

Field Notes

The quarterly newsletter of the U.S. Fish & Wildlife Service's North Carolina Ecological Service's Field Offices

Note from the Field Supervisors: Strength in Partnering

The U.S. Fish and Wildlife Service in North Carolina is fortunate to have a wealth of talented and committed partners in conservation. The articles in this issue of Field Notes are not just about us and what we are doing. They're a sampling of the efforts by federal and state agencies, conservation organizations, local communities, industries, and private individuals who work together to conserve the fish, plants, and wildlife of North Carolina.

Partners not only make our job easier - they make it possible. Working together, we can build a common vision for natural resource conservation, generate creative solutions to difficult environmental problems, and pool and target resources in order to maximize results.

We are excited about the collaborative efforts described in this issue; from our efforts to mutually benefit aquatic wildlife and livestock on private land to our work with industry and other stakeholders to restore anadromous fish spawning runs, or from to our work to restore thousands of acres of wetlands Pocosin Lakes National Wildlife Refuge on the coastal plain, to our work to protect imperiled plants in the mountains. We cannot fulfill the Service's mission on our own, but by working together we can move closer to our goal, while continuing to achieve great things for North Carolina's wildlife and wild places.

Pete Benjamin and Brian P. Cole

FWS Director visits Pocosin Lakes NWR and Makes Statement at Navy OLF Hearing

Dale Hall, Director, U.S. Fish and Wildlife Service, toured Pocosin Lakes National Wildlife Refuge on March 19 and later spoke at the first of the Navy's six public hearing's regarding the Navy's placement of an Outlying Landing Field near Pocosin Lakes.

The process of locating the OLF in Eastern North Carolina has been going on for awhile. In late 2001, the Navy began planning process for proposed Outlying Landing Field (OLF) in eastern N.C. The facility would be used by the Navy to train its pilots for carrier landings. More than 31,000 practice takeoffs and landings would occur yearly at the OLF site.

The Navy looked at five locations in North Carolina and two in other states. In July 2002, the Navy released the Draft Environmental Impact Statement (EIS) with Washington County (Site C) and Craven County (Site E) sites identified as co-preferred alternative site location.

In September 2003, the Navy issued a Record of Decision to locate Super Hornet Aircraft squadrons at Naval Air Station Oceana and Marine Corps Air Station Cherry Point and construct an OLF in Washington County, NC (Site C).

In January 2004, the Southern Environmental Law Center, representing Audubon, The North Carolina Wildlife Federation, Defenders of Wildlife, and attorneys representing Washington and Beaufort Counties, filed suit against the Navy.

In March 2005, the District Court granted a permanent injunction against the Navy barring them from proceeding with the OLF until they comply with all National Environmental Policy Act



Patty Matteson

Dale Hall, Director, U.S. Fish and Wildlife Service speaks to reporters Dan Parson, Washington Daily News and Wade Rawlins, Raleigh News-Observer at the overlook on Pungo Unit of Pocosin Lakes National Wildlife Refuge.

requirements. In response, the Navy announced their intention to prepare a Supplemental EIS, and asked the Service to participate as a cooperating agency.

In March 2007, the Navy released a Draft Supplemental EIS with the Washington County (Site C) site still identified as the preferred alternative. Pocosin Lakes National Wildlife Refuge (PLNWR) lies within 0.25 miles of the OLF flight pattern. Site C is also located 6 miles from the Pungo Unit of PLNWR. The Pungo Unit of the refuge has been designated by the American Bird Conservancy as a globally important bird area with 27 percent of Atlantic Flyway population of tundra swans wintering here each year.

(continued on page 2)

North Carolina and Beyond

FWS Director visits Pocosin Lakes NWR and Makes Statement at Navy OLF Hearing

(continued from page 1)

More than 70,000 snow geese also winter here each year. PLNWR is also home to many other species of birds and waterfowl, as well as other species of wildlife that depend year round on the refuge's habitat to survive and thrive.

In the statement submitted to the Navy on March 19 Director Hall stated: "We are concerned that the conclusion that Navy has drawn are more definitive than the data can support. Indeed it is our overarching concern that the limitations of the available information leave a large degree of uncertainty regarding the true magnitude of effects to the resources we are charged with managing on behalf of the public." "Our role as a cooperating agency does not mean that we agree with all the findings contained in the draft Supplemental EIS," said Hall.

Our concerns center around the following six issues:

- Loss of foraging habitat for waterfowl
- Effects of aircraft noise
- Cumulative impacts
- Ability to manage refuge resources
- Effects to red wolves
- Effects of refuge visitor experience

To view the complete statement you may visit: www.fws.gov/nc-es/ or to receive a copy by mail or fax please call 919/856 4520 (ext. 25).



USFWS

2007 North Carolina Junior Duck Stamp Winner

N.C. Federal Junior Duck Stamp Art Competition Best of Show Winner

Christian Hunt, 15, a sophomore at Tuscola High School, Waynesville, N.C. won the 2007 North Carolina Federal Junior Duck Stamp art competition. The acrylic of a male and female wood duck "Alert" will compete in the national competition to be held in April at the National Zoo in Washington, D.C. After the contest his artwork will travel throughout the United States as part of the Federal Junior Duck Stamp Art Tour Program.

