# Field Notes

*News from the Cookeville Field Office*

## From the Field Supervisor

*Lee Barclay*

These days, the news reports seem to be full of environmental problems: late Spring freeze, drought, global warming, potential dam failures, etc. It is easy to get depressed when thinking about the future of both humans and wildlife. But wait! All things are not doom and gloom these days!

**Working with our State and Federal partners, nongovernmental organizations, and private citizens, the staff of the U.S. Fish and Wildlife Service's Tennessee Field Office is making positive strides in such varied areas as endangered species recovery and assisting landowners with habitat restoration and enhancement efforts for wildlife. It also is actively involved in training exercises to better enable the staff to respond effectively to future environmental disasters.**

Today is an exciting time to be a biologist at any level of government – federal, state, or local. With the continuing growth in the human population and associated loss and degradation of aquatic and terrestrial wildlife habitats, there are a myriad of issues to work on.

Partnership opportunities abound, both because of our inherent love of wildlife and because the issues are too large and complex for one agency to accomplish alone. Collectively, we are working hard on a variety of issues and problems facing wildlife and fishery resources today, with the goal of securing a bright and healthy future for Tennessee's wildlife for the enjoyment and benefit of current and future generations.

This and future editions of our Newsletter are provided to keep you abreast of the exciting projects and activities being accomplished by **your** U.S. Fish and Wildlife Service employees of the Tennessee Field Office in Cookeville.

## Contaminants

*Spill of National Significance – SONS Training Exercise*

During the week of June 18, 2007, FWS Environmental Contaminant personnel participated in the U.S. Coast Guard Spill of National Significance (SONS) training exercises in Memphis and Jackson, Tennessee. These mock spills were the result of a large earthquake on the New Madrid fault and the exercise was designed to measure the efficiencies of various agencies that would be called upon to respond had this scenario been an actual emergency. Service personnel served in the Unified Command as the Environmental Unit leader addressing potential natural resource injuries resulting from numerous spills of oil and chemicals in the Mississippi River and surrounding areas. We were also actively involved earlier in the year in the planning processes for this national exercise. Other agencies that were involved included the National Oceanic and Atmospheric Administration, the U.S. Environmental Protection Agency, and the Tennessee Department of Environment and Conservation. For more information about the SONS exercise, visit the website at: http://sons-program.org/SONS/SONS_07.nsf/mainpage?OpenForm

*Declines in Mussel Diversity and Densities in the Powell River and Clinch River Watersheds*

Service EC personnel are proactively working with the Tennessee Department of Environment and Conservation, Tennessee Wildlife Resources Agency, Tennessee Nature Conservancy, and others in addressing declines in mussel diversity and densities in the Powell River and Clinch River watersheds. We are developing potential recovery actions to stem the further degradation of water quality and suitable habitats in this biodiversity hotspot. Service personnel are also working with the U.S. Geological Survey conducting toxicity studies with juvenile mussel species to various compounds and wastewater effluents in these watersheds.


*The Value of Mussels*

*Reprinted from the USFWS Midwest Region website*

- **Monitors of aquatic health:** the presence of diverse and reproducing populations of mussels indicates a healthy aquatic system which means good fishing, good water quality for waterfowl and other wildlife species, as well as insurance that our water is safe. Conversely, when mussel populations are at risk, it indicates problems for other fish and wildlife species, and people too.

- **Ecological value:** mussels are natural filters; feeding on algae, plankton, and silts, they help purify the aquatic system. Mussels are also an important food source for many species of wildlife including otters, raccoon, muskrat, herons, egrets, and some fish.

- **Economic value:** freshwater mussels have been and continue to be a major economic resource; first in the button industry and now in the cultured pearl industry. Mussels from North America form the nucleus of the cultured pearl industry in Asia.

- **Education and aesthetic value:** the study of mussels, their natural history, and habitat requirements provides interesting and important lessons on the interconnectedness of the aquatic system and how species adapt to their ecosystem.

