduced species in Florida, tegu lizards, *Tupinambis merianae*. Invasive species are among the primary threats facing the upland habitat of the gopher tortoise, and this symposium opened my eyes to the many different ways of combating these invaders. Friday and Saturday night socials were held at the Rainwater Convention Center in Valdosta. Saturday was filled with more interesting talks on many aspects of southeastern upland and wetland ecosystems. I have to say that the most entertaining talk I've ever seen at a GTC meeting was Boyd Blihovde's presentation of his new method of "fishing" for gopher frogs, and I'm sure we'll all hope for updates on this method at future meetings. For the full 2006 schedule of speakers, visit <http://www.gophertortoisecouncil.org/events.php>.



2006 meeting: Boyd Blihovde details how to catch gopher frogs. Photo courtesy of Steve Johnson.

This year has the potential to be an important year of change for gopher tortoise conservation, especially in Florida. After many years of continued declines of tortoise populations, the Florida Fish and Wildlife Conservation Commission and the stakeholder group, of which GTC is a member, are doing their best to reach a solution that will achieve real conservation goals. GTC is working as hard as ever to promote education, research and conservation of the gopher tortoise, and this year we were helped by several significant monetary donations. With these donations we expanded the education grant program and funded an additional graduate research grant. GTC is also planning to develop a new brochure and sign to educate the public about tortoise ecology and conservation. There are always opportunities for members of the GTC to help with our activities; please contact me or any of the other officers listed on our website if you'd like to help. (Cont. on page 8)

CONTRIBUTED ARTICLES

Tortoises and Roads

David Steen and Lora Smith

The gopher tortoise, *Gopherus polyphemus*, has endured numerous hardships: the fragmentation and reduction of the longleaf pine ecosystem, which serves to reduce the amount of suitable habitat for the species; the introduction of red-imported fire ant to the southeast, an efficient and ruthless predator of hatchling and juvenile tortoises; and the Great Depression, which can take credit for bestowing the nickname ‘Hoover Chicken’ on the hapless reptile, among others. But perhaps the most insidious threat to the continued persistence of the gopher tortoise today is an ever increasing feature of our landscape: roads. We are only beginning to fully realize the effects of roads and cars on freshwater turtles, should we be now taking a closer look at how our highways are influencing populations of terrestrial species?

Gopher tortoises, like many other turtles, are characterized by low annual reproductive rates, long lives, and delayed sexual maturity. Researchers estimate that females can’t produce young until they are 15-20 years old. When a turtle reaches sexual maturity, it doesn’t have many predators, due to their large size and effective hiding spots: their burrows. The eggs and juveniles aren’t so lucky, between raccoons, hawks and fire ants, many are eaten before they even reach their first year. Fortunately, many young are produced over a turtle’s lifetime, so the odds are that some of the hatchlings will reach adulthood. This means that adult turtles, and females in particular, are much more valuable to the persistence of a population than juveniles. If a large number of young produced over an individual’s lifespan are necessary to ensure that a few survive, a female turtle must live many years to replace herself in a population.

In addition to the larger issue of habitat loss to development, roads may be a major factor contributing to the decline of gopher tortoise populations due to the tendency of adult turtles to be killed by cars. Gopher tortoises rely on cryptic coloration (camouflage) or escape to a burrow when threatened, and these strategies offer no protection at all against motor vehicles. It is not known what level of mortality would be sustainable, but in other turtles with similar life history characteristics, only slight increases in mortality are sufficient to lead to localized extinctions, or extirpations. Gopher tortoises are frequently found on roads, suggesting that it is doubtful that individuals see the pavement as a barrier to dispersal. Furthermore, fire suppression in tortoise habitat may force them to seek open areas such as roadsides for basking and suitable nest and burrow sites. Consequently, roads may be serving as

“...roads may be a major factor contributing to the decline of gopher tortoise populations due to the tendency of adult turtles to be killed by cars.”

“ecological sinks” for tortoise populations, meaning that these populations are continually declining due to individuals being drawn to, and killed on, roads. Is it only a matter of time before all the gopher tortoises in a particular area are struck by cars when a road runs through their habitat?