More than 500 students representing 12 North Carolina schools participated in this year's competition. To view the 2007 winner's list visit: <http://www.fws.gov/nc-es/port/2007DuckStampNewsReleasePDF.pdf>

The contest was held at the North Carolina Estuarium, Washington, N.C. This year's judges included: Clayton Wilkes, N.C. Wildlife Resources Commission; B.H. Powell, East Carolina Wildlife Guild; Peggy Powell, East Carolina Wildlife Guild; Billy Jackson, Sponsor of the Wildlife Arts Festival; Curtis Dykstra, Park Ranger; Goose Creek State Park.

The Federal Junior Duck Stamp Conservation Design Program is an integrated art and science curriculum developed to teach environmental science and habitat conservation. The first place national winning design is used to create a Federal Junior Duck Stamp each year. Proceeds from the sale of Junior Duck Stamps (which cost \$5) support conservation education by providing awards and scholarships for the students, teachers, and schools that participate in the program.

This year the North Carolina Federal Junior Duck Stamp Program partnered with the North Carolina Wildlife Resources Commission and the East Carolina Wildfowl Guild to host the competition. Jerry's Artarama continued its sponsorship of the program and will be providing more than \$2,000 in prizes.

North Carolina and Beyond

\$240,000 to Help Restore Imperiled Rare Fish

Conservation Fisheries, Inc. (CFI), a Knoxville-based leader in rare fish conservation, has received \$240,000 from the Service to support the recovery of some of the region's most imperiled fish.

The non-profit organization received two grants. One is for \$200,000 to propagate and reintroduce seven threatened and endangered fish species in the Southern Appalachians—the slender chub, pygmy madtom, duskytail darter, spotfin chub, smoky madtom, yellowfin madtom, and boulder darter (the boulder darter is found in the Elk River, along the Tennessee/Alabama state line). An additional grant for \$40,000 will be used to support the conservation of four other fish species that currently are not federally protected but are a conservation priority.

The hope is that supporting these fish now will help preclude the need for listing them as endangered or threatened in the future. They include the stonecat, wounded darter, and sicklefin redhorse (a new species found only in a handful of rivers centered where North Carolina, Tennessee, and Georgia come together). The money will help develop propagation technology for these species, augmenting existing populations, and reintroducing them into suitable areas of historical distribution.

CFI has made a name for themselves through their captive propagation of imperiled fish that are then reintroduced into the wild, where suitable habitat is available. They've led a 20-year effort to reintroduce four federally protected species—the smoky madtom, yellowfin madtom, spotfin chub, and duskytail darter—into Abrams Creek in the Great Smoky Mountains National Park and have recently begun a similar reintroduction project in the Tellico River on the Cherokee National Forest in Tennessee.



Mark Cantrell, USFWS

J.R. Shute of Conservation Fisheries, Inc., preparing to release fish into Abrams Creek

Plight of the Catspaw Mussel

The future of the federally endangered catspaw mussel (*Epioblasma obliquata*) was thrown further into doubt when biologists failed this past fall in their effort to collect healthy females from the only creek where the mussel is still known to exist.

The team of biologists, assembled from government agencies, universities, and private consulting firms, were searching Killbuck Creek in northeast Ohio for female catspaw mussels with the intention of taking them into captivity where they could be propagated and reintroduced into the wild once habitat quality had improved. Their hopes for achieving such a conservation hail-Mary were dimmed when their search failed to turn up a single female.

Historically, the catspaw was wide-ranging across the Ohio River basin. The Killbuck population was discovered in 1994 by Michael Hoggarth, a professor from Otterbein College. At the time it was thought that the mussel persisted in Kentucky's Green River and in Tennessee's Cumberland River, but those populations are now believed to be extirpated. Today, the mussel is only known from Killbuck Creek in northeast Ohio.

Hoggarth, who was a part of the search team, noted a tremendous build-up of sediment in the stream bed since the mid-1990s, ruining catspaw habitat. The biologists also found a population of the invasive Asian clam large enough that it would likely have provided the catspaw with intense competition for food and space.

North America's freshwater mussels often have colorful common names, and catspaw is thought to derive from the fact that the shells of the females have tiny extensions that look like cat claws.

Mattamuskeet Video Available

If you missed seeing the record number of waterfowl visiting our national wildlife refuges in North Carolina a video is now available that can take you there. The Mattamuskeet Foundation, a non-profit organization, has created a video entitled "A Winter Day Lake Mattamuskeet." The video is available for purchase by calling the Mattamuskeet Foundation on 252/746 4221.

North Carolina and Beyond

Southeastern Biologists and Engineers Look at Aquatic Life Passage Issues

An adult greenside darter is two to three inches long and spends its days perched on the stream bottom, darting from place with a quick flick of its pectoral fins. It represents the challenge of aquatic life passage in the Southeast, a region with more than 600 species of fish ranging from inch and a half-long pygmy sunfish to ten feet-long alligator gars, plus the greatest mussel diversity in the world and an incredible diversity of insects, salamanders, and other aquatic life.

To address passage issues for this diversity of aquatic life, biologists and engineers from across the Southeast convened in November in Asheville, North Carolina for a two-day workshop.