(over)

*The Value of Mussels (continued)*

Fat threeridge

Purple bankclimber

Chipola slabshell

- **Cultural value:** Mussels played an important role in the cultural history of prehistoric and recent native peoples of the Ohio and Mississippi River basins. They were used as food and the shells were used for ornamentation, tools, and as a commodity for trade. Indian shell middens (the piles of shells that native Americans have left behind) extend for miles along sites of old villages and encampments along the Mississippi and Ohio Rivers.

- **Biodiversity:** Mussels play, and hopefully will continue to play, an important role in our aquatic ecosystems. Considering that less than 20 mussel species are found in most other countries of the world, our North American rivers and streams are truly "rich" with close to 300 species!!

  Mussels do not get cancer and researchers want to know why. Mussels may have additional values in the future that we cannot now predict. The loss of any of these species will definitely have consequences on how the aquatic ecosystem functions.

# Geographic Information Systems (GIS)

*Historical Land Use Characterization of the Emory River Watershed 1946 - 2001*

GIS staff recently completed an historical land use characterization of the Emory River Watershed. The Emory Watershed is located in east central Tennessee on the Cumberland Plateau and includes the City of Crossville.

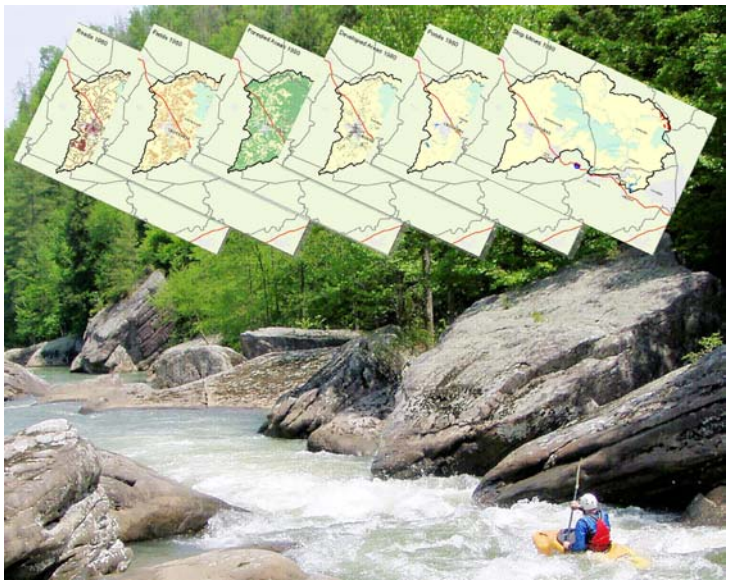
**The Emory serves as a headwaters section of the Tennessee River watershed and supplies water to the City of Crossville, the retirement community of Fairfield Glade and surrounding areas.**

Accelerated growth of these areas has placed stresses on resources and is approaching critical habitat areas for endangered species.

Biological staff requested a GIS analysis of how the watershed had changed over time. They intend to relate that information to a biological inventory that is being performed to document spotfin chub distribution in the watershed to determine if there is a correlation between the distribution and land cover change. They plan to use the findings from the land cover analysis to initiate discussions with county officials to formulate ways to protect the resource base.

There were six different land cover types requested, forests, fields, developed areas, roads, ponds and lakes, and strip mines. These layers were essential to the assessment and could be drawn from the available source base data. Three eras of data were derived from source information dating years 1946 to 2001.

As expected, acreages for roads, developed areas and lakes and ponds had increased, while declines were documented for forests, fields, and strip mines. Large chunks of forested areas were removed for the development of Fairfield Glade and the growth of Crossville. Lake and pond acreages increased due to the creation of man-made lakes for Fairfield Glade and ponds for small, residential farms. By 2000, strip mine activity had all but ceased in the watershed.



*The Emory River Watershed is a popular destination for white water enthusiasts.*

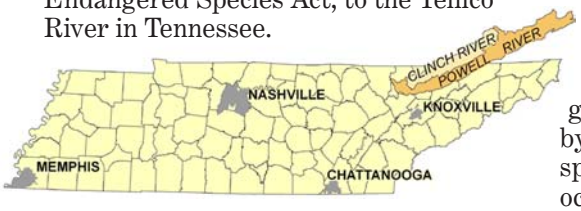
This information will be a valuable tool for biologists in the evaluation of areas for possible conservation measures.