The carapace of a gopher tortoise is strong, but it is unfortunately no match for an automobile, and the total number of tortoises killed each year on the road is unknown. Many motorists are accustomed to be on the lookout for deer and other large wildlife when traveling, and it is often too late to avoid hitting a tortoise on the road by the time it is noticed, particularly on our busier highways. Although tortoises can actually move a lot faster than they are given credit for, dodging traffic is not an ability that they possess.

At the Joseph W. Jones Ecological Research Center in southwest Georgia, we have been periodically looking at the attributes of gopher tortoises found on roads for the last several years. This enables us to determine if a particular age or sex is more vulnerable to road mortality. During the course of our observations, we have found 56 tortoises on local roads. Of these observations, there were 38 males, 15 females and 3 juvenile tortoises recorded. From our data, one might assume that the sex ratio of the tortoise population in our area is heavily biased towards males.

However, the home ranges of male turtles are known to be larger than those of females, it may be that males simply move more, making them more vulnerable to roads. There were also relatively few juveniles recorded, suggesting that either there aren't many juveniles in the area, compared to adults, or perhaps their limited movements don't expose them to roads in the same proportion as adults.

There are a number of questions to be answered pertaining to the effects of roads on gopher tortoises, particularly given the rate of development throughout the southeast. Although, there has been some research conducted on desert tortoises, *Gopherus agassizii*, in the southwest, it is unknown how applicable this work is to our native tortoise. Can a road constructed through suitable gopher tortoise habitat eventually lead to the loss of a population? What are the potential effects of males being selectively killed on the roads due to their relatively long-distance migrations? Females may find roadsides or dirt roads suitable for nesting, what is the survival rate of eggs and hatchlings in this environment compared to more natural habitats and do the temperature differences affect egg development? What are the genetic ramifications when the individuals of a population have a limited ability to disperse due to high rates of mortality sustained when searching for mates?

Once we've determined how roads are affecting gopher tortoises, it is imperative to investigate how we might mitigate for these effects. For example, is road mortality damaging turtle populations to such an extent that selective road closings are warranted? Or perhaps there are options such as building culverts under roads to facilitate safe movements. Barrier walls may be effective in keeping wildlife, such as tortoises, off roads, but unless they are given an alternative means of crossing, this may lead to the reduction of gene flow between populations. There is much left to learn about the various threats facing gopher tortoise populations throughout their range. The effects of roads on tortoise populations may influence the continued persistence of the species and should be examined in closer detail. We strongly encourage investigators to conduct future research on this topic. In particular, we would like to see well-designed experiments testing the effectiveness of various potential mitigation measures such as different types of culverts, overpasses, and underpasses.



A gopher tortoise crosses a highway in Southwest Georgia



David A. Steen has been the lead research technician of the herpetology laboratory at the Joseph W. Jones Ecological Research Center at Ichauway since 2004. He obtained his Bachelor of Science in Zoology from the University of New Hampshire in 2001 and his Masters degree in Ecology and Conservation Biology from the State University of New York-College of Environmental Science and Forestry in 2003. His thesis described the effects of roads on turtle populations. His current research interests generally pertain to the ecology and conservation biology of vertebrates, particularly snakes and freshwater turtles.



Lora L. Smith has been an assistant scientist at the Joseph W. Jones Ecological Research Center since 2001. She received her Bachelor of Science degree from Eckerd College in 1982 and her Masters degree in Wildlife Ecology and Conservation from the University of Florida in 1992. Her Masters research focused on the reproductive ecology of gopher tortoises in north central Florida. For her Ph.D. she studied the status and ecology of the ploughshare tortoise in Madagascar. After completing her Ph.D., she worked for the U.S. Geological Survey as a wildlife biologist. Her research while at U.S.G.S. included an assessment of the effectiveness of an ecopassage for wildlife at Paynes Prairie State Preserve in north Florida. Her research interests include conservation biology of pond-breeding amphibians and management of longleaf pine forests for amphibian and reptile diversity.

The Gopher Tortoise Council appoints one member from each state within the range of the gopher tortoise to serve as a representative of the Council. Each year, these representatives present their reports.