Day one was a wrap-up of recent Southeastern fish passage research. Mark Hudy and Seth Coffman of the USDA Forest Service related experiences in working on fish passage on Southeastern national forests, specifically modeling for passage through culverts and assessing culverts. Jenny Vander Pluym and Angela Gardner reviewed their North Carolina State University graduate research on fish passage at culverts and other stream crossings. Raising the question of invasive species, Tennessee Tech student Paul Benton shared research on the swimming performance of mosquito fish and the endangered barrens topminnow and the implications for passage design. Mary Freeman of the USGS and the University of Georgia presented work on implementing passage policy in north Georgia while UGA student James Norman shared his



Anita Goetz, USFWS

Workshop participants break out to tackle aquatic life passage issues

work on a model to estimate culvert effects on small stream fish.

USGS biologist Ted Castro-Santos discussed what needs to be known to predict passage success. The afternoon culminated with national fish passage expert Kozmo Bates sharing his experiences in working with stream simulation design.

The following day, workshop participants broke into groups and rolled up their sleeves to begin answering some of the questions facing southeastern aquatic species passage, notably assessing what's known about passage in the Southeast, and how to design and implement passage projects.

Questions arose about what species should be the design target, but workshop participants came to a consensus that focusing on the stream community was preferable, and with that, using stream simulation was preferable to hydraulic design based on one or a few species. However, there's a distance between getting a room full of people in Asheville, N.C. to agree that stream simulation is the best approach,

and getting that technique successfully put into widespread use. While some in the group raised concerns about the cost of stream simulation in new crossings and retrofitting existing barriers, others countered that in the long-term, including maintenance costs, stream simulation would probably be comparable, if not cheaper than passage design based on the hydrologic model. It was also made clear that stream simulation coupled with natural channel techniques would be taken up more readily if they were required by government permitting and reviewing agencies.

Many supported an inventory of passage barriers and a shared database to record them, though it presents funding and logistical issues and underlies the need for development of standardized assessment and data recording methodology. In the end, the workshop strengthened, and in some cases began, a dialogue between biologists and engineers on moving ahead with stream passage policy in the Southeast. For more information contact Anita Goetz at anita_goetz@fws.gov.

Coastal Plain

Wetland Restoration Partnership to Benefit Water Quality and Wildlife in Eastern North Carolina

The North Carolina Department of Environment and Natural Resources (NCDENR) and the Service have committed to the restoration of 6,000 acres of degraded pocosin wetlands in Washington and Beaufort Counties. Pocosins, or southeastern shrub bogs, are often underlain by a thick layer of peat soils that function as nutrient sponges over geologic time, locking-up nitrogen, phosphorus and carbon in vegetation and the soil layer. When pocosins were drained, their nutrient retention functions were lost and some of the nutrients they held were released to adjacent waters. Once these lands became part of Pocosin Lakes National Wildlife Refuge (NWR) in 1990, managers began restoring natural water levels. The new partnership with NCDENR accelerates on-going restoration efforts by refuge managers and the Service's Coastal Program.



NCDENR Secretary Bill Ross, Raleigh Field Supervisor Pete Benjamin, and NCDENR Deputy Secretary Dempsey Benton (from left to right) survey a section of refuge roadway recently raised to allow completion of a sizeable portion of hydrology restoration needed at Pocosin Lakes National Wildlife Refuge.

Dale Suiter / USFWS



Venus Fly Trap is a state listed species that occurs in the Cape Fear Arch

Mutual concern about potential impacts from large new nutrient sources to the watershed near Pocosin Lakes NWR prompted this joint venture between NCDENR and the Service. This approach of off-setting new nitrogen loads in the watershed with an equivalent amount of local nitrogen reduction was recommended by the Service's Environmental Contaminants Program to minimize the potential for water quality degradation where nutrient enrichment is already a problem. The project will return lands to a saturated condition, re-establishing their function as natural nutrient sponges. In addition to sequestering nutrients in the local airshed and watershed, restoration will enhance habitat for wildlife.

Remaining work to restore wetland hydrology on targeted tracts is limited to elevating the height of dikes and roads so water levels can be raised. Recently, Bill Ross, Secretary, NCDENR and recently retired NCDENR Deputy Secretary Dempsey Benton toured the refuge along with Raleigh Field Office and Pocosin Lakes NWR staff to get a first hand look at restoration in progress. It is anticipated that the work, to be completed collaboratively by Pocosin Lakes NWR and Alligator River NWR refuge, will be complete in 2008. For more information, please contact Sara Ward (sara_ward@fws.gov or 919/856 4520 x 30) or Pocosin Lakes NWR (252/796 3004).

Group Forms to Help Conserve Cape Fear Arch

The Cape Fear Arch Conservation Collaboration is a partnership in its infancy. Over twenty representatives from Federal and State resource agencies, conservation groups, cities, towns, local land trusts, private landowners, businesses and individuals have recently met to discuss this ecologically important area.

The Cape Fear Arch is a geological term for an area that is slightly uplifted compared to the typical flat coastal plain area that comprises Southeastern North Carolina and Northeastern South Carolina. During the earth's past this area stayed dry while the lower area was submerged under seawater. It is an area of high biodiversity with a significant number of rare species. There are 19 federally listed endangered or threatened species which inhabit this unique region.

This area has been identified as one of the highest priority areas for conservation efforts in not only the North Carolina Wildlife Action Plan by the North Carolina Wildlife Resources Commission, but also by The Nature Conservancy's Mid-Atlantic Coastal Plain Ecoregional Plan. The One North Carolina Naturally initiative under the N.C. Department of Environment and Natural Resources has also identified this area as having high importance for conservation efforts.