Read the full report and view the maps at http://cookeville.fws.gov

## Endangered Species

*Cross-programming and public-private partnership returning threatened spotfin chubs to Tennessee waters*

A collaborative effort among the Cookeville and Asheville Ecological Services Field Offices, Dale Hollow and Wolf Creek National Fish Hatcheries, the Cherokee National Forest, Conservation Fisheries, Inc.(CFI), the Tennessee Wildlife Resources Agency, and the North Carolina Wildlife Resources Commission has shown remarkable success in restoring a population of spotfin chubs, which are listed as threatened under the Endangered Species Act, to the Tellico River in Tennessee.




Propagation of spotfin chubs for restoration projects began at CFI in 1994, using breeding stock collected from the Little Tennessee River above Fontana Lake in Swain County, North Carolina. Early propagation of this fish took place solely at CFI's Knoxville, Tennessee, facility with some fish transferred to a facility at the University of Tennessee – Knoxville for grow-out. The designation in 2002 of a Non-essential Experimental Population (NEP) in the Tellico River increased demand for captively propagated spotfin chubs, such that CFI found their grow-out capacity would be exceeded because these fish exhibit signs of stress when held at high densities.

In December 2006, CFI transferred 960 spotfin chubs to Dale Hollow and Wolf Creek National Fish Hatcheries, where systems had been established for growing these fish out at densities no greater than one fish per two gallons of water. The first release of spotfin chubs grown out at Dale Hollow took place on August 16, 2007. We released 385 spotfin chubs ranging two to four inches in length. On September 17, we released 200 spotfin chubs grown out at Wolf Creek. Stocking these fish continued the efforts that began with the release of spotfin chubs into the Tellico River NEP in October 2002 and that resulted in the stocking of over 9,000 individuals by the end of 2006. Monitoring efforts in 2006 revealed the presence of young-of-year spotfin chubs on two separate occasions in the Tellico River, providing evidence that a viable population of spotfin chubs will be established in the Tellico River through this collaborative effort.

Andrew Currie, USFWS

*Biologists from the U.S. Fish and Wildlife Service, Conservation Fisheries, Inc., and the Cherokee National Forest releasing threatened spotfin chubs into the Tellico River NEP on August 16, 2007.*

## Tennessee Caves

Tennessee contains 8,500 or more known caves, and that number (the largest of any state in the U.S.) is growing. The use of many of these caves by bats is well-known. Two endangered species, the Indiana bat and gray bat, occupy a select few of these caves that have the required micro-conditions during the appropriate time of the year. A large number of cave invertebrates have been found, but the diversity of Tennessee's cave species is largely unknown. Julian Lewis, an Indiana-based cave fauna expert, recently began to study the animals of these environments. He has found a "new" species of beetle, several new crustaceans, and several millipede species since 2003, and his work continues.

The Fish and Wildlife Service (FWS) partners with various state and non-governmental organizations to protect caves. For instance, we recently improved a fence that encloses an entrance to Bellamy Cave in Montgomery County. The cave is home to 100,000 gray bats and is used year-round by the species. This fencing project is expected to provide for a much lower level of disturbance to the bat colony. The Gray Bat Recovery Plan indicated that 67 caves in Tennessee are used by the species and that Bellamy Cave is one of nine Priority 1 (i.e., the highest priority) gray bat caves in the State.

The FWS is also working with other groups to protect rare species that are not yet listed as endangered or threatened. In 2004, the "State Conservation Agreement for Cave-dependent Species in Tennessee" was completed. Through this agreement with The Nature Conservancy, Tennessee Wildlife Resources Agency, and Tennessee Department of Environment and Conservation, we have begun to focus on the development and implementation of measures to protect and, where appropriate, restore cave environments to their natural conditions across the State. These conservation measures might include such activities as protection of water quality, restriction of human access to caves during appropriate seasons, and the conduct of surveys to monitor the health of various animal populations.