2006 Mississippi State Report

Tom Mann

As Lohofener and Lohmeier stated in their 1984 report on research presented in conjunction with the petition to list the tortoise west of the Mobile River, “gopher tortoises only occur in Mississippi today because: (1) they are a long-lived species and (2) gopher tortoise populations in the past were much greater. Functional extinction of the gopher tortoise in Mississippi is believed to be imminent and perhaps irrevocable.” Despite state listing in Mississippi in 1984 as endangered, and federal listing in 1987 as threatened, this prediction remains on the mark. *Gopherus polyphemus* remains with us because it is a very long-lived animal. This may be, with respect to maintenance of an ecologically significant tortoise presence on the landscape, the last tortoise generation in Mississippi unless we can soon alter critical components of the population growth equation in their favor.

Another year has passed without measurable progress toward recovery of the tortoise, and future indicators are not positive, even on the large blocks of federal land where long-term prospects should be best. Ed Wester’s surveys at Camp Shelby (1988-2004) and on excessively well-drained “priority” soils on the DeSoto National Forest (DNF) (1995 and 2002) reveal a continued decline of gopher tortoises on the best-managed federal lands in Mississippi, and chronic low recruitment. The decline is most precipitous at Camp Shelby, where most tortoises occur in well-drained soils with a significant clay component.

Ed ascribes the decline at Camp Shelby and on the DNF priority soil colonies primarily to habitat degradation. The genuine growing season burns necessary to control proliferation of brushy species have been too seldom employed, although the burning program was improving prior to Hurricane Katrina. However, the decline at Camp Shelby cannot be attributed entirely to habitat degradation, since the tortoise population at a comparatively well-managed tortoise refuge, has also declined significantly. Deborah Epperson’s work at Camp Shelby indicated how mammal and non-native fire ants predation on hatchlings and young juveniles could suppress recruitment. Deborah and I continue to believe that this issue is underappreciated. In particular, we hypothesize that the invasive, exotic fire ant is a more effective predator on the heavier soils typical of most tortoise habitat in Mississippi, that the tortoise recruitment deficit will be highest on such soils, and that tortoises will disappear there first. If the ant is a significant barrier to recovery, measures needed to circumvent its impact may necessitate a major shift in recovery priorities.

Several lines of evidence also indicate that a substantial percentage (30-35%) of tortoise eggs deposited at Camp Shelby may be non-viable. If this figure is confirmed through additional work, it may be attributed to inadequate mating frequency, inbreeding bottlenecks, or a senescent population. Resolution of any of these issues would require a radical overhaul of recovery strategy, particularly if necessary elsewhere in the DNF Forest and on private lands.

After Katrina, the resources of the DNF were shifted to salvage logging instead of implementation of essential controlled burning. Consequently, we have lost an entire year in the struggle against woody brush and native, mesic tree proliferation. Furthermore, cogongrass was certainly distributed more widely during salvage operations. A severe, protracted drought set in during the spring of 2006, so burning programs, already hampered by lack of manpower and the presence of high fuel loads, were essentially put on indefinite hold. However, DNF personnel did conduct tortoise surveys on all of the salvage logging sites, so distribution of tortoises on the DNF is now better known.

Off federal lands the picture is even bleaker. Irreversible habitat loss due to conversion to subdivisions and industrial forest relentlessly reduce recovery potential on private lands. As predicted last year in this space, development is proliferating well inland of the coastal strip devastated by Katrina. Much of the development adjoins the DNF or occurs within inholdings, and the presence of people and infrastructure in these areas will effectively terminate the ability of the DNF to properly manage its parcels with fire. In addition, the sand used to fill coastal wetlands (now occurring frequently) comes from inland hilltops, many of

which historically supported gopher tortoises. Mississippi's Department of Transportation does not use sand from sand pit sites unless they are confirmed to be unoccupied by tortoises, but this is not required by other state and federal permitting. Most of the prime building spots in the rapidly developing Hattiesburg/Petal area and along the Pascagoula/Lucedale corridor are on ridges which still support tortoise populations of varying sizes. Most of these are probably obliterated without knowledge of regulatory authorities. As yet there is no tortoise mitigation bank available or other scheme to accommodate tortoises displaced from such sites.