"The Cape Fear Arch provides a necessary forum to coordinate strategies implement a larger conservation vision and engage the community" said Dan Bell, Project Director, The Nature Conservancy, Wilmington, N.C. "Through public awareness, protection and stewardship we intend to highlight and build support for conservation of the region's unique natural resources," said Bell. "Through cooperation and collaboration, we hope to increase our overall effectiveness, he added."

For further information of if you would like to become involved in this collaborative effort please contact Dan Bell at 910/395 5000 or Camilla Herlevich at 910/790 4524.

Piedmont

Conservation in Chatham County

Largely rural Chatham County is nestled in the Cape Fear River drainage and in the center of North Carolina's Piedmont. Its rich cultural history demonstrates how the citizens have been tied to the land and its wildlife for generations. Back in the early 1900's wild rabbit meat was sent from Chatham County to New York City where it became a delicacy known as the Chatham Rabbit.

When it comes to natural resources, Chatham County is unique and special.

It is made special by its topography, riparian and riverine communities, soil chemistry/texture, and distinctive plant and animal species. The Cape Fear shiner, a two inch yellowish minnow, endemic to the upper Cape Fear River Basin in the Central Piedmont of North Carolina, occurs nowhere else in the world. The species is known from tributaries and mainstreams of the Deep, Haw and Rocky Rivers in Chatham, Harnett, Lee, Moore and Randolph counties.

Chatham County's swift flowing streams, gigantic white pines, working forests, rolling pastures, and rich farm lands are home to many species of wildlife including bald eagles and the endangered *Harperella* plant whose delicate stems thrive on the rocky shoals and margins of clear, swift-flowing streams. Jordan Lake provides outdoor recreational opportunities and glimpses into the natural beauty of the area. The Triangle Land Conservancy's 275 acre White Pines Preserve at the confluence of the Deep and Rocky rivers, supports several stands of white pines, a tree normally found in the cooler mountain region of North Carolina. Hiking trails there offer beautiful views of the forest and the rivers.

However, Chatham County straddles the fence between two rapidly expanding areas of our state - the Triad and the Triangle. The county's fine features have caught the eye of many new residents to North Carolina, driving up the rate of housing developments and the necessary infrastructure to support them. To provide a voice for the county's natural resources and perhaps a vision for their protection, several organizations, agencies, officials, and concerned citizens began convening in the fall of 2006.

"We have had more than 40 active participants from state and federal agencies, local land trusts, local conservation organization, county officials, commissioners, planners and landowners in meetings concerning the natural resources in Chatham County," said Partners for Fish and Wildlife Coordinator John Ann Shearer. "This newly formed Chatham Conservation Partnership desires a sustainable county focused on the preservation of its natural resources and rural and agricultural heritage," she said. "To accomplish this objective the group seeks to promote education and communication, reaching out to citizens, developers, and planners," she added.



Margaret Pollard on her family's farm in Chatham County

Bryant Farm Riparian Restoration in Chatham County

Siblings Wilbur Bryant and Margaret Pollard deeply love their land along the Rocky River in Chatham County. Their parents raised them and their siblings on the farm, selling a pig or two when bills came due; harvesting cotton to cover the family's needs, and cutting timber to cover tuition for the children. And it happens that this fourth generation family farm of over a century is recognized as a high priority area for the Cape Fear Shiner and other species designated as endangered or of special concern.

It was the family who first approached the Service about measures they could take to keep their cattle out of Rocky River that ran past their farm.

"They really love their land and respect all the creatures that live on it or thrive in the water that runs through it," said John Ann Shearer, Partners for Fish and Wildlife Coordinator, Raleigh Field Office. "In addition to putting nutrients into a stream, cattle with access to streams damage stream banks and streambeds, causing excess sedimentation," said Shearer. "That can change a stream from one with a clean gravel bed to one with a muddy bottom. Gravel beds can be important habitat for fish such as the Cape Fear shiner," she said. "Protecting the riparian buffer from cows is also good because cows often trample or eat the plants there," she added.

The Service's Partners for Fish and Wildlife Program, along with the Chatham Soil and Water District, Mrs. Pollard, and Mr. Bryant made a plan to exclude their cattle from the Rocky River, a small tributary, and a small natural spring.

"Successfully, fences were erected and an alternate watering source was developed for the cows," said Shearer. "We are very pleased with the project. It's good for the environment and for our cows," said Mrs. Pollard.

Piedmont

Yadkin, Yadkin Pee-Dee Hydropower Licensing Update

The Service's Raleigh Field Office continues to engage Alcoa Power Generating Inc. (APGI) and Progress Energy (PE) in the Federal Energy Regulatory Commission (FERC) relicensing and fish passage efforts for the Yadkin Hydroelectric and the Yadkin-Pee Dee Hydroelectric Projects.

The Service is also working with the National Marine Fisheries Service, North Carolina Wildlife Resources Commission, South Carolina Department of Natural Resources, and both licensees in the development of a mutually agreeable fish passage plan for these dams to benefit American shad and the American eel.

"To help with this effort we are coordinating with fishway engineers in the northeast region in the development of engineering studies and other aspects relative to the design of an acceptable fish passage and restoration plan for the Yadkin-Pee Dee River Basin," said Mark Bowers, Biologist, Raleigh Field Office. "They have a lot of experiencing in these

Progress Energy



Progress Energy's Tillery dam and power plant on the Pee Dee River

types of efforts and they are helping us come up with a solution that will work on these dams."