## Partners for Fish and Wildlife Program

*Restoration Effort*

This project was a collaborative effort between the landowner, U.S. Fish and Wildlife Service, Natural Resources Conservation Service, and Tennessee Department of Agriculture. The project is located within the Barrens Focus Area, one of three Partners for Fish and Wildlife Focus Areas in Tennessee.

*Protected pool provides habitat for the globally rare Barrens topminnow.*

This site was chosen due to its potential to restore, protect and enhance habitat for the critically imperiled barrens topminnow (*Fundulus julisia*) and the state listed flame chub (*Hemitremia flammea*) within the McMahan Creek watershed, a tributary within the Barren Fork River watershed (Caney Fork River watershed). Other species of management concern which benefited from the project are numerous migratory songbirds, the barrens darter (*Etheostoma forbesi*), redband darter (*Etheostoma luteovinctum*), and barrens heelsplitter (*Lasmigona spp.*).

Approximately 3,800 feet of high-tensile fence was installed to limit livestock access to one spring and its' run along with the riparian zone along Cooper Branch, a direct tributary to McMahan Creek. A hardened stream crossing was installed to reduce sediment and provide a water source to the livestock. A water tank was also installed to provide an additional water source for livestock excluded from the stream.

## Cookeville Field Office Staff


**Steve Alexander**
Contaminants
931/528 6481 ext 210
steven_alexander@fws.gov

**Lee A. Barclay**
Field Supervisor
931/528 6481 ext 212
lee_barclay@fws.gov

**Tammy Bilbrey**
GIS/Computer
931/528 6481 ext 217
tammy_bilbrey@fws.gov

**Brad Bingham**
Private Lands
931/528 6481 ext 205
bradley_bingham@fws.gov

**Julie Bishop**
Administrative Officer
931/528 6481 ext 201
julie_bishop@fws.gov

**Wally Brines**
Pre-development Consultation
Education/Outreach
931/528 6481 ext 222
wally_brines@fws.gov

**Geoff Call**
Listing
931/528 6481 ext 213
geoff_call@fws.gov

**Stephanie Chance**
Recovery/Candidate Conservation
931/528-6481 ext 211
stephanie_chance@fws.gov

**Jason Duke**
GIS/Computer
931/528-6481 ext 216
jason_duke@fws.gov

**Debbie Harris**
GIS/Computer
931/528-6481 ext 218
debbie_harris@fws.gov

**Mary Jennings**
Assistant Field Supervisor
931/528 6481 ext 203
mary_jennings@fws.gov

**Brandon Maynard**
GIS/Computer
931/528-6481 ext 206
brandon_maynard@fws.gov

**David Pelren**
Permits
931/528-6481 ext 204
david_pelren@fws.gov

**Sandra Silvey**
Office Assistant
931/528-6481 ext 200
sandra_silvey@fws.gov

**Kurt Snider**
GIS/Computer
931/528 6481 ext 219
kurt_snider@fws.gov

**Robbie Sykes**
Permits
931/528 6481 ext 209
robbie_sykes@fws.gov

**Jim Widlak**
Endangered Species Consultation
931/528 6481 ext 202
james_widlak@fws.gov


Along Cooper Branch, a minimum 50-foot vegetative buffer from the top of bank to fence was protected and allowed to regenerate naturally, forming a sediment filter and wildlife corridor.

This project continues to assist in controlling the on-going problem of erosion and bank failure within the Caney Fork River watershed. It serves as a demonstration project assisting in the establishment of cooperative relationships with other landowners along the watershed. This site is also a reintroduction site for the Barrens topminnow, as part of an ongoing, cooperative effort to restore the fish throughout its' historic range.
The landowner signed a 15 year wildlife cooperative extension agreement with

*Livestock exclusion fencing was installed to protect the riparian zone along Cooper Branch.*

the Service to protect and maintain all practices installed. Because of these actions and the management philosophy of the landowner relative to livestock grazing, the landowner was the recipient of the 2007 Governor's Environmental Stewardship Award.