This is admittedly a depressing screed, but I see no silver lining except that the animals continue to hold on (in at least in small numbers), throughout most of their original range in Mississippi, waiting for us to get things right. In addition, the folks whose research is described below are working on determination of current values for critical parameters of the population growth equations referenced above. Habitat management (and population management, if necessary) tailored toward adjustment of these values in a direction beneficial to tortoises may at least permit maintenance of good populations on larger blocks of public lands. A long-term tortoise presence on public land will require implementation of a growing-season burning regime, cogongrass control, and perhaps, at least on well-drained soils, fire ant control and/or implementation of management strategies to minimize their influence on tortoise recruitment. It is difficult to imagine how each of these objectives can be achieved in the more southerly portion of the DNF, given human population growth and development pressure, particularly in the area formerly known as the Biloxi Ranger District. The Chickasawhay Ranger District may offer more potential. On the DNF, avoidance of fragmentation by roads must be a Forest Service priority. Assurance of a tortoise presence on private lands will be much more problematic but could be accomplished by creating large mitigation banks with a significant component of priority soils. This may still be possible in less densely populated counties such as Greene County, where there are already large tracts historically managed for timber production. Where possible, such banks should adjoin 16th Section lands, most of which are managed in forest cover, and many already have residual tortoise populations. On these sites, too, growing season burning regimes, effective cogongrass control, and perhaps fire-ant suppression must be implemented.

RESEARCH- *Baseline hatching success in priority soils on the Chickasawhay Ranger District of the DNF.* Researchers: Shea Hammond and Dr. David Beckett (both of the University of Southern Mississippi). Hatching success of nests protected, in situ, from vertebrate predators will be evaluated. Comparison of intra-season nesting success at these sites with those on heavier soils at Camp Shelby will prove invaluable.



Hatching success on well-drained vs. excessively well drained soils. Researchers: Thomas Smith (U.S. Army Corps of Engineers, Construction Engineering Research Laboratory), Dr. Carl Qualls, Joshua Ennen, Danna Baxley, Will Selman, Thomas Mohrman, and Lauren Caviezel (University of Southern Mississippi). Tortoise eggs from freshly deposited clutches will be moved into man-made nests to determine baseline fertility and for assaying the comparative merits of well-drained (suitable) soils and excessively well-drained (priority) soils as incubation, hatching, and emergence media.

Temperature, moisture, and gas exchange conditions (oxygen and carbon dioxide levels) in these experimental nests will be monitored throughout incubation. Eighteen nests were monitored in situ in 2006, and yielded a preliminary hatching success of 42.5%. However, not all nests have yet been excavated to enumerate unhatched eggs.

Headstarting. Researcher: Matt Hinderliter (The Nature Conservancy, Camp Shelby Tortoise Biologist). A predator-proof enclosure was built on Camp Shelby and 31 hatchlings were released into starter burrows in early October 2006. One-third of the hatchlings will be fitted with transmitters and returned to their source sites each fall for three years. Data to be compared among juveniles will include: 1) growth; 2) home range; 3) burrow use and construction; 4) movement patterns; and 5) cause and extent of mortality.

Physiological-based assessment of biological significance of military activities on gopher tortoises at Camp Shelby. Researchers: Matt Hinderliter (The Nature Conservancy, Camp Shelby Tortoise Biologist), Marshall Adams (Oak Ridge National Laboratory). This project involved the trapping and blood sampling of 145 tortoises from 20 different sites across Camp Shelby. Captured females were also radiographed to determine numbers of eggs. Sampling sites varied by nature/intensity of military activity and quality/type of habitat. Blood samples were processed and prepared for a variety of analyses, including: 1) hematology; 2) immunology; 3) serum chemistry profiling; 4) reproductive hormones and corticosteroids; 5) biomolecular including indicators of DNA damage and oxidative stress; 6) population genetics; and 7) upper respiratory tract disease (URTD). In general, the sex ratio was even over the sites (48% males:52% females).