Because of complex environmental issues, the Service has also chosen not to continue in the settlement discussions which are ongoing with other stakeholders who have an interest in the relicensing efforts. Instead the Service will direct comments, terms and conditions, and fish passage prescriptions directly to FERC to mitigate, protect and enhance fish and wildlife trust resources affected by these large hydroelectric projects.

Issues that prevented the Service from continuing in the settlement discussions

include the desire of the licensees for a fifty year license term, and inadequate instream flows proposed between the Tillery and Blewett Falls dams.

"These inadequate stream flows would adversely affect 19 miles of riverine habitat in the Piedmont of North Carolina," said Bowers. And, historically we only enter into a 30 to 40 year licensing agreement on these types of projects," said Bowers.

The Service is currently reviewing and preparing comments on documents that are part of the FERC process. Upcoming actions include the release of a comprehensive Environmental Impact Statement for both projects.

Mountains

Landowner Joins Fight Against Invasive Plants

Ray Hearne is quick to share a local apple and point out the native wildflowers beginning to flourish on her 62 acres in Buncombe County's Sandymush community. She's also quick to share stories of her ongoing struggle with oriental bittersweet, an invasive Asian vine that has overtaken areas of her meadows and woodlands.

"I had no inkling of the invasive species problem on the property," said Hearne, "If I had known I probably wouldn't have bought the place." She goes on to describe patches of her land that look like rolling oceans of bittersweet that are far too dense to walk through and trees smothered and pulled down by masses of the vine.

Part of her efforts to fight invasive plants is funded by grant from the U.S. Fish and Wildlife Service's Partners for Fish and Wildlife program that provides funding and technical assistance to help

private land owners improve wildlife habitat on their land.

In addition to oriental bittersweet, the property is also home to invasive Japanese honeysuckle and multiflora rose. Invasive plants tend to be non-native species that easily overwhelm native plants through their fast growth and prolific reproduction, which, aided by the lack of natural predators, allows them to come to dominate an area. By excluding native plants, they also impact the animals that depend on those native plants and end up completely disrupting native natural communities. Kudzu is a classic example.

Hearne is using the Service's grant money to intensively treat the oriental bittersweet and multiflora rose with both chemical and mechanical methods. She still attacks the plants with her own hands, walking her land and digging and pulling up every invasive plant she can.



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Ray Hearne showing off one of the massive Oriental bittersweet vines cleared from her land.

"I swear, I think I'm ruining my hands. On the other hand, I have the pleasure of being out in the woods and seeing every nook and cranny," Hearne said. "I'm getting to know every acre, literally inch by inch."

Mountains

Denise Moldenhauer / USFWS



NCDOT biologists transplanting endangered white irisettes

Transportation Agency Strives to Protect Endangered Plant

The North Carolina Department of Transportation has taken steps to protect an endangered plant not only from road construction, but also from invasive species. Nearly 850 federally endangered white irisettes are found at the site of a proposed road paving project on Skyuka Road in Polk County, leading NCDOT to consult with the Service on how to protect the plants. The transportation agency secured a conservation easement on an adjoining piece of property where a portion of the 230 white irisettes in the construction path will be moved. NCDOT also pledged \$190,000 to the N.C. Department of Agriculture and Consumer Services to manage a nearby tract already home to the endangered plant.

Part of NCDOT's efforts to protect the plant focused on the design of the project. NCDOT reduced the road width by five to seven feet to avoid plants along the length of the road. Where feasible, they also modified the road alignment to avoid some of the white irisettes, as well as power and phone poles, reducing environmental impacts by the phone and power companies when replacing the poles. They also reduced the planned shoulder width to avoid 30 large trees that provide shade to the irisettes, which need dappled sunlight for best growth.

Especially notable are the NCDOT's efforts to control invasive plants at the site that threaten the irisette:

- Scheduling construction to disturb as little ground as possible at a given time;
- Working downhill to prevent invasive plant seeds from washing onto exposed soil;
- Carrying off site and destroying invasive species material unearthed during the project, such as large kudzu roots;
- Using native and other non-invasive plants as the basis of plantings used at the site to control erosion during and after construction;
- Implementing an invasive species control plan on the site during construction and for three years after the end of construction; and
- Mowing to keep the Japanese stiltgrass in check while allowing the irisette to propagate.

NCDOT also agreed to monitor the 616 plants at the site that won't be directly impacted by the project at three and five years after the project completion to evaluate the effectiveness of their measures.

Endangered Mussel Population Declining

Biologists working in the Little Tennessee River, home to what was once one of the healthiest populations of the endangered Appalachian elktoe mussel, are noting a mysterious and dramatic decline in the population. The North Carolina Wildlife Resources Commission has surveyed mussels in the Little Tennessee River between the town of Franklin and Fontana Reservoir for the past two years as part of a mussel reproduction study. During that time, their biologists noted a general decline in the number of Appalachian elktoe mussels, and a major acute die-off.



USFWS

Appalachian elktoe

There is no obvious reason for the decline, though at this point biologists aren't ruling out anything – disease, parasites, toxins, or stressors that have weakened mussels to the point they succumb to something that typically isn't a problem. This past winter, state biologists noted an acute die-off of mussels, prompting them to send tissue samples to the U.S. Geological Survey and Virginia Polytechnic Institute looking for pathogens and parasites, but results were inconclusive.