Monitoring of tortoise activity at Camp Shelby. Researchers: David Delaney, Joe Hackler, Blair Madden, and Tom Radzio (all of U.S. Army Corps of Engineers-Construction Engineering Research Lab). USACE-CERL project is using tower arrays, cameras, and temperature loggers to collect activity, positional, and behavioral data on tortoises at Camp Shelby. Currently, there are 55-60 individuals being monitored at five sites. Results from this study will include detailed information on mating activity/frequency, home range and movement.

Genetic population structure. Researcher: Rachel Wallace (University of New Orleans). Using nasal flushes and 2 cc blood samples, genetic population structure will be assessed via mitochondrial and nuclear microsatellite markers, and the relationship between tortoises and the pathogen *Mycoplasma agassizii* will be evaluated.

Genetic analysis to evaluate paternity of hatchlings produced in individual clutches, and identification of genetic bottlenecks. Researcher: Josh Ennen and Dr. Carl Qualls (University of Southern Mississippi). Tissue samples (scute clippings) were taken from all hatchlings produced from 18 monitored nests at three widely separated sites, and blood samples were taken from as many adults as possible at all sampled populations. These will be utilized for genetic analysis.

HABITAT MANAGEMENT- Cogongrass control in tortoise habitat at Camp Shelby. Project Team: Lisa Yager, C. J. Sabette, and Jennifer Frey (all of The Nature Conservancy) and Bob Lemire (MS National Guard). Approximately 150 acres at Camp Shelby are badly infested with cogongrass; near-term control priority is to treat areas which also support tortoises, approximately 40 acres of which were treated with herbicide this year.

Dead Dog Bog management. Project leader: Chuck Walters (Mississippi Department of Transportation (MDOT)). Mr. Walters continued intensive management of tortoise habitat in uplands adjoining Dead Dog Bog (owned by the Mississippi Dept. of Wildlife, Fisheries, and Parks (MDWFP)). This bog is a wetlands destruction mitigation 'gift' from MDOT for destruction wrought during another highway project. Uplands on the Dead Dog Bog site have seriously degraded in the absence of an effective controlled burning program, however, and MDOT is paying for restoration of the site as part of the agreement authorizing relocation several tortoises from an MDOT project on Hwy 84. Mr. Walters has also continued to manage and monitor road-flanking tortoise mitigation sites established by MDOT during widening and rerouting of Hwy 63.

RELOCATIONS- Tortoise waifs without source population identification cards continue to materialize at sites well beyond the natural range of this species in Mississippi. One male was found wandering in Clinton, one 16 lb female was found in Senatobia (the Delta!) and six hatchlings were brought to a coastal veterinary clinic from a backyard captive, probably of Florida origin. All were negative for exposure to URTD, and have been or will be relocated by Tom Mann (MDWFP) to The Nature Conservancy's Old Fort Bayou Mitigation Bank south of I-10 near Ocean Springs.

MITIGATION BANKS- As stated above, the MDWFP and U.S. Fish and Wildlife Service have not yet agreed upon criteria necessary for a workable mitigation banking system, but agree that development of such standards will be needed in the near future. David Felder and Will McDearman of the FWS have done considerable map work and ground truthing in an attempt to identify big blocks of habitat or restorable habitat on sites with priority soils which might serve as mitigation bank sites. Consultants offered plans this year for off-site, long-term management of tortoises displaced by housing developments in the Hattiesburg area.

2006 Florida State Report

Joan Berish

The need for a gopher tortoise, *Gopherus polyphemus*, issue team first became apparent three years ago, as Florida Fish and Wildlife Conservation Commission (FWC) staff struggled to reconcile the time spent on permitting issues with the minimal benefits that current mitigation efforts contribute to the conservation of this high-profile, declining species. The gopher tortoise is listed as a Species of Special Concern in Florida, but has been approved for reclassification to Threatened. This reclassification will occur after a species management plan has been drafted, reviewed both internally and externally, and then approved by the Commission in 2007.