Biologists are looking at conducting further pathological and toxicological analyses, and if resources allow, they also hope to conduct a detailed review of existing water quality data and increase water quality monitoring on the Little Tennessee River, looking for any anomalies or trends that may be linked to the decline.

Mountains

UNCA Student Tracking Growth in Six-County Region

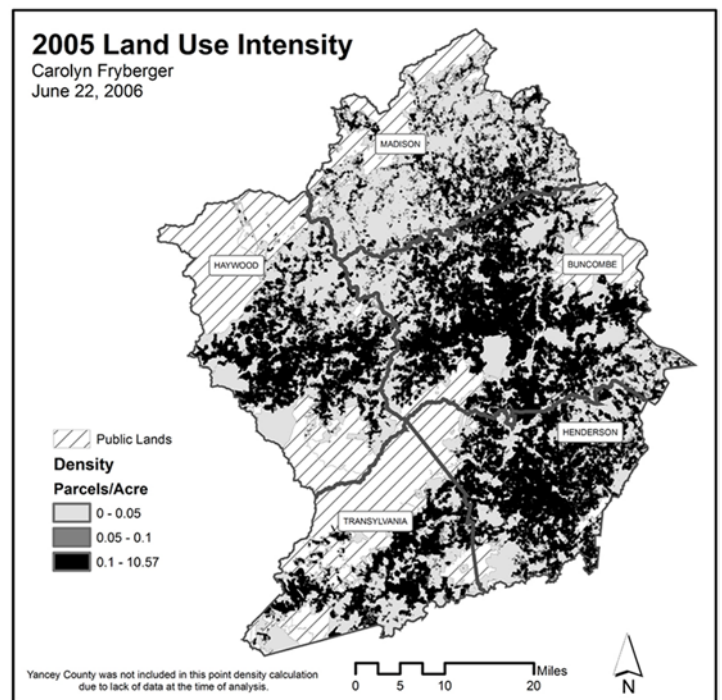
As Western North Carolina wrestles with growth issues, such as slope and floodplain development, University of North Carolina at Asheville student Carolyn Fryberger is laying the groundwork for a study of where mountain communities have grown and where future growth may take place.

Typically, when an area is developed, a large parcel is subdivided into a number of smaller parcels, and this information is recorded in the county property tax records. Fryberger is part of a Warren Wilson College Environmental Leadership Center project that tracks changes in parcel size to examine where development has historically occurred and where it may occur in the future.

“Collecting parcel size information over time and using it as a surrogate for development can help communities look at how and where to accommodate future growth. We’ve seen there can be negative effects if growth isn’t done thoughtfully. This is a tool that can help community leaders approach growth in a thoughtful and deliberate manner,” Fryberger said.

In order to establish a baseline for future comparison, Fryberger, who did the work as a student research project, collected parcel information from property tax offices in North Carolina’s 40 westernmost counties. From there, she took a closer look at how parcel size was changing in Buncombe, Haywood, Henderson, Madison, Transylvania, and Yancey Counties.

Comparing data from 2004 (the year the project started) with 2005, Fryberger discovered that the majority of the development in the six-county region had occurred in the Asheville and Black Mountain areas in Buncombe County and in western Transylvania County, where a single 1,266-acre parcel was divided into 813 parcels. Focusing on Buncombe County, where data was available back to 1998, she determined that, on average, nearly 2,000 acres of rural land were developed each year from 1998 to 2006.



Mark Cantrell, a biologist with the U.S. Fish and Wildlife Service which is funding Fryberger’s work, points out that this information can then be combined with data on water quality, wildlife habitat, or any number of environmental conditions, which will help land managers, regulatory agencies, and local leaders make informed decisions.

Community Takes a Look at Where They Want to Go

Landowners from across Western North Carolina’s Toe River Valley came together in early November to study ways they can use personal land management choices to make their community more sustainable. More than 90 people attended the Toe River Valley Legacy Workshop, which included sessions on protecting stream quality on farms; alternative energy sources for

residential and other small-scale uses; and how local citizens can become involved in water quality monitoring.

The workshop was organized by the Toe River Valley Watch, a recently formed watershed group serving the area, with partners the Service, and Mayland Community College. It was the inaugural event for the Toe River Valley

Watch, a recently formed watershed group that coalesced around recent water quality infractions by a developer. The Toe River Valley, covering Yancey, Mitchell, and part of Avery County, is home to the endangered Appalachian elktoe mussel, and Virginia spiraea, a threatened plant that typically grows along river banks.

What Ecological Services Does

Endangered and Threatened Species Listing/Recovery/Delisting

The Ecological Services Division is responsible for administering significant parts of the Endangered Species Act. We have programs that work to conserve rare species before they need legal protection, and we determine whether to add a species to the *Federal List of Endangered and Threatened Wildlife and Plants*.

Once a plant or animal is listed as threatened or endangered, we work to coordinate efforts to recover that species. These efforts include providing funding to state agencies to protect these species and working with other government agencies, private companies and individuals to help them protect these plants and animals on their land.

Ultimately, the goal of the Endangered Species Act is to recover species to the point where they no longer need federal protection, and Ecological Services determines which plants and animals have recovered to the point they can be delisted.