In fall 2003, FWC senior leadership established the Gopher Tortoise Issue Team to determine more effective strategies for conserving Florida's gopher tortoises. The 21-person team was pared down in summer 2005 to a fast-track, 9-member team that has been meeting every other week for the past 15 months. This internal agency team has well-seasoned representatives from research, permitting, legal, law enforcement, habitat management, and regional concerns, as well as a facilitator and a team leader from FWC senior leadership. This team has drafted biological goals and objectives for the species and is revising the current mitigation and permitting program. The revamped draft mitigation program would employ economic incentives to guide responsible restocking while still providing monies for land acquisition. This new program will hopefully reduce entombment and irresponsible relocations by certifying in advance those tortoise-depleted recipient sites that could actually benefit from restocking, and then encouraging or mandating techniques (such as large, temporary enclosures) to enhance site fidelity and help establish viable populations. An adaptive management approach would allow for continuous evaluation and modification as necessary.

Current levels of incidental take on development sites in Florida are understandably highly controversial and have generated considerable public outcry during 2006. In response, FWC has undertaken a number of interim measures to help reduce the staggering loss of individuals "left behind" when the current off-site habitat protection option is chosen. Additionally, pilot restockings and associated studies are underway at MC Davis' vast Nokuse Plantation in the Florida Panhandle.

A gopher tortoise stakeholder advisory group was convened one year ago and uses a facilitator provided by FWC. This advisory group now meets monthly and is working with the FWC issue team on many aspects of the impending management plan. Boyd Blihovde is the GTC representative to the stakeholders' group.

In spring 2006, coordination between the FWC issue team and the stakeholders facilitated the drafting and subsequent implementation of a new rule protecting the burrows of gopher tortoises. Work will continue throughout 2006 and into 2007 on the species management plan.

GOPHER TORTOISE COUNCIL ANNOUNCEMENTS

Notes from a Co-chair (Cont. from front page)

I am very honored to be elected as co-chair of the Gopher Tortoise Council. My main duty this year will be to organize our next annual meeting, tentatively planned for October 2007. I am currently beginning to scout out potential meeting locations in northwestern Florida. Our next business meeting will be held in April 2007 in Gainesville, Florida, and I encourage all members to attend and participate.



2006 meeting: participants congregate in Powell Hall at Valdosta State University

Gopher Tortoise Council Website Updated

David Steen



The GTC has contracted Tanglewood Web Development to work with us to revise and update the Council's website: www.gophertortoisecouncil.org. Over the last few months, the GTC has been busy working towards this. Please visit the site and check out the new features, such as the gopher tortoise bibliography and the community forum. Register in the forum and begin posting today! Thanks to Mark Bailey for his much appreciated service as website manager over the years.

Hard Copy Newsletters Discontinued

David Steen

The Gopher Tortoise Council has discontinued production and mailing of paper newsletters due to the ecological and monetary cost. Efforts have been made to obtain e-mail addresses for all members but if you know of someone that is no longer receiving a newsletter, please contact the membership secretary, Bill Knox.



GENERAL ANNOUNCEMENTS AND PRESS RELEASES

Florida Terrapin Working Group Meeting

The Florida Diamondback Terrapin Working Group Meeting will be held on 10 February 2007, at the U.S. Geological Survey Center for Coastal & Watershed Studies in St. Petersburg, Florida. For additional information, contact George L. Heinrich at george@heinrichecologicalservices.com.



Arkansas Graduate Assistantships

I am looking for 1-2 graduate assistants (seeking a Masters Degree) to begin work as early as spring semester 2007 (i.e., January). However, I am also seeking 1-2 additional students to begin fall semester 2007. Projects will vary depending upon your interests: however, I currently have three running projects. I need a person to work on American alligator, *Alligator mississippiensis*, ecology (telemetry, habitats, etc.), chicken turtle, *Deirochelys reticularia*, ecology (habitats, movements, reproduction), or alligator snapping turtle, *Macrochelys temminckii*, ecology. Please check out my website for information on current projects and students: <http://faculty.uca.edu/~dinkelac/>

Qualifications: B.S. in biology, ecology, zoology, or related discipline is mandatory with a GPA of at least 3.0 and a GRE of 1100. Previous experiences with turtles and/or crocodylians, field work, and laboratory experiments are highly desirable. Experience with GPS/GIS is advantageous. The applicant must be able to use their own vehicle (preferably a 4WD).