Project Review

There are a number of federal laws that instruct the U.S. Fish and Wildlife Service, as the nation's wildlife agency, to review various projects that are funded and/or authorized by the federal government. The Service's role is typically to identify impacts to fish, wildlife, and plants and their habitats from these projects and work to minimize or eliminate those impacts. The laws under which the Service reviews projects include: the Endangered Species Act, Fish and Wildlife Coordination Act, Clean Water Act, Federal Power Act, the Migratory Bird Treaty Act, and the National Environmental Policy Act.

Partners for Fish and Wildlife

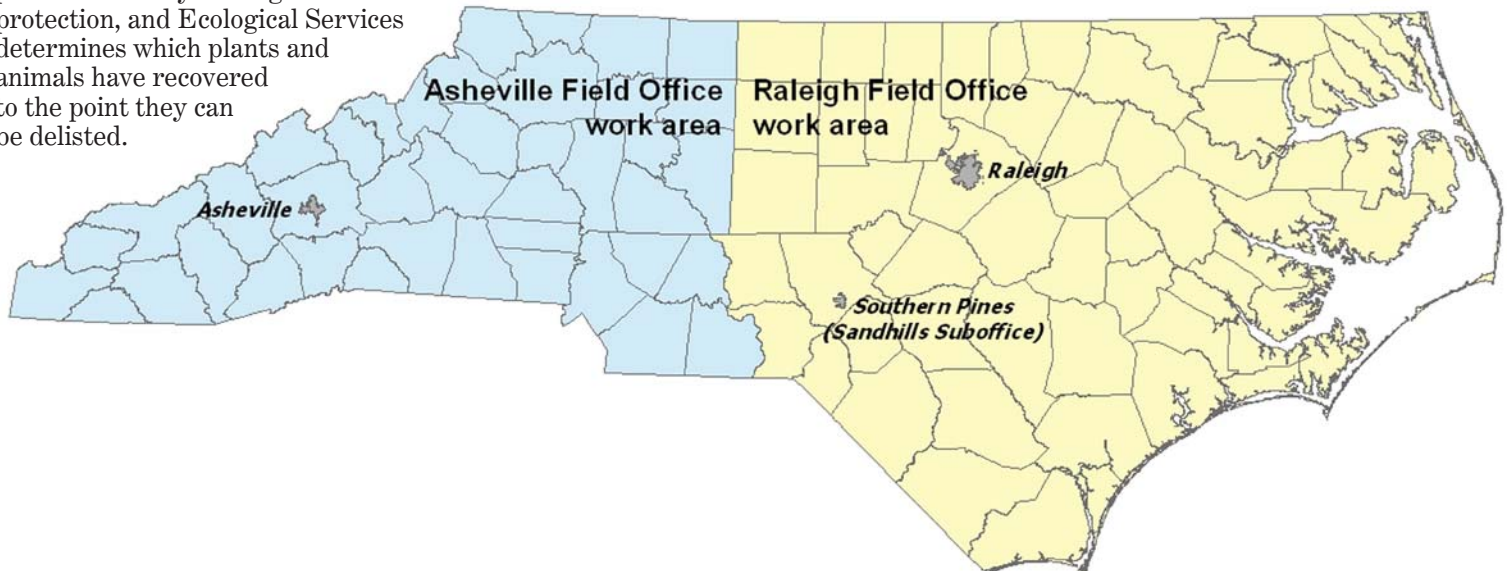
The Partners for Fish and Wildlife Program provides funding and technical assistance to private landowners to help them restore, improve, and protect fish and wildlife habitat while leaving the land in private ownership.

Environmental Contaminants

This program involves working with partners to prevent environmental contamination and to maintain the health of ecosystems; identifying contamination that adversely affects the health of fish, wildlife, and their ecosystems; serving as the federal trustee for fish and wildlife injured by contamination; and negotiating settlements from polluters to restore lost resources and their benefits to local citizens.

Coastal Program

This program focuses on restoring ecosystem health to bays, estuaries, and watersheds along the coastlines of the United States. Working with partners, the Coastal Program provides funding and technical assistance for projects to restore wetlands and seagrass beds, control invasive species, acquire rare or exceptionally important habitats, remove dams to allow fish passage to spawning areas, and provide community outreach regarding coastal fish and wildlife resources.



Asheville Field Office Staff Listing

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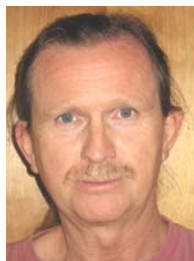
Brian Cole
Field Supervisor
Ext. 223



Marella Buncick
Fish and Wildlife Biologist
Review of North Carolina Department of Transportation projects under the Endangered Species Act, Clean Water Act, Fish and Wildlife Coordination Act, and Migratory Bird Treaty Act; mitigation bank review; Ext. 237



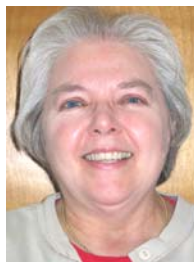
Bob Butler
Fish and Wildlife Biologist
Aquatic macroinvertebrate and fish specialist; aquatic endangered species listing and recovery; imperiled aquatic species conservation; Ext. 235



Mark Cantrell
Fish and Wildlife Biologist
Hydroelectric project review; Endangered Species Act habitat conservation planning; federal project review under the Endangered Species Act, Clean Water Act, Fish and Wildlife Coordination Act, and Migratory Bird Treaty Act; stream restoration; Ext. 227



Nancy Cole
Office Automation Assistant
Word Processing, editing and proofreading; time and attendance processing; property management; records management; Ext. 232



Robert Currie
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Terrestrial endangered species listing and recovery in Tennessee and Kentucky; bat and other cave fauna specialist; cave and abandoned mine protection specialist; Ext. 224



John Fridell
Fish and Wildlife Biologist
Invertebrate and aquatic vertebrate endangered species listing and recovery; federal project review under the Endangered Species Act, Clean Water Act, Fish and Wildlife Coordination Act, and Migratory Bird Treaty Act; Ext. 225



Anita Goetz
Fish and Wildlife Biologist
Habitat restoration and conservation on private lands; administrator of the Partners for Fish and Wildlife program; Ext. 228



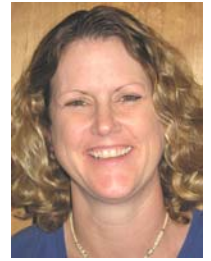
Denise Moldenhauer
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Review of North Carolina Department of Transportation projects under the Endangered Species Act, Clean Water Act, Fish and Wildlife Coordination Act, and Migratory Bird Treaty Act; Ext. 226



Gary Peoples
Fish and Wildlife Biologist
Education and outreach specialist; primary media and Congressional contact; Ext. 234



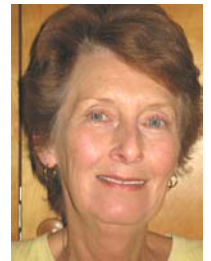
Laura Pickens
Information Technology Specialist
Computer and GIS support, network administration; Ext. 238



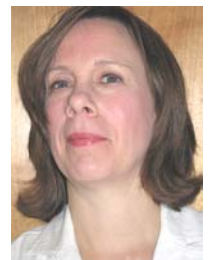
Allen Ratzlaff
Fish and Wildlife Biologist
Endangered Species listing and recovery; federal project review under the Endangered Species Act, Clean Water Act, Fish and Wildlife Coordination Act, and Migratory Bird Treaty Act; Ext. 229



Nell Richard
Office Automation Clerk
Receptionist; mail room administration; vehicle maintenance; Ext. 221



Laura Rogers
Administrative Officer
Budget administration; contracting and personnel officer; Ext. 222



Bryan Tompkins
General Biologist
Federal project review under the Endangered Species Act, Clean Water Act, Fish and Wildlife Coordination Act, and Migratory Bird Treaty Act; mitigation bank review; Ext. 240



Carolyn Wells
General Biologist
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COE 404 regulatory permits
Ext. 19

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Wildlife Biologist
Red-cockaded woodpecker recovery
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910/695 3323

John Ellis

Fish and Wildlife Biologist
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Federal Energy Regulatory Commission
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Laura Fogo

Fish and Wildlife Biologist
Partners for Fish and Wildlife and Farm
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River Basins.
910/695 3323

John Hammond

Fish and Wildlife Biologist
Endangered species coordinator; military
projects; Endangered Species Act-Section 7
Ext. 28

Howard Hall

Fish and Wildlife Biologist
U.S. Army Corps of Engineers civil work
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and restoration); Corps of Engineers 404
Permits (Wilmington Field Office);
commercial mitigation banks; and Coastal
Barrier Resources Act (CBRA) determinations
Ext. 27



USFWS

Front row from left to right: John Ann Shearer, John Hammond, Susan Miller, Dale Suiter, Doug Newcomb; second row from left to right: Mike Wicker, Patty Matteson, Joe Pittman, Leigh Mann, Sara Ward; back row from left to right: Tom Augspurger, David Rabon, Pete Campbell, Pete Benjamin, Howard Hall
Not pictured: Gary Jordan, Mark Bowers, John Ellis, Laura Fogo

Gary Jordan

Fish and Wildlife Biologist
Endangered Species Act - Section 7,
Clean Water Act - Section 404
consultation for North Carolina
Department of Transportation projects;
permit and mitigation bank review
Ext. 32

Patty Matteson

Public Affairs Specialist
Public affairs and outreach specialist;
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Leigh Mann

Office Automation Clerk
Receptionist, secretary
Ext. 10

Susan Miller

General Biologist
Safe harbor biologist, Southern Pines Suboffice
910/695 3323

Doug Newcomb

GIS Specialist/Information Technology Specialist/Webmaster, GIS analysis and data manager; system administration and support for Windows95/98/NT/2000, Linux, and Solaris desktops, file servers and web servers; network administration
Ext. 14

Joe Pittman

Administrative Officer
Budget and administration
Ext. 13

David Rabon

Fish and Wildlife Biologist
Terrestrial and aquatic vertebrate
Species, Endangered Species Act -
Section 7 consultation and recovery in
Eastern North Carolina
Ext. 16

John Ann Shearer

Fish and Wildlife Biologist
Partners for Fish and Wildlife state
coordinator, Farm Bill/private lands
coordinator
Ext. 17

Dale Suiter

Fish and Wildlife Biologist
Recovery of threatened and endangered
plants and invertebrates, Section 7
consultation, national forest consultations
and invasive species control
Ext. 18

Sara Ward

Ecologist
Wildlife toxicology; environmental
contaminants / pollution; water quality
Ext. 30

Mike Wicker

Fish and Wildlife Biologist
Coastal coordinator; dam removal and
breaching/rapids creation; wetlands
restoration on deep peat soils; riparian
protection
Ext. 22