Salary: A teaching assistantship is available and the applicant will be expected to teach introductory biology labs. The assistantship includes a stipend of \$9,000 per year and a full-tuition waiver will be available for two years. Summer scholarships can be acquired as well as internal grants.

Establish contact electronically and submit a description of career goals, relevant past experiences, and curriculum vitae to Dr. Steve Dinkelacker at dinkelac@uca.edu. Suitable applicants will then be invited to apply. Closing date will be 10 December 2006 for spring admittance, but will run until all positions are filled for fall 2007.

SEPARC Meeting Dates Set

The 2007 Southeast Partners in Amphibian and Reptile Conservation annual meeting will be held 22-25 February in Chattanooga, Tennessee. Venue, lodging and agenda information will be announced soon at <http://www.separc.org>.

Gainesville 30th Annual Herpetology Conference

Announcing the 30th Annual Herpetology Conference including the All Florida Herpetological Event coordinated by the Florida Museum of Natural History. This event will take place 31 March to 1 April 2007 at the Paramount Plaza Hotel & Suites Conference Center in Gainesville, Florida.

For more information visit:

<http://www.flmnh.ufl.edu/herpetology/herpsconference/afhc.htm>



Cave Beetle Conserved in Kentucky

USFWS



Beaver Cave Beetle. Photo courtesy of USFWS.

The U.S. Fish and Wildlife Service announced on October 31st it will remove the Beaver Cave beetle from the list of candidates for Endangered Species Act protection due to conservation efforts with partners in Harrison County, Kentucky.

The Service's Kentucky Ecological Services Field Office (KFO) has worked for the last three years with partners including the Natural Resource Conservation Service, Farm Service Agency, Kentucky Department of Fish and Wildlife Resources, Kentucky State Nature Preserves Commission, Kentucky Division of Forestry and a private landowner, to fund and implement conservation actions that will ensure long-term protection of this rare beetle.

The Beaver Cave beetle, a small, eyeless, predatory insect, is known only to live in Beaver Cave, a limestone cave whose entrance is located on a private dairy farm in central Kentucky. The beetle is threatened by habitat degradation and by trespassers who camp, light fires and vandalize the cave. Additionally, Beaver Cave and its watershed are situated within a 60-acre dairy farm that has the potential to introduce animal waste, sediment and other pollutants into the cave.

The KFO's Partners for Fish and Wildlife Program coordinated several conservation efforts that were planned and implemented through five inter-related agreements and contracts between the landowner and partner agencies. Collectively, these agreements and contracts encompass three general conservation efforts: First, to reduce sediment and animal waste within the cave's watershed and establish a forested buffer around the cave; second, to construct a metal gate at the Beaver Cave's entrance; and third, to limit access to Beaver Cave and the landowner's surrounding property.

The KFO's Partners program provided \$12,500 for construction of a concrete stream crossing and fence installation associated with a livestock staging area near the primary dairy buildings. Additional funding of about \$37,000 was provided by the partner agencies to construct a metal gate at the cave entrance, to establish a forested buffer around the cave entrance, to install additional livestock exclusion fencing around the cave and surface tributaries on the property, to install a heavy use feeding area, and to develop a rotational grazing program for the dairy operation.

The agreements and contracts cover approximately 8-acres of the dairy farm that contains the entrance to Beaver Cave and the most sensitive portions of its basin threatened by the farm operations. The Service has determined that the conservation efforts will reduce or eliminate the threats to the survival of the beetle, precluding the need for listing it under the Endangered Species Act.



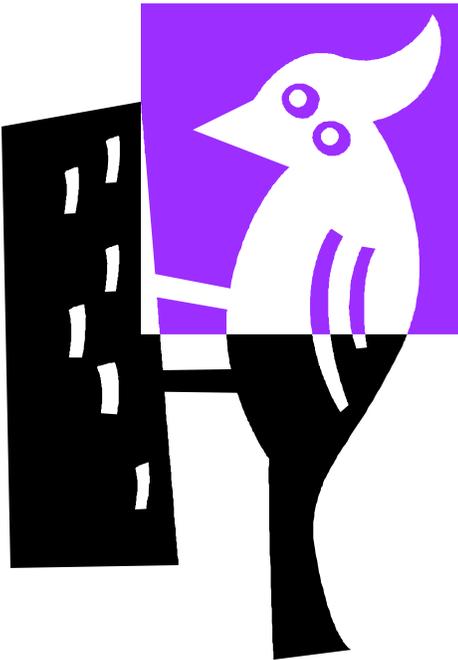
Carrying steel girders for construction of the cave gate. Photo courtesy of USFWS.



Completed cave gate. Photo courtesy of USFWS.

Ivory-billed Woodpeckers Sighted in Florida?

ChronicleOnline-Krishna Ramanujan



Researchers from Auburn University in Alabama and the University of Windsor, Ontario, report they have sighted and recorded the ivory-billed woodpecker, once thought to be extinct, along the Choctawhatchee River in the Florida panhandle. They also have found possible cavities and foraging signs on tree trunks, according to their paper published in the Sept. 26 issue of the online Canadian journal *Avian Conservation and Ecology*. There are still no clear photos of the elusive bird, leaving the new evidence open to interpretation – and criticism.

"The evidence is intriguing, and it certainly warrants additional research," said John Fitzpatrick, director of Cornell's Lab of Ornithology. "It's not conclusive evidence, but it is suggestive, and it is very tantalizing." Agrees his colleague Ken Rosenberg, director of conservation science at Cornell's lab: "The evidence is not going to satisfy people in terms of being any new confirmation. But it's definitely enough to make others want to go back in there."

The authors of the new paper, led by Geoffrey Hill of Auburn University, consulted with the Lab of Ornithology in late July over the evidence. As a result, that week Martjan Lammertink, a Cornell ivory-

billed woodpecker expert, flew to Florida and, he said, found the newly discovered habitat, cavities and foraging signs promising. "We will be working with Geoff Hill and his group, and we will be part of his search team this winter," added Fitzpatrick. "And we will also continue our efforts searching for the bird in Arkansas this winter." Cornell will provide cameras to the Auburn team.

The bird was thought to have been extinct since 1944, until a Cornell researcher and colleagues sighted the bird in February 2004 in the Bayou DeView, a fingerlike tributary that feeds the Cache River system in Arkansas' Big Woods. In April 2005, Fitzpatrick was the lead author of a paper in *Science* discussing evidence (including a low-quality video of the bird) for the ivory-billed's existence. Some skeptics challenged the 2005 claims, stating that the unclear video and audio recordings of the bird's typical "kent" calls and its double knocks were inconclusive.

Subsequently, Hill and colleagues began to search for the bird in Florida. Within a month, they sighted one. "The Florida panhandle, in general, was the mother lode of where ivory-billed woodpeckers used to be," said Rosenberg.

Hill's team sighted ivory-billed woodpeckers a total of 14 times, including two birds together on two occasions. They also recorded 99 double knocks and 210 kent calls and found numerous large cavities characteristic of the ivory-billed. And, they found foraging signs of stripped tight bark, which is unique to ivory-bills. The rare woodpeckers are specialists at getting at large grubs that attack trees early in the decay process, when the bark is still very tight on the trees.

Rosenberg acknowledges that all audio evidence is open to interpretation. "Some of their recordings sound very good, and others are not in the range that we would characterize as very good," said Rosenberg. What the researchers tout as the best kent calls "do not match the known recordings of the ivory-bill. But we don't know what they are. We can't identify the hornlike kents as any bird that should be in that forest."

Although other ivory-bill seekers had searched in the Florida panhandle along the Chipola River, the Choctawhatchee River, which is one river east from the Chipola, was not targeted to be searched until now. "We definitely support the publishing of this [Geoff Hill and Dan Mennill's evidence in *Avian Conservation and Ecology*]," said Rosenberg. "It's all a very positive step."

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David Steen
Route 2, Box 2324
Newton, GA 39870
Phone: (229) 734-4706
David.Steen@jonesctr.org